

THE VILLAGES AT ALMOND GROVE SPECIFIC PLAN

**PUBLIC REVIEW DRAFT
ENVIRONMENTAL IMPACT REPORT**



December 2021

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PLANNING DEPARTMENT

Gary Conte, Planning Manager

NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE VILLAGES AT ALMOND GROVE SPECIFIC PLAN

Date: December 23, 2021

To: Office of Planning and Research, Responsible and Trustee Agencies, Other Public Agencies and Other Interested Parties

Subject: Notice of Availability of a Draft Environmental Impact Report for The Villages at Almond Grove Specific Plan

Lead Agency: City of Madera

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Comment Period: December 23, 2021 to February 7, 2022

Notice is hereby given that the City of Madera (City), as the Lead Agency, has completed the Draft Environmental Impact Report (EIR) for The Villages at Almond Grove Specific Plan, which is being distributed for public review pursuant to the California Environmental Quality Act (CEQA) and the California Public Resources Code.

The City has sent a copy of this Draft EIR to the State Clearinghouse and to those who requested a copy by responding to the Notice of Preparation (NOP). The City has also posted a copy of this Notice of Availability at Madera City Hall, with the Madera County Clerk Recorder's Office, and posted in the Madera Tribune.

The Draft EIR is available for review at the following location:

City of Madera
Planning Department
205 West 4th Street
Madera, CA 93637

The Draft EIR document is also available on the City's website at:

<https://www.madera.gov/home/departments/planning/#tr-current-projects-environmental-review-2436011>

PUBLIC COMMENT PERIOD

The City of Madera will receive public comments on the Draft EIR from December 23, 2021 through February 7, 2022. Written comments should be received no later than 5pm (PST) on February 7, 2022. Please send your written comments to Mr. Conte and include your name, address, and phone number and/or email address so that we may contact you for clarification, if necessary.

Project Location

The project area (Specific Plan Area) is approximately 1,900 acres in size and is located on the western edge of the City of Madera. In October 2018, the Madera County Local Agency Formation Commission (LAFCO) approved the expansion of the City's Sphere of Influence to include the Specific Plan Area. The proposed project is bounded by the Fresno River to the south, Road 24 to the east, Avenue 17 to the north, and Road 22 to the west.

Project Description

The overall proposed project to be addressed in the EIR is referred to as the Villages at Almond Grove Specific Plan, or simply the Specific Plan. The Specific Plan envisions the development of a new compact mixed-use community that creates walkable and bikeable streets, and integrates open space throughout the area west of the City limits. The Specific Plan proposes to implement a village concept that would create opportunities for commercial development to be integrated with park and open space amenities, and to accomplish the following objectives:

- Address the City's current and projected housing needs
- Create mixed-use development to attract businesses and employment opportunities
- Achieve the goals related to community character and pedestrian-friendly design of the General Plan's Community Design Element and Land Use Element
- Facilitate annexation of areas in the Specific Plan Area that are outside of the City limits of Madera
- Create a transportation network to meet the objectives of the General Plan's Circulation Element
- Promote opportunities for water efficiency and incorporate sustainable building and operating practices
- Incorporate green and sustainable practices, as practicable, in developing buildings and infrastructure
- Undertake development of the Specific Plan Area that is economically feasible and balanced to address the City's economic interests

Development considered in the EIR consists of 10,783 residential units, approximately 2.1 million square feet of commercial and office space, approximately 164 acres of parks and recreational area, and approximately 54 acres of public facilities, including schools. In addition, the proposed Specific Plan would include infrastructure improvements including roadways and utilities. The proposed project would require a General Plan Amendment, rezoning, and annexation of the Specific Plan Area into the City. Additionally, future development proposals within the Specific Plan Area would be required to be consistent with the Airport Land Use Compatibility Plan for

Madera Municipal Airport, and some parcels would require removal of active Williamson Act contracts prior to development.

ANTICIPATED SIGNIFICANT ENVIRONMENTAL EFFECTS

The Draft EIR identifies potential significant effects in the following areas:

Aesthetics	Hazards and Hazardous Materials
Agriculture and Forestry Resources	Hydrology and Water Quality
Air Quality	Land Use and Planning
Biological Resources	Noise
Cultural Resources and Tribal Cultural Resources	Public Services and Recreation
Energy	Transportation
Geology and Soils	Utilities and Service Systems
Greenhouse Gas Emissions	

Mitigation measures identified in the Draft EIR would reduce potentially-significant effects to less-than-significant levels in all areas except Aesthetics, Agriculture and Forestry Resources, Air Quality, Noise, Public Services and Recreation, Transportation, and Utilities and Service Systems.

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**THE VILLAGES AT ALMOND GROVE
SPECIFIC PLAN**

**PUBLIC REVIEW DRAFT
ENVIRONMENTAL IMPACT REPORT**

Submitted to:

City of Madera
Community Development Department
205 West 4th Street
Madera, California 93637

Prepared by:

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Project No. CMD1801

December 2021

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- A: NOTICE OF PREPARATION AND PUBLIC SCOPING COMMENTS
- B: SPECIFIC PLAN
- C: INFRASTRUCTURE MASTER PLAN
- D: AGRICULTURAL CONVERSION STUDY
- E: AIR QUALITY – CALEEMOD OUTPUT FILES
- F: BIOLOGICAL RESOURCES EVALUATION
- G: CULTURAL RESOURCES STUDY
- H: NATIVE AMERICAN CONSULTATION
- I: WATER SUPPLY ASSESSMENT
- J: NOISE
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LIST OF ABBREVIATIONS AND ACRONYMS

°C	degrees Celsius
°F	degrees Fahrenheit
§	Section
µg/L	micrograms per liter
µg/m ³	micrograms per cubic meter
µin/sec	micro-inches per second
1,2,3-TCP	1,2,3-Trichloropropane
A	Agriculture
AAQS	ambient air quality standards
AB	Assembly Bill
ACMs	asbestos-containing materials
ACOE	Army Corps of Engineers
ADD	average day demand
ADF	average daily flow
AE	Agriculture Exclusive
AES	aesthetics impact statement or mitigation measure
AFY	acre foot per year
AG	agriculture and forestry impact statement or mitigation measure
APS	Alternative Planning Strategy
ARE-20	Agricultural Rural Exclusive – 20 Acres
ARE-40	Agricultural Rural Exclusive – 40 Acres
AIA	Airport Influence Area
AIR	air quality impact statement or mitigation measure
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
Amsl	above mean sea level
AQMP	Air Quality Management Plan
ARE-20	Agricultural Rural Exclusive – 20 Acres
ARE-40	Agricultural Rural Exclusive – 40 Acres
BAAQMD	Bay Area Air Quality Management District

BFEs	Base Flood Elevations
bgs	below ground surface
BIO	biological resources impact statement or mitigation measure
BMPs	Best Management Practices
BRE	Biological Resource Evaluation
BSA	biological study area
BTEX	Benzene, Ethylbenzene, Xylenes
BTU	British Thermal Units
C ₂ F ₆	hexafluoride
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CAL Fire	California Department of Forestry and Fire Protection
Cal-OSHA	California Occupational Safety and Health Administration
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
Census	U.S. Census Bureau
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFC	California Fire Code
CFD	Community Facilities District

CFGFC	California Fish and Game Code
CH ₄	methane
CHP	California Highway Patrol
City	City of Madera
CMGP	City of Madera General Plan
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
COOP	Continuity of Operations Plan
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CTC	California Transportation Commission
CUL	cultural resources and tribal cultural resources impact statement or mitigation measure
CUPA	Certified Unified Program Agency
CWPP	Community Wildlife Protection Plan
CVC	California Vehicle Code
CVP	Central Valley Project
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DBCP	1,2-Dibromo-3-chloropropane
DIF	Development Impact Fee
DOC	California Department of Conservation
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
du/ac	dwelling units per acre
EDB	1,2-Dibromoethane
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EN	energy impact statement or mitigation measure

EO	Executive Order
EOC	Madera County Emergency Operations Center
EOP	Emergency Operations Plan
EV	electric vehicle
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FRAP	Fire and Resources Assessment Program
FTA	Federal Transit Administration
GAC	granular activated carbon
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GEO	geology and soils impact statement or mitigation measure
GHG	greenhouse gas
GHG	greenhouse gas emissions impact statement or mitigation measure
GHGRx	Greenhouse Gas Reduction Exchange
gpm	gallons per minute
GSAs	Groundwater Sustainability Agencies
GSP	Groundwater Sustainability Plan
GWh	gigawatt hours
GWP	Global Warming Potential
HVAC	heating, ventilation and air conditioning
HAZ	hazards and hazardous materials impact statement or mitigation measure
HCD	California Department of Housing and Community Development
HCP	Habitat Conservation Plan
HD	High Density Residential
HEPA	High Efficiency Particulate Arrestance
HFCs	hydrofluorocarbons

HMBP	Hazardous Materials Business Plan
HMTA	Hazardous Materials Transportation Act
HSC	California Health and Safety Code
HVAC	heating, ventilation, and air conditioning
HYD	hydrology and water quality impact statement or mitigation measure
Hz	Hertz
I	Industrial
IMP	Infrastructure Master Plan
In/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
ISR	Indirect Source Review
LAFCO	Madera County Local Agency Formation Commission
LBP	lead-based paints
LD	Low Density Residential
L_{dn}	day-night average noise level
L_{eq}	equivalent continuous sound level
LDR	Low Density Residential
LE	land evaluation
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent continuous sound level
LESA	Land Evaluation and Site Assessment
LGC	Local Government Commission
LHMP	Local Hazard Mitigation Plan
L_{max}	maximum noise level
L_{min}	minimum noise level
LOS	Level of Service
LRA	Local Responsibility Area
LTS	less-than-significant impact
LU	land use and planning impact statement or mitigation measure
L_v	velocity in decibels
MBTA	Migratory Bird Treaty Act

MCEHD	Madera County Environmental Health Division
MCGP	Madera County General Plan
MCL	Maximum Contaminant Level
MCMs	Minimum Control Measures
MCTC	Madera County Transportation Commission
MD	Medium Density Residential (Madera County General Plan Land Use Designation)
MDD	maximum day demand
MDR	Medium Density Residential (City of Madera General Plan Land Use Designation)
Mg/L	milligrams per liter
mg/m ³	milligrams per cubic meter
MGD	million gallons per day
MID	Madera Irrigation District
MIN	mineral resources impact statement or mitigation measure
MMI	Modified Mercalli Intensity
MLD	Most Likely Descendent
MMT	million metric ton
MPD	City of Madera Police Department
Mpg	miles per gallon
MPO	Metropolitan Planning Organization
MRZs	Mineral Resources Zones
MS4	Municipal Separate Storm Sewer System
MUSD	Madera Unified School District
MW	megawatts
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
ND	no data
NDIRD	Non-Dispersive Infrared Photometry
NESHAPs	National Emission Standards for Hazardous Air Pollutants

NMU	Neighborhood Mixed Use
NO ₂	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NOI	noise impact statement or mitigation measure
NOP	Notice of Preparation
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NHTSA	National Highway Traffic Safety Administration
O ₃	ozone
OES	Office of Emergency Services
OHWM	ordinary high water mark
OHP	Office of Historic Preservation
OPR	California Office of Planning and Research
OS	Open Space
OSHA	Occupational Health and Safety Administration
P&SP	Other Public and Semi-Public Uses
Pb	lead
PCBs	polychlorinated biphenyls
PCE	Tetrachloroethylene
CF ₄	tetrafluoromethane
PFCs	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM	particulate matter (related to air quality)
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
PMEFs	Primary Mission Essential Functions
PODs	points of distribution
POP	population and housing impact statement or mitigation measure
ppb	parts per billion
ppm	parts per million

PSR	public services and recreation impact statement or mitigation measure
PRC	Public Resource Code
PRDs	Permit Registration Documents
project	The Villages at Almond Grove Specific Plan
RC	Resource Conservation/Agriculture
RCM	Regulatory Compliance Measure
RCRA	Resource Conservation and Recovery Act of 1976
RHNA	Regional Housing Need Allocation
rms	root mean square
ROG	reactive organic gases
ROW	right-of-way
RTAC	Regional Targets Advisory Committee
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
S	significant impact
SA	site assessment
SAFE	Safer Affordable Fuel-Efficient
SCS	Sustainable Community Strategy
SDMP	Storm Drainage Master Plan
SEMS	Standard Emergency Management System
SFHAs	Special Flood Hazard Areas
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SF ₆	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
Sharrows	Pavement markings
Sheriff's OES	Madera County Sheriff's Office of Emergency Services
SHMA	Seismic Hazards Mapping Act
SMARA	Surface Mining and Reclamation Act
SO ₂	sulfur dioxide

SOI	Sphere of Influence
SO _x	sulfur oxides
SPDES	State Pollutant Discharge Elimination System
SR-99	State Route 99
SR-145	State Route 145
SRA	State responsibility areas
SSJVIC	Southern San Joaquin Valley Information Center
SSSMP	Sanitary Sewer System Master Plan
SU	significant and unavoidable impact
SWIS	Solid Waste Information System
SWPPP	Stormwater Pollution Prevention Plan
SWRP	Storm Water Resource Plan
SWRCB	State Water Resources Board
TA	Technical Advisory
TACs	toxic air contaminants
TDF	Travel Demand Forecasting
TDMs	Transportation Demand Measures
TDS	Total dissolved Solids
TIA	Transportation Impact Analysis
TK-8	Traditional Kindergarten through 8 th grade
TMDL	Total Maximum Daily Load
TOG	total organic gases
TPZ	timberland protection zone
TRA	transportation impact statement or mitigation measure
TRC	tribal cultural resources
TSCA	Toxic Substance Control Act
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USBR	United States Bureau of Reclamation
U.S.C.	United States Code
USDA	United States Department of Agriculture

USDOT	United State Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UTL	utilities and service systems impact statement or mitigation measure
UWMP	Urban Water Management Plan
VdB	vibration velocity decibel
VHFHSZ	Very High Fire Hazard Severity Zone
VLD	Very Low Density Residential
VMT	vehicle miles traveled
VMU	Village Mixed Use
VR	Village Reserve
WDRs	Waste Discharge Requirements
WF	wildfire impact statement or mitigation measure
Williamson Act	California Land Conservation Act
WSA	Water Supply Assessment
WSMP	Water System Master Plan
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant
Ybp	years before present
ZNE	zero net energy
ZEVS	zero emission vehicles

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1.0 EXECUTIVE SUMMARY

1.1 PURPOSE

This Draft Environmental Impact Report (Draft EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of The Villages at Almond Groves Specific Plan. This EIR has been prepared in conformance with CEQA, California Public Resources Code Section 21000 et seq; the California CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq); and the rules, regulations, and procedures for implementing CEQA as adopted by the City of Madera (herein referred to as the City).

This EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the potential environmental impacts associated with the construction and long-term buildout of the proposed Specific Plan. In addition to identifying potential environmental impacts, this EIR also identifies development standards and design guidelines that are part of the proposed Specific Plan that would reduce potential significant environmental impacts, and identifies potential mitigation measures and alternatives to reduce potential environmental impacts.

Environmental impacts cannot always be mitigated to a level that is considered less than significant. In accordance with Section 15093(b) of the State CEQA Guidelines, if a lead agency, such as the City of Madera, approves a project (e.g., adoption of a specific plan) that has significant impacts that are not substantially mitigated (i.e., significant unavoidable impacts), the lead agency shall state in writing the specific reasons for approving the project, based on the final CEQA documents and any other information in the public record for the project. This is identified in Section 15093 of the State of CEQA Guidelines, “a statement of overriding considerations.” These potential impacts are discussed in more detail throughout Chapter 4.0 of this EIR.

1.2 PROJECT SUMMARY

The following provides a summary of the project location, project description, project objectives, potential significant and unavoidable impacts that could result from the proposed Specific Plan, and a list of the agencies responsible for implementation of the proposed Specific Plan and approvals required for subsequent projects.

1.2.1 Project Location

The City of Madera is located in Madera County, west of the Sierra Nevada. The City is located along California State Route (SR) 99, 13 miles southeast of Chowchilla and 15 miles northwest of Fresno. Figure 3-1 shows the regional location of the City.

The project area (Specific Plan Area) is 1,883 acres in size and is located on the western edge of the City of Madera. In October 2018, the Madera County Local Agency Formation Commission (LAFCO) approved the expansion of the City’s Sphere of Influence to include the Specific Plan Area.¹ The

¹ Madera Local Agency Formation Commission, Resolution No. 2018-009.

proposed project is bounded by the Fresno River to the south, Road 24 to the east, Avenue 17 to the north, and Road 22 to the west.

The Specific Plan Area is surrounded by primarily agriculture uses on the north and western boundaries, and the Fresno River and agriculture uses to the south. The Madera Municipal Golf Course, Madera Municipal Airport, and residential uses are directly north and east of the project site, as shown in Figure 3-1.

1.2.2 Project Description

The project consists of several components:

- **General Plan Amendment.** The project includes several amendments to the General Plan. The City's General Plan would be amended to create a Specific Plan land use category that would be applied to the Specific Plan Area. In addition, the General Plan would be amended to remove the requirement that residential development shall conform to the "Target Density" requirement for each land use category. The General Plan Amendment would also remove the requirement for a permanent agricultural buffer on the western edge of the Specific Plan Area.
- **Specific Plan.** The purpose of the Specific Plan is to provide guidance for an orderly and cohesive planned community consistent with the City of Madera General Plan and zoning ordinance. The Specific Plan Area is 1,883-acres, consisting of approximately 10,800 residential units, approximately 2.1 million square feet of commercial and office space, approximately 164 acres of parks and recreational area, approximately 55 acres of schools and other public facilities. The proposed Specific Plan provides a development framework for land use, mobility including roadways, utilities and services, resource projection, and implementation to promote the systematic and orderly development of the plan area.
- **Pre-Zoning/Zoning Amendments.** The plan area is currently zoned by Madera County Agricultural Rural Exclusive - 40 Acres (ARE-40) and Agricultural Rural Exclusive - 20 Acres (ARE-20). The entire plan area would be pre-zoned by the City of Madera consistent with City zoning as identified in the Specific Plan.
- **Annexation.** The proposed project includes annexation of 1,883 acres to the City of Madera. Annexation can only occur if and once Madera LAFCo has approved a Sphere of Influence Amendment (SOIA); however, this may happen shortly after a SOIA is approved. Madera LAFCo is the responsible agency for the annexation request. It is anticipated that the Madera LAFCo will use this EIR in its decision-making process as required under CEQA.
- **Zoning Ordinance/Madera Municipal Code Amendments.** The City's Municipal Code would be amended to include a specific plan zone district (SP Zone) to provide a framework for standards and permitted uses in the zone.
- **Vesting Tentative Tract Map No. 2020-02.** Vesting Tentative Tract Map No. 2020-02 pertains to the Southeast Neighborhood of the Specific Plan, consisting of approximately 645 gross acres of property located east of Road 23, between Avenue 16 and the Fresno River. It proposes the

creation of a 2,390-lot residential subdivision with lots ranging in size from 40 feet by 80 feet, to 55 feet by 110 feet. In addition to these residential lots, the tentative tract map proposes to create 29 outlots, 10 of which will be used for parks or open space, 2 for storm drain basins, 12 for future mixed-use developments, 4 for high-density residential uses, and 1 for a future school site. The site will be primarily a mix of Low-Density, Medium-Density, and High-Density residential uses. This tract map will conform to the Permitted Uses pursuant to the Specific Plan; however, conditional uses will require separate land use entitlements pursuant to the Specific Plan and may require future environmental analysis. Because the proposed subdivision is larger than a typical tract map, the map for Tentative Tract Map 2020-02 is currently proposed to be divided into 27 blocks.

- **Vesting Tentative Tract Map No. 2020-03.** Vesting Tentative Tract Map No. 2020-03 pertains to the Northwest Neighborhood of the Specific Plan, consisting of approximately 661 gross acres of property located west of Road 23, between Avenue 16 and Avenue 17. The Map proposes the creation of a 2,815-lot residential subdivision with lots ranging in size from 40 feet by 80 feet to 55 feet by 110 feet. In addition to these residential lots, the tentative tract map proposes to create 17 outlots, 6 of which will be used for parks or open space, 6 for future business park developments, 3 for storm drain basins, 1 for future mixed-use developments, and 1 for a future school site. This tentative tract map will conform to the Permitted Uses pursuant to the proposed Specific Plan; however, conditional uses will require separate land use entitlements pursuant to the proposed Specific Plan and may require future environmental analysis. Because the proposed subdivision is larger than a typical tract map, the map for Tentative Tract Map 2020-03 is currently proposed to be divided into 36 blocks.

Additionally, future development proposals within the Specific Plan Area would be required to be consistent with the Airport Land Use Compatibility Plan for Madera Municipal Airport, and some parcels would require removal of active Williamson Act contracts prior to development, etc. See Chapter 3.0, Project Description of this EIR for a more complete description of the proposed project, and Appendix B, which contains the proposed Specific Plan.

1.2.3 Project Objectives

The Specific Plan is designed to implement a series of project-specific objectives to ensure that the Specific Plan is implemented with quality residential, commercial, and light industrial development. The following is a list of project objectives:

- Address the City of Madera's current and projected housing needs for all segments of the community by providing a range of single- and multi-family homes.
- Promote high quality retail and mixed-use development to attract an array of businesses and employment opportunities.
- Establish a mix of land uses and local-serving activities that meet the General Plan's objectives concerning community character and pedestrian-friendly design.

- Implement the City’s General Plan Land Use Element goal to facilitate annexation of large areas of land that are governed by a specific plan, which provides for compatibility of land uses, fiscal balance, recreation, and resource protection.
- Establish a transportation network that will fulfill the policies of the Madera General Plan’s Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimize vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.
- Promote opportunities for water efficiency in Plan Area architecture and landscaping to promote water conservation.
- Incorporate green and sustainable practices, as practicable, in developing buildings and infrastructure.
- Undertake development of the Plan Area in a manner that is economically feasible and balanced to address the City’s economic interests.

1.2.4 Significant Unavoidable Adverse Impacts

The proposed Specific Plan would result in the following significant unavoidable impacts:

- Aesthetics – scenic vista, visual character, and light and glare
- Agricultural Resources – loss of farmland and removal of Williamson Act Contract land.
- Air Quality – criteria pollutant emissions and exposure of sensitive receptors to substantial pollutant concentrations
- Noise – exceed noise standards
- Public Services and Recreation - construction of public facilities would have an adverse physical effect on the environment
- Transportation – potentially exceed thresholds of levels of service on roadways in conflict with General Plan
- Utility and Service Systems – construction of water, wastewater, and electric, natural gas, and telecommunications facilities that could cause substantial environmental impacts.

1.2.5 Lead Agency, Responsible and Trustee Agencies

The lead agency for the proposed project is the City of Madera. The City is the public agency that has the principal responsibility for certifying the EIR, approving or carrying out the project, or disapproving the project.

The responsible agencies are State and local public agencies other than the lead agency that have authority to carry out or approve a project or that are required to approve a portion of a project for which the lead agency is preparing or has prepared an EIR or Negative Declaration. There are no

agencies other than the City of Madera that have approval or permitting authority for the adoption of the proposed project, except that Madera LAFCo approval would be required for annexation to allow for implementation of the Specific Plan including development of the proposed maps. It is anticipated that the Madera LAFCo would use this EIR in its decision-making process as required under CEQA.

In addition, implementation of the proposed Specific Plan would involve many responsible agencies depending upon the specifics of the subsequent projects. Following are some of the agencies that could be required to act as responsible agencies for subsequent projects:

- California Air Resources Board (CARB)
- California Department of Conservation
- California Department of Fish and Wildlife
- California Department of Forestry and Fire Protection
- California Department of Housing and Community Development
- California Department of Parks and Recreation
- California Department of Transportation (Caltrans)
- California Department of Transportation (Caltrans), Division of Aeronautics
- California Department of Toxic Substances Control
- California Public Utilities Commission
- California State Office of Historic Preservation
- California State Lands Commission
- California State Water Resources Control Board
- Central Valley Regional Water Quality Control Board
- County of Madera
- Madera County Transportation Commission
- Madera Local Area Formation Commission
- Madera Irrigation District (if applicable)
- Madera County Mosquito and Vector Control District
- San Joaquin Valley Unified Air Pollution Control Agency
- Madera Unified School District
- U.S. Fish and Wildlife Service
- United States Army Corps of Engineers

1.3 SUMMARY OF PROJECT ALTERNATIVES

Below is a summary of the alternatives that were considered and evaluated in Chapter 6.0, Alternatives to the Proposed Project. The analysis of alternatives determined that Alternative 3, Reduced Project Alternative, would be the environmentally superior alternative when compared to the proposed project. Overall, the Reduced Project Alternative would lessen significant environmental impacts or result in impacts similar to those associated with the proposed project, while achieving some, but not all, of the Project Objectives.

1.3.1 No Project Alternative

Under this alternative, no development identified in the proposed Specific Plan would occur, and the Specific Plan Area would continue to be used for agricultural production within an unincorporated area of Madera County. Although the City includes the proposed Specific Plan Area within the Urban Growth Boundary, the proposed Specific Plan Area is located outside of the City limits. Under this Alternative no construction activities or long-term operations associated with the proposed Specific Plan would occur.

1.3.2 Low Density Residential Alternative

Under this alternative, the proposed Specific Plan would be implemented with residential zoning and densities that would be consistent with the City's residential zoning for low density. The City's residential zoning densities for low density range from 3 units to 7 units per acre. For the purpose of this analysis, an average of five units per acre was used to provide a reasonable estimate of development that could occur within the Specific Plan Area. In addition, the acreages identified in the proposed Specific Plan as Village Mixed Use (120 acres) and Village Business Park (30 acres), would be reallocated to low density residential, for a total of approximately 1,521 acres of low density residential acres with a total buildout of approximately 7,600 residential units. Acreages for Parks and Recreation, Natural Areas along the Fresno River, Elementary School Sites, and Major Roadways would be the same as the proposed Specific Plan.

1.3.3 Reduced Project Alternative

Under this alternative approximately 7,600 residential units would be constructed but the mixed-use development occurring within the Specific Plan Area would be removed to reduce potential significant and adverse environmental impacts related to air quality resulting from construction, greenhouse gas emissions, vehicle-generated noise, and conflicts with roadway policies. In addition, 500 acres of agricultural land would be preserved within the Specific Plan Area site to reduce significant and unavoidable impacts related to agricultural conversion that would result from implementation of the proposed Specific Plan. This alternative would likely preserve agricultural land uses in the Southwest Neighborhood area where Williamson Act Contracts are still in place and in the Northwest Neighborhood to ensure that compatibility with the Madera County ALUCP. This alternative was selected to allow for a mix of residential densities within the Specific Plan Area, and to preserve agricultural land uses that would be developed under the proposed Specific Plan.

For the purpose of the analysis in the EIR, acreages identified for the Village Mixed Use district (120 acres), Village Business Park (30 acres), Village Parks and Recreation (64 acres), Village Country Estates (36 acres), Village Low Density (145 acres), and Village High Density (105 acres) would be reallocated to agriculture land uses. This would result in a total of 500 acres of agriculture land uses and a total buildout of 7,601 residential units in the Specific Plan Area. Land uses identified as Village Medium Density, Village Open Space, Village Public Facilities, and Major Roadways would be the same as the proposed Specific Plan.

1.4 AREAS OF CONTROVERSY

Pursuant to CEQA Guidelines Section 15123(b), a summary section includes a discussion of areas of controversy known to the lead agency, including issues raised by agencies and the public. In response to the notice of preparation, the City received seven comment letters regarding the following areas of controversy.

- Agriculture – loss of active agriculture within the Specific Plan Area
- Hydrology – flood protection relative to the Fresno River
- Land Use and Planning – closure of Runway 8-26 of the Madera Municipal Airport
- Transportation – increases in traffic outside of the Specific Plan Area and vehicle miles traveled (VMT)
- Utilities and Service Systems – availability of water supplies and groundwater sustainability

1.5 PUBLIC REVIEW OF THE DRAFT EIR

Upon completion of this Draft EIR, the City of Madera prepared and filed a Notice of Completion (NOC) with the California Office of Planning and Research/State Clearinghouse to begin the public review period (Public Resources Code, Section 21161). Concurrent with the NOC, the City of Madera distributed a Notice of Availability (NOA) in accordance with Section 15087 of the CEQA Guidelines. The NOA was mailed to the organizations and individuals who previously requested such a notice to comply with Public Resources Code Section 21092(b)(3). This Draft EIR was distributed to the California Office of Planning and Research/State Clearinghouse in accordance with Section 15206 of the CEQA Guidelines. This Draft EIR was also published in the Madera Tribune newspaper to comply with Section 15087(a) of the State CEQA Guidelines and was distributed to affected agencies, surrounding cities and municipalities, and all interested parties. During the public review period, this Draft EIR, including the appendices, is available for review at the following location:

City of Madera Planning Department
205 West 4th Street
Madera, CA 93637
Monday through Friday: 8:00 a.m. to 5:00 p.m.
Saturday and Sunday: Closed

In addition, the Draft EIR, including the appendices, is available for review at the following City of Madera website: <https://www.madera.gov/home/departments/planning/>

Agencies, organizations, individuals, and all other interested parties not previously contacted, or who did not respond to the NOP/IS or attended the scoping meeting, currently have the opportunity to comment on this Draft EIR during the 45-day public review period. Written comments on this Draft PEIR should be addressed to:

Gary Conte, AICP, Planning Manager
City of Madera Planning Department
205 West 4th Street
Madera, CA 93637
gconte@madera.gov

Written comments submitted on this Draft EIR via email must be 25 megabytes or less in total size (incoming mail limitations). Written comments submitted via email must include the following subject title: “**Villages at Almond Grove Draft EIR Comment Letter.**” Any attachments to the email must be in Adobe Portable Document Format (PDF). Written comments submitted to the City via email must be follow-up with an original signed printed letter of the written comments mailed to the City of Madera Planning Department.

Upon completion of the public review period, written responses to all substantive environmental issues raised will be prepared and made available for review at least 10 days prior to the public hearing on the project before the City of Madera City Council, at which the certification of the EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision-makers for the project.

1.6 EXECUTIVE SUMMARY MATRIX

Table 1.A below summarizes the impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the proposed Specific Plan. Table 1.A is intended to provide an overview; narrative discussions for the issue areas are included in the corresponding sections of this Draft EIR. Table 1.A is included in the Draft EIR pursuant to CEQA Guidelines Section 15123(b)(1).

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1: AESTHETICS			
AES-1: The proposed project would have a substantial adverse effect on a scenic vista.	Potentially Significant Impact.	No feasible mitigation measures are available.	Significant and Unavoidable Impact.
AES-2: The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	No Impact.	No mitigation is required.	No Impact.
AES-3: The proposed project would substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point), and due to the location of the project in an urbanized area, the project would conflict with applicable zoning and other regulations governing scenic quality.	Potentially Significant Impact.	No feasible mitigation measures are available.	Significant and Unavoidable Impact.
AES-4: The project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	Potentially Significant Impact.	Mitigation Measure AES-4: During Development Plan review of future discretionary projects developed under the Specific Plan, the City shall ensure that proposed projects demonstrate that the lighting guidelines identified in the Specific Plan are implemented through preparation of a lighting plan. The lighting plan shall be approved by the City of Madera Community Development Director or designee.	Significant and Unavoidable Impact.
AES-5: The proposed project, in combination with past, present, and reasonably foreseeable projects, would contribute to a significant cumulative impact with respect to aesthetics.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, above.	Significant and Unavoidable Impact.
4.2: AGRICULTURE AND FORESTRY			
AG-1: The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use.	Potentially Significant Impact.	No feasible mitigation measures are available.	Significant and Unavoidable Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
AG-2: The project would conflict with existing zoning for agricultural use, or a Williamson Act contract.	Potentially Significant Impact.	No feasible mitigation measures are available.	Significant and Unavoidable Impact.
AG-3: The project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).	No impact.	No mitigation is required.	No impact.
AG-4: The project would not result in the loss of forest land or conversion of forest land to non-forest use.	No impact.	No mitigation is required.	No impact.
AG-5: The project would not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
AG-6: The project, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to agricultural resources.	Potentially Significant Impact.	No feasible mitigation measures are available.	Significant and Unavoidable Impact.
4.3: AIR QUALITY			
AQ-1: The project would not conflict with or obstruct implementation of the applicable air quality plan	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
AQ-2: Implementation of the Specific Plan would result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable federal or State ambient air quality standards.	Potentially Significant Impact.	<p>Mitigation Measure AIR-2.1: Consistent with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII (Fugitive PM10 Prohibitions) and in order to reduce construction equipment emissions to the extent feasible, the following controls shall be included as specifications for the proposed Specific Plan and implemented during construction:</p> <ul style="list-style-type: none"> All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or 	Significant and Unavoidable Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>chemical stabilizer/suppressant.</p> <ul style="list-style-type: none"> • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. • When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained. • All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.) • Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emission utilizing sufficient water or chemical stabilizer/suppressant. • The project contractor shall require all off-road diesel-powered construction equipment of greater than 50 horsepower used for the project meet the California Air Resources Board (CARB) Tier 4 emissions standards or better. • The project contractor shall require the use of electric air compressors, cranes, excavators, forklifts, generator sets, and welders. <p>Mitigation Measure AIR-2.2: Prior to issuance of a building permit, the City of Madera Community Development Director or designee shall identify project design details and specifications, where feasible, to document implementation and compliance with the following emission reduction measures. Implementation of the following measures is considered to be applicable, feasible, and effective in reducing criteria pollutant emissions generated by the project:</p>	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • All Project Applicants shall provide Class I and Class II bicycle parking/storage facilities on-site. Bicycle parking facilities should be near destination points and easy to find. At least one bicycle parking space for every 20 vehicle parking spaces. • All employers shall provide shower and locker facilities to encourage employees to bike and/or walk to work, typically one shower and three lockers for every 25 employees. • All apartment complexes or condominiums without garages shall provide Class I bicycle parking. • All Project Applicants shall install Class I or II bike lanes on arterial/collector streets, or where a suitable route exists. • All Project Applicants shall provide building access and paths which are physically separated from street parking lot traffic and that eliminate physical barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, or public transportation vehicles. • All Project Applicants shall provide continuous sidewalks separated from the roadway by landscaping and on street parking. • All Project Applicants shall provide on and off-site pedestrian facility improvements such as trails linking them to designated pedestrian commuting routes and/or on-site overpasses and wider sidewalks. • All Project Applicants shall link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel. • All Project Applicants shall provide traffic reduction modifications to project roads, such as: narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds and to encourage pedestrian and bicycle travel. • All Project Applicants shall provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances. • All Project Applicants shall provide pedestrian access between bus service and major transportation points and to destination 	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>points within the project.</p> <ul style="list-style-type: none"> • All Project Applicants shall provide a display case or kiosk displaying transportation information in a prominent area accessible to employees, residents, or visitors. • All Project Applicants shall display bike route maps, bus schedules, and any other transportation information such as carpooling and car sharing. • All Project Applicants shall design projects using models by the Local Government Commission (LGC) in the “Smart Growth Guidebook,” such as: street block patterns that from an interconnected grid, short block faces, numerous alleys, and narrow streets. • All Project Applicants shall develop and implement parking pricing strategies, such as charging parking lot fees to low occupancy (single occupant vehicles) vehicles. • All Project Applicants shall provide preferential parking spaces near the entrance of buildings for those who carpool/vanpool/rideshare and provide signage. • All Project Applicants shall install efficient heating, and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units beyond Title 24 requirements. • All Project Applicants shall use solar or low-emission water heaters and use central water heaters. • All Project Applicants shall improve the thermal integrity/efficiency of buildings, and reduce the thermal load with automated and timed temperature controls or occupant sensors. • All Project Applicants shall orient buildings to take advantage of solar heating and natural cooling and use passive solar designs. • All employers shall implement at least one of the following: provide a guaranteed ride home; provide a carpool support system; provide a car-sharing services support system; provide a ride share program; employ or appoint an Employee 	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>Transportation Coordinator; provide incentives to employees to carpool/vanpool, take public transportation, telecommute, walk, and/or bike; participate in an employee "flash-pass" program, which provides free travel on transit buses; or provide transit pass subsidy and/or commute alternative allowance.</p> <ul style="list-style-type: none"> If feasible, employers shall implement alternative work schedules such as compressed workweek schedules where weekly work hours are compressed into fewer than five days. 	
AQ-3: Implementation of the Specific Plan could expose sensitive receptors to substantial pollutant concentrations.	Potentially significant impact.	Mitigation Measure AIR-3.1: Prior to the approval of any construction or building permits for new development proposed under the Specific Plan, the Director of the City of Madera Planning Department or designee shall ensure that when construction occurs within 500 feet of existing residences, the project contractor(s) shall utilize construction equipment rated by the United States Environmental Protection Agency (USEPA) as having Tier 4 (model year 2008 or newer) emission limits. The construction equipment shall be properly serviced and maintained in accordance with manufacturer recommendations.	Significant and Unavoidable Impact.
AQ-4: The project would not result in significant odors that could adversely affect a substantial number of people.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
AQ-5: The project in combination with other projects, would contribute to a significant cumulative impact related to air quality.	Potentially Significant Impact.	Refer to Mitigation Measures AIR-2.1 and AIR-2.2.	Significant and Unavoidable Impact.
4.4: BIOLOGICAL RESOURCES			
BIO-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially significant impact.	Mitigation Measure BIO-1.1: Prior to the issuance of grading permits, the following measures shall be implemented to reduce potential impacts to western burrowing owls: <ul style="list-style-type: none"> Preconstruction surveys for western burrowing owls shall be conducted by a qualified biologist in accordance with the California Department of Fish and Wildlife (CDFW) 2012 Staff Report on Burrowing Owl Mitigation, or the most current guidelines. If burrowing owls are identified during the preconstruction survey, avoidance of occupied burrows during the breeding 	Less than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>season shall be implemented or passive exclusion, per CDFW’s 2012 Staff Report on Burrowing Owl Mitigation, or the most current guidelines (installing one-way doors in burrow openings during the non-breeding season to temporarily exclude burrowing owls, or permanently exclude burrowing owls and close burrows after verifying burrows are empty by site monitoring and scoping) shall be implemented), .</p> <ul style="list-style-type: none"> Following construction activities, all areas temporarily impacted during Project construction and not identified for future development, shall be restored to pre-construction contours and revegetated with native species as specified in Table 4.4.B. <p>Mitigation Measure BIO-1.2: Prior to the issuance of grading permits, the following measures shall be implemented to reduce potential impacts to Swainson’s hawks:</p> <ul style="list-style-type: none"> If construction begins during the nesting season (February 1 through August 31), an early season preconstruction survey for nesting Swainson’s hawks shall be conducted between January and March in the Biological Study Area (BSA) for the Specific Plan Area and immediate vicinity (an approximately 0.25 mi radius) by a qualified biologist when tree foliage is relatively sparse and nests are easy to identify. A second preconstruction survey for nesting Swainson’s hawks shall be conducted in the BSA and immediate vicinity (an approximately 0.25 mile radius) by a qualified biologist no more than 14 days prior to initiation of earthmoving activities. If nesting Swainson’s hawks are found within the survey area, a qualified biologist shall evaluate the potential for the project to disturb nesting activities. The California Department of Fish and Wildlife (CDFW) shall be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities. CDFW shall also be consulted to establish protection measures such as buffers. Disturbance of active nests shall be avoided until it is determined by a qualified biologist that nesting is complete 	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>and the young have fledged, or that the nest has failed. If work is allowed to proceed, at a minimum, a qualified biologist shall be on-site during the start of construction activities during the nesting season to monitor nesting activity. The monitor shall have the authority to stop work if it is determined the project is adversely affecting nesting activities.</p> <ul style="list-style-type: none"> • Following construction, all fill slopes, temporary impact and/or otherwise disturbed areas not identified for future development shall be restored to preconstruction contours and revegetated with the native seed mix specified in Table 4.4.C. <p>Mitigation Measure BIO-1.3: Prior to the issuance of grading permits, the following measures shall be implemented to reduce potential impacts to northern harrier, California horned lark, and other nesting birds:</p> <ul style="list-style-type: none"> • If construction begins during the nesting season (February 1 through August 31), a qualified biologist shall survey all suitable nesting habitat in the Biological Survey Area (BSA) of the Specific Plan Area for presence of nesting birds. This survey shall occur no more than 10 days prior to the start of construction. If no nesting activity is observed, work may proceed as planned. If an active nest is discovered, a qualified biologist shall evaluate the potential for the proposed project to disturb nesting activities. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest from the BSA, the line of sight between the nest and the BSA, and the feasibility of establishing no-disturbance buffers. • If work is allowed to proceed, a qualified biologist shall be on-site weekly during construction activities to monitor nesting activity. The biologist shall have the authority to stop work if it is determined the project is adversely affecting nesting activities. Weekly monitoring shall continue until any young have fledged or the nest fails (as determined by the qualified biologist). 	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
BIO-2: The project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
BIO-3: The project would 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.	Potentially Significant Impact.	<p>Mitigation Measure BIO-3: The following measures shall be implemented once specific development plans are submitted and prior to the issuance of grading permits to mitigate potential impacts to aquatic resources:</p> <ul style="list-style-type: none"> • A jurisdictional delineation shall be performed to determine if any or all of the aquatic features in the Biological Survey Area (BSA) of the Specific Plan Area should be considered jurisdictional by the Army Corps of Engineers (ACOE). The jurisdictional delineation shall be submitted to the ACOE for verification or concurrence. • If the results of the jurisdiction delineation determine that any of the aquatic features in the BSA are jurisdictional waters, and the Project would result in permanent or temporary impacts to those waters, the project proponent shall obtain any necessary regulatory permits prior to the commencement of ground disturbing activities. • If the project would result in the loss of wetlands and/or non-wetland waters, mitigation shall be accomplished by purchasing credits at an approved mitigation bank, payment of in-lieu fees, or a combination of these methods, as determined by the City of Madera. Mitigation ratios shall be at least 1:1. 	Less Than Significant Impact.
BIO-4: The project would not 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.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
BIO-5: The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
BIO-6: The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
BIO-7: The project would have a substantial adverse cumulative effect on state or federally protected wetlands.	Potentially Significant Impact.	Refer to Mitigation Measures BIO-1.1 through BIO-1.3 and Mitigation Measure BIO-3.	Less Than Significant Impact.
4.5: CULTURAL RESOURCES			
CUL-1: The project could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.	Potentially Significant Impact.	Mitigation Measure CUL-1: Prior to the issuance of grading permits for development occurring within APN 030-170-009 and APN 0303-070-004, formal evaluations of the existing canal segments and buildings shall be completed by a qualified historic resources consultant for eligibility for inclusion in the California Register of Historical Resources (CRHR) to assess whether or not they qualify as historic resources under Public Resources Code Section 21084.1. If the resources are determined to be unique historical resources, measures shall be identified by the qualified historic resources consultant monitor and recommended to the City. Appropriate measures for significant resources could include, but are not limited to, avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds.	Less Than Significant Impact.
CUL-2: The project could cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5 of the CEQA Guidelines.	Potentially Significant Impact.	Mitigation Measure CUL-2.1: To identify if an archaeological resource is present and if it meets the definition of a historical resource under the California Environmental Quality Act (CEQA), or a unique archaeological resource under Public Resources Code Section 21083.2 located in the southeastern portion of the Specific Plan Area, additional investigation including a field survey and an archaeological sensitivity analysis shall be conducted prior to the initiation of ground-disturbing activities. For projects associated with the Specific Plan that are located in areas with moderate or higher sensitivity for buried archaeological resources as identified by the archaeological sensitivity analysis, subsurface testing shall be conducted to minimize possible disturbance to or inadvertent discoveries of archaeological deposits. A qualified archaeologist shall develop a monitoring plan based on depth of	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>the excavation and data from subsurface testing to be submitted to the City of Madera Community Development Director or designee. The monitoring plan shall include observation of ground disturbing activities (such as grading, trenching and boring) to be focused in areas that are most likely to contain buried resources. The archaeologist shall limit on-site monitoring to only areas where depth of excavation and information from subsurface testing suggests that sensitive resources may be encountered.</p> <p>Mitigation Measure CUL-2.2: If deposits of precontact or historic-period archaeological materials are encountered during construction activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any archaeological materials. Archaeological materials can include flaked-stone tools (e.g., projectile points, knives, and choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, bones, and other cultural materials); and stone-milling equipment (e.g., mortars, pestles, and handstones). Precontact archaeological sites often contain human remains. Historic-period materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.</p> <p>If deposits of precontact or historic-period archaeological materials are encountered and cannot be avoided, they shall be evaluated in consultation with the City and a qualified archaeologist. If the discovery is precontact in nature, geographically affiliated tribal representatives shall be consulted as part of this process. If the deposit meets the definition of a historical resource, unique archaeological resource, or tribal</p>	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		cultural resource under the California Environmental Quality Act (CEQA), significant impacts to the deposit will need to be avoided or appropriate treatment established. If treatment is required, a plan shall be developed in consultation with applicable parties to mitigate, avoid, or minimize significant impacts to these types of resources. Treatment may consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits; recording the resource; preparation of a report of findings; accessioning recovered archaeological materials at an appropriate curation facility; and community outreach. All reports produced as part of the evaluation and treatment of cultural resources identified during the project shall be submitted to the City and the Southern San Joaquin Valley Information Center (SSJVIC).	
CUL-3: The project could disturb human remains, including those interred outside of formal cemeteries.	Potentially Significant Impact.	Mitigation Measure CUL-3: The following procedures shall be implemented in the event that human remains are identified during project activities: <ul style="list-style-type: none"> • If human remains are encountered during project activities, work within 25 feet of the discovery shall be redirected and the Madera County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission (NAHC) will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. • The archaeologist shall prepare a report that provides recommendations for the treatment of the human remains and any associated cultural materials as well as proposed or implemented methods and results from excavation and analysis. Treatment of the remains and associated cultural materials shall be done in coordination with the 	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		recommendations of the MLD and City. The final report shall be submitted to the Southern San Joaquin Valley Information Center (SSJVIC).	
CUL-4: The project could result in 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.	Potentially Significant Impact.	Refer to Mitigation Measures CUL-2.1 and CUL-2.2.	Less Than Significant Impact.
CUL-5: The proposed project, in combination with past, present, and reasonably foreseeable projects, could result in cumulative impacts to cultural resources.	Potentially Significant Impact.	Refer to Mitigation Measures CUL-1, CUL-2.1, CUL-2.2, and CUL-3.	Less Than Significant Impact.
4.6: ENERGY			
EN-1: The project would increase energy consumption during the operational phase.	Potentially Significant Impact.	Mitigation Measure EN-1.1: Prior to approval of building permits, the Community Development Director or designee shall ensure that the energy efficiency strategies identified in the Specific Plan are incorporated project construction documents. These energy efficient strategies include, but are not limited to the following: <ul style="list-style-type: none"> • Provide natural lighting, where feasible, to reduce reliance on artificial lighting. • Use Low-E or EnergyStar windows. • Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels. • Use a properly sized and energy-efficient heat/ cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation. • Implement some of the strategies of the EnergyStar program. • For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs. 	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel efficient vehicles. 	
EN-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
EN-3: The project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to energy.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
4.7: GEOLOGY AND SOILS			
GEO-1: The project could directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.); b. Strong seismic ground shaking; c. Seismic-related ground failure, including liquefaction; or d. Landslides.	Potentially Significant Impact.	Mitigation Measure GEO-1.1: Consistent with Section 1803 of the California Building Code and Section 10-2.402.3 of the City of Madera Municipal Code, prior to approval of a tentative subdivision map and for other types of structures, a preliminary soils report shall be reviewed and approved by the City of Madera Community Development Director and City Engineer or their designees. As a part of the geotechnical investigations, testing of samples from subsurface investigations is required, such as from borings or test pits. Investigations shall be conducted by a registered design professional and involve in situ-testing, laboratory testing, or engineering calculations. Studies shall be done as needed to evaluate slope stability, soil strength, position, and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness. The geotechnical investigation shall provide recommendations to be incorporated into final plans and/or improvement plans, if required, to ensure compliance with the UBC and CBC	Less Than Significant Impact.
GEO-2: The project could not result in substantial soil erosion or the loss of topsoil.	Potentially Significant Impact.	Refer to Mitigation Measures GEO-1.1	Less Than Significant Impact.
GEO-3: The project could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	Potentially Significant Impact.	Refer to Mitigation Measures GEO-1.1	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
GEO-4: The project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
GEO-5: The project does not contain soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.	No impact.	No mitigation is required.	No Impact.
GEO-6: The project may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant Impact.	<p>Mitigation Measure GEO-6.1: The following measures shall be implemented to reduce potential impacts to paleontological resources:</p> <ul style="list-style-type: none"> In the event that unique paleontological/geological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified paleontologist shall be consulted to determine whether the resource requires further study. The qualified paleontologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to, excavation of the finds and evaluation of the finds. If the resources are determined to be significant, mitigation measures shall be identified by the monitor and recommended to the City. Appropriate mitigation measures for significant resources could include avoidance or capping or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the City approves the measures to protect the identified resources. If unique paleontological/geological resources are found during the field survey, the resources shall be inventoried and evaluated for significance. If the resources are found to be significant, mitigation measures shall be identified by the qualified paleontologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. In addition, 	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include a paleontological monitor. The monitoring period shall be determined by the qualified paleontologist. If additional paleontological/ geological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed.	
GEO-7: The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to paleontological resources.	Potentially Significant Impact.	Refer to Mitigation Measures GEO-6.1.	Less than Significant Impact
4.8: GREENHOUSE GAS EMISSIONS			
GHG-1: The project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Potentially Significant Impact.	<p>Mitigation Measure GHG-1.1: Prior to issuance of grading permits, applicants shall submit to the City of Madera Planning Department a Greenhouse Gas Reduction Plan, or proof of compliance with the City’s Climate Action Plan (CAP), referencing construction plans details and specifications to document implementation and compliance with the following applicable CAP measures. Implementation of the following CAP measures is considered to be applicable, feasible, and effective in reducing greenhouse gas emissions generated by the project:</p> <ul style="list-style-type: none"> • Exceed Title 24 Energy Efficiency Building Standards, meet State Green Building Standards voluntary tier levels, become Leadership in Energy and Environmental Design (LEED) Greenpoint rated, or ENERGY STAR rated. • Install solar photovoltaic (PV) systems or solar hot water heaters. • Provide safe routes to adjacent transit stops. • Finance and/or construct bus turnouts and shelters where transit demand warrants such improvements. • Provide public transit vouchers to employees. • Include alternative fueling stations or electric vehicle (EV) charging stations. • By 2020, ensure construction contractors employ five percent 	Less than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		of construction vehicles/equipment that utilize new technologies (i.e., repowered engines, electric drive trains), California Air Resources Board (CARB)-approved low carbon fuel, or are electrically-powered. By 2030, ensure construction contractors employ 10 percent of construction vehicles/equipment that utilize new technologies, CARB-approved low carbon fuel, or are electrically-powered. <ul style="list-style-type: none"> • Include low-maintenance native landscaping or xeriscaping. 	
GHG-2: The project would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Potentially Significant Impact.	Refer to Mitigation Measure GHG-1.1.	Less Than Significant Impact.
GHG-3: The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to greenhouse gas emissions.	Potentially Significant Impact.	Refer to Mitigation Measure GHG-1.1.	Less Than Significant Impact.
4.9: HAZARDS AND HAZARDOUS MATERIALS			
HAZ-1: Implementation of the proposed Specific Plan could result in the demolition of existing structures that may potentially expose the public or environment to hazardous building materials.	Potentially Significant Impact.	Mitigation Measure HAZ-1: Prior to the issuance of demolition permits related to new development proposed under the Specific Plan, asbestos and lead based paint (LBP) surveys shall be conducted in order to determine the presence or absence of asbestos-containing materials (ACMs) and/or LBP within existing structures to be removed. Removal by property owners and/or future developers of LBP, friable ACMs, and non-friable ACMs that have the potential to become friable during demolition, shall be outlined in an inspection report to be submitted for approval by the City of Madera Community Development Director or designee, to conform to the standards set forth by the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). The San Joaquin Valley Air Pollution Control District (SJVAPCD) shall be notified by the property owners and/or future developers of properties (or their designee(s)) prior to any demolition and/or renovation activities.	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
HAZ-2: The project would not 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.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HAZ-3: The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HAZ-4: The project could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HAZ-5: The project would be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would not result in a safety hazard for people residing or working in the project area.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HAZ-6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HAZ-7: The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HAZ-8: : The proposed project, in combination with past, present, and reasonably foreseeable projects would not result in significant cumulative impacts with respect to implementation of adopted emergency response plan or emergency evacuation.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.10: HYDROLOGY AND WATER QUALITY			
HYD-1: The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality	Less Than Significant Impact.	No mitigation is required. Regulatory Compliance Measure would be implemented: Regulatory Compliance Measure HYD-1: Prior to approval of each subsequent Specific Plan grading permit, grading plans must be prepared for and approved by the City of Madera Engineering Department and must be in compliance with the General Construction Permit including implementation of SWPPPs with specific BMPs to minimize pollution of stormwater. BMPs shall follow City of Madera Storm drainage BMPs and Storm Drainage Management Plan. The City shall also review and confirm compliance with Statewide National Pollutant Discharge Elimination System (NPDES) permits for construction runoff and municipal storm drain systems (MS4) provisions of water quality control measures.	Less Than Significant Impact.
HYD-2: The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HYD-3: The project 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.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HYD-4: The project would not release of pollutants due to project inundation in a flood hazard, tsunami, or seiche zones.	Less Than Significant Impact.	No mitigation is required.	Less Than Significant Impact.
HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan (SGMA).	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
HYD-6: The proposed project, in combination with past, present, and reasonably foreseeable projects, would not result in cumulative impacts to hydrology and hydrology.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.11: LAND USE AND PLANNING			
LU-1: The project would not physically divide an established community.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
LU-2: The project would be inconsistent Policy LU-14 related to the preparation of a Public Facilities Financing Plan (PFFP).	Potentially Significant Impact.	Mitigation Measure LU-2.1: Prior to adoption of the Specific Plan by the City, a Public Facilities Financing Plan (PFFP) shall be completed by the project applicant and approved by the Community Development Director or designee. The PFFP shall identify all infrastructure and public facilities required to support the Specific Plan area and shall identify associated costs and financing mechanisms to fund these facilities.	Less than Significant Impact.
LU-3: The proposed Specific Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to inconsistency with the General Plan regarding the creation of an agriculture buffer along the western edge of the City of Madera.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
4.12: MINERAL RESOURCES			
MIN-1: The project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
MIN-2: The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
MIN-3: The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to mineral resources.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
4.13: NOISE			
NOI-1: The proposed project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or federal standards.	Potentially Significant Impact.	Mitigation Measure NOI-1.1: The project contractor shall implement the following measures during construction of the proposed project: <ul style="list-style-type: none"> Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards. 	Significant and Unavoidable Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active project site. • Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active project site during all construction activities. • Ensure that all general construction related activities are restricted to between the hours of 6:00 a.m. and 8:00 p.m., consistent with the City’s Noise Ordinance. • Designate a “disturbance coordinator” at the City, at the expense of the project contractor, who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem. <p>Mitigation Measure NOI-1.2: In order to comply with the City’s noise compatibility guidelines, prior to the issuance of grading permits, new development proposed under the Specific Plan shall require an acoustic study for approval by the Community Development Director or designee for all noise-sensitive projects located within the following traffic noise contours with noise levels greater than 60 dBA CNEL:</p> <ul style="list-style-type: none"> • Within 572 feet of Road 23 between Avenue 17 and Project Driveway 3; • Within 507 feet of Road 23 between Project Driveway 3 and Avenue 16; • Within 517 feet of Road 23 between Avenue 16 and Cleveland Avenue; • Within 533 feet of Road 23 between Cleveland Avenue and Project Driveway 4; • Within 501 feet of Road 23 between Project Driveway 4 and Project Driveway 5; 	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Within 504 feet of Road 23 between Project Driveway 5 and Avenue 14 ½; • Within 84 feet of Avenue 17 between Road 22 and Project Driveway 1; • Within 246 feet of Avenue 17 between Project Driveway 1 and Road 23; • Within 50 feet of Avenue 16 between Road 22 and Project Driveway 2/Road 22 ½; • Within 263 feet of Avenue 16 between Project Driveway 2/Road 22 ½ and Road 23; • Within 449 feet of Cleveland Avenue between Road 23 and Project Driveway 6; • Within 452 feet of Cleveland Avenue between Project Driveway 6 and Westberry Boulevard; • Within 50 feet of Road 22 between Avenue 17 and Avenue 16; • Within 50 feet of Road 22 between Avenue 16 and Cleveland Avenue; • Within 50 feet of Road 22 south of Cleveland Avenue; • Within 50 feet of Cleveland Avenue between Road 22 and between Project Driveway 2/Road 22 ½; • Within 98 feet of Cleveland Avenue between Project Driveway 2/Road 22 ½ and Road 23; • Within 56 feet of Project Driveway 2/Road 22 ½ between Avenue 16 and Cleveland Avenue; Within 54 feet of Project Driveway 2/Road 22 ½ between Avenue 17 and Avenue 16; • Within 90 feet of Avenue 16 between Road 22 and Westberry Road; • Within 50 feet of Project Driveway 5 west of Project Driveway 2/Road 22 ½; • Within 50 feet of Project Driveway 5 east of Project Driveway 2/Road 22½; • Within 50 feet of Project Driveway 2/Road 22 ½ north of Project Driveway 5; • Within 119 feet of Project Driveway 4 east of Road 23; • Within 54 feet of Project Driveway 6 south of Cleveland 	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>Avenue;</p> <ul style="list-style-type: none"> • Within 63 feet of Project Driveway 2/Road 22 ½ between Road 23 and Project Driveway 3; and • Within 103 feet of Project Driveway 4 between Project Driveway 2/Road 22 ½ and Road 23. <p>The acoustic study shall demonstrate that that interior noise levels in habitable rooms shall not exceed 45 dBA CNEL. Acoustical design features shall be incorporated into the proposed project design, which may include a combination of exterior features to reduce noise, such as berms/walls and/or architectural features such as Sound Transmission Class (STC) rated windows and doors. All STC ratings shall be shown on the building plans and incorporated into the construction of the proposed project. Once final architectural plans with the exterior-wall details and window types are available, a Final Acoustic Report shall be prepared by a qualified consultant to confirm that the interior living spaces of residential dwelling units will meet the City’s interior noise standard of 45 dBA CNEL (A weighted decibel Community Noise Equivalent Level) with windows and doors closed. If interior noise levels are still exceeded after the Final Acoustic Report is completed, additional design features shall be incorporated to meet the interior noise.</p> <p>Mitigation Measure NOI-1.3: In order to comply with the City’s General Plan non-transportation related noise standards and Municipal Code standards, prior to the issuance of grading permits, an acoustical study shall be prepared for any stationary sources of noise proposed under the Specific Plan. The stationary source noise study shall demonstrate that noise levels would be consistent with the Noise Ordinance standards outlined in Title III: Public Safety, Chapter 11: Noise Control and shall be approved by the City of Madera Community Development Director or designee.</p>	

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
NOI-2: The proposed project would generate excessive groundborne vibration or groundborne noise levels.	Potentially Significant Impact.	Mitigation Measure NOI-2.1: Prior to the approval of any construction or building permits for new development proposed under the Specific Plan, the City of Madera Community Development Director or designee shall ensure that construction plans include specifications that prohibit the use of heavy construction equipment within 15 feet of existing structures.	Less than Significant Impact.
NOI-3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the proposed project would not expose people residing or working in the project area to excessive noise levels	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
NOI-4: The proposed project, in combination with past, present, and reasonably foreseeable projects, would not contribute to a significant impact related to noise.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
4.14: POPULATION AND HOUSING			
POP-1: The project would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
POP-2: The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
POP-3: The proposed project would not contribute to a significant cumulative impact related to population and housing.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
4.15: PUBLIC SERVICES AND RECREATION			
PSR-1: The project would result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, EN-1.1, GEO-1.1, GEO-6.1, GHG-1.1, HAZ-1, RCM HYD-1, LU-2.1, NOI-1.1, NOI-1.2, NOI-1.3, NOI-2.1, UTL-1.1, UTL-1.2, and UTL-2.	Significant and unavoidable impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
PSR-2: The project would result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, EN-1.1, GEO-1.1, GEO-6.1, GHG-1.1, HAZ-1, RCM HYD-1, LU-2.1, NOI-1.1, NOI-1.2, NOI-1.3, NOI-2.1, UTL-1.1, UTL-1.2, and UTL-2.	Significant and unavoidable impact.
PSR-3: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives;.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
PSR-4: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for park services.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
PSR-5: The project would result in substantial adverse physical impacts associated with the provision of new or physically altered facilities for other public facilities, need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, EN-1.1, GEO-1.1, GEO-6.1, GHG-1.1, HAZ-1, RCM HYD-1, LU-2.1, NOI-1.1, NOI-1.2, NOI-1.3, NOI-2.1, UTL-1.1, UTL-1.2, and UTL-2.	Significant and unavoidable impact.
PSR-6: The project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
PSR-7: The project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, EN-1.1, GEO-1.1, GEO-6.1, GHG-1.1, HAZ-1, RCM HYD-1, LU-2.1, NOI-1.1, NOI-1.2, NOI-1.3, NOI-2.1, UTL-1.1, UTL-1.2, and UTL-2.	Significant and unavoidable impact.
PSR-8: The project, in combination with past, present, and reasonably foreseeable projects, would result in cumulative impacts with respect to fire services, police services, park facilities, and other public facilities.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, EN-1.1, GEO-1.1, GEO-6.1, GHG-1.1, HAZ-1, RCM HYD-1, LU-2.1, NOI-1.1, NOI-1.2, NOI-1.3, NOI-2.1, UTL-1.1, UTL-1.2, and UTL-2.	Significant and unavoidable impact.
4.16: TRANSPORTATION			
TRA-1: The project would conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	Potentially Significant Impact.	Mitigation Measure TRA-1.1: As a condition of future project entitlements approved for projects within the Specific Plan Area, improvements identified in Table 9-A of the Traffic Impact Analysis (TIA) shall be implemented by the City.	Significant and unavoidable impact.
TRA-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
TRA-3: The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
TRA-4: The project would not result in inadequate emergency access	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
TRA-5: The proposed project would contribute to a significant cumulative impact related to transportation.	Potentially Significant Impact.	No feasible mitigation measures are available.	Significant and unavoidable impact.
4.17: UTILITIES			
UTL-1: The project would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects	Potentially Significant Impact.	Mitigation Measure UTL-1.1: Prior to the issuance of each grading permit for projects within the Specific Plan Area, the City shall ensure that the Infrastructure Master Plan for the Specific Plan is implemented and that General Plan policies requiring capacity analyses of service systems are completed. Mitigation Measure UTL-1.2: Prior to the issuance of each grading permit for projects within the Specific Plan Area, and consistent with policies of the General Plan, the City shall review the City's wastewater facility capacity and shall prepare	Significant and unavoidable impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		environmental review, consistent with the California Environmental Quality Act, and analysis for any future off-site wastewater facility expansions and improvements required to support development of the Specific Plan. The CEQA analysis shall be completed prior to approval of each development project.	
UTL-2: The project could have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	Potentially Significant Impact.	Mitigation Measure UTL-2: Prior to issuance of each grading permit for projects within the Specific Plan Area, the City shall review water supplies available at the time and ensure that the required groundwater facilities, including replacing and increasing depth of groundwater wells, and the use of reclaimed water as identified in the City's Water Master Plan are adequate to serve the project.	Less than Significant Impact.
UTL-2: The project would result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
UTL-4: The project would not the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
UTL-5: The project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
UTL-6: The proposed project would contribute to a significant cumulative impact related to utilities and service systems.	Potentially Significant Impact.	Refer to Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, EN-1.1, GEO-1.1, GEO-6.1, GHG-1.1, HAZ-1, RCM HYD-1, LU-2.1, NOI-1.1, NOI-1.2, NOI-1.3, NOI-2.1, UTL-1.1, UTL-1.2, and UTL-2.	Significant and unavoidable impact.
4.18: WILDFIRE			
WF-1: The project would not substantially impair an adopted emergency response plan or emergency evacuation plan.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.

Table 1.A: Executive Summary Matrix

Potential Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
WF-2: The project, due to slope, prevailing winds, and other factors, would not exacerbate wildfire risks, and thereby would not expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
WF-3: The project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
WF-4: The project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.
WF-5: The project, in combination with past, present, and reasonably foreseeable projects, would not contribute to a significant cumulative impact related to wildfire.	Less than Significant Impact.	No mitigation is required.	Less than Significant Impact.

2.0 INTRODUCTION

2.1 PURPOSE OF THIS EIR

The California Environmental Quality Act (CEQA) requires that all State and local government agencies consider the environmental consequences of programs and projects over which they have discretionary authority before taking action on them. This Environmental Impact Report (EIR) has been prepared in accordance with CEQA to evaluate the potential environmental impacts associated with implementation of the proposed The Villages at Almond Grove Specific Plan (herein referred to as the proposed Specific Plan or proposed project) for the City of Madera. This EIR has been prepared in conformance with CEQA, California Public Resources Code Section 21000 et seq; the California CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq); and the rules, regulations, and procedures for implementing CEQA as adopted by the City of Madera (herein referred to as the City).

This EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the potential environmental impacts associated with the construction and long-term buildout of the proposed Specific Plan. In addition to identifying potential environmental impacts, this EIR also identifies development standards and design guidelines that are part of the proposed Specific Plan that would reduce potential significant environmental impacts, and identifies potential mitigation measures and alternatives to reduce potential environmental impacts.

Environmental impacts cannot always be mitigated to a level that is considered less than significant. In accordance with Section 15093(b) of the State CEQA Guidelines, if a lead agency, such as the City of Madera, approves a project (i.e., adoption of a specific plan) that has significant impacts that are not substantially mitigated (i.e., significant unavoidable impacts), the lead agency shall state in writing the specific reasons for approving the project, based on the final CEQA documents and any other information in the public record for the project. This is identified in Section 15093 of the State of CEQA Guidelines, “a statement of overriding considerations.” These potential impacts are discussed in more detail throughout Chapter 4.0 of this EIR.

2.2 ENVIRONMENTAL REVIEW

The City of Madera, serving as Lead Agency responsible for administering the environmental review for the proposed project, determined that preparation of an EIR was required for the proposed Specific Plan project.

CEQA requires that, before a decision can be made to approve a project that could result in adverse physical effects, an EIR must be prepared that fully describes the environmental effects of the project. The EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental impacts of a project, to recommend mitigation measures to lessen or eliminate significant adverse impacts, and to examine feasible alternatives to the project. The information contained in the EIR must be reviewed and considered by the City of Madera Planning Commission, City Council, and other approving bodies prior to a decision to approve, disapprove, or modify the project.

As part of the consideration of the proposed project, an agency must prepare findings that identifies that all environmental effects of the project are supported by substantial evidence in the record. CEQA requires that agencies shall neither approve nor implement a project unless the project's significant environmental effects have been reduced to a less-than-significant level, essentially "eliminating, avoiding, or substantially lessening" the potentially significant impacts, except when certain findings are made. If an agency approves a project that will result in the occurrence of significant adverse impacts that cannot be mitigated to less-than-significant levels, the agency must state the reasons for its action in writing, demonstrate that its action is based on the EIR or other information in the record, and adopt a Statement of Overriding Considerations.

2.3 INTENDED USES OF THIS EIR

As noted above and described in the CEQA Guidelines, public agencies are charged with the duty to avoid or substantially lessen significant environmental effects, where feasible. In undertaking this duty, a public agency has an obligation to balance a project's significant effects on the environment with its benefits, including economic, social, technological, legal, and other non-environmental characteristics.

This EIR is intended as an informational document to: evaluate the proposed project and the potential for significant impacts on the environment; examine methods of reducing adverse environmental impacts; identify any significant and unavoidable adverse impacts that cannot be mitigated; and, identify reasonable and feasible alternatives to the proposed project that would eliminate any significant adverse environmental effects or reduce the impacts to a less-than-significant level. The Lead Agency is required to consider the information in the EIR, along with any other relevant information, in making its decisions on the proposed project. This analysis, in and of itself, does not determine whether a project will be approved, but aids the planning and decision-making process by disclosing the potential for significant and adverse impacts.

In conformance with CEQA and the CEQA Guidelines, this EIR provides objective information addressing the environmental consequences of the project and identifies possible means of reducing or avoiding significant impacts, either through mitigation measures or feasible project alternatives. The City of Madera must certify the Final EIR prior to project approval and implementation. Under CEQA Guidelines Section 15168, this is a program-level EIR. This type of EIR examines implementation of a plan over an extended period of time but considers potential construction and operational impacts of implementing the plan. This type of EIR would also allow for later activities that would occur under the proposed Specific Plan to be evaluated to the extent feasible based on the level of detail provided at the time the program EIR is prepared. The EIR also assesses proposed Vesting Tentative Tract Map Nos. 2020-02 and 2020-03. Later activities and discretionary actions occurring under the proposed Specific Plan would be subject to additional environmental review and documentation.

The CEQA Guidelines help define the role and standards of this EIR, as follows:

- **Information Document.** An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effect(s) of a project, identify possible ways to minimize significant effects, and describe reasonable alternatives to

the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency (CEQA Guidelines Section 15121(a)).

- **Degree of Specificity.** The degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR. An EIR on a development project will necessarily be more detailed in its discussion of specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy (CEQA Guidelines Section 15146(a)).
- **Standards for Adequacy of an EIR.** An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information, which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure (CEQA Guidelines Section 15151).

Section 15382 of the CEQA Guidelines defines a significant effect on the environment as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project...” Therefore, in identifying the significant impacts of the project, this EIR focuses on the substantial physical effects and mitigation measures to avoid, reduce, or otherwise alleviate those effects.

2.4 PROPOSED PROJECT

This EIR analyzes buildout of the 1,883-acre Specific Plan Area resulting in approximately 10,800 residential units, approximately 2.1 million square feet of commercial and office space, approximately 164 acres of parks and recreational area, approximately 54 acres of schools. Although densities as provided in the Specific Plan could result in a greater amount of development, these are the maximum densities/buildout anticipated; any additional development beyond these amounts would require further environmental analysis. In addition, the proposed Specific Plan would include infrastructure improvements including roadways and utilities. It is expected that the proposed project would require a General Plan Amendment, pre-zoning, and annexation of the Specific Plan Area into the City. Additionally, future development proposals within the Specific Plan Area would be required to be consistent with the Airport Land Use Compatibility Plan for Madera Municipal Airport, and some parcels would require removal of active Williamson Act contracts prior to development. See Chapter 3.0, Project Description of this EIR for a more complete description of the proposed project, and Appendix B, which contains the proposed Specific Plan.

2.5 EIR SCOPE

A Notice of Preparation (NOP) of the EIR was circulated for 30 days on August 17, 2018 to help identify the types of impacts that could result from implementation of the Specific Plan, as well as potential areas of controversy. After additional information was made available by the Project

Applicant, the NOP was reissued on December 3, 2018 for 30 days to identify increases in buildout proposed by the project. Both NOPs were mailed to public agencies, organizations, and individuals likely to be interested in the project and its potential impacts. Additionally, public scoping sessions for the Draft EIR were held on Wednesday, September 12, 2018 and Tuesday, December 18, 2018. Comments on the NOP were received by the City and considered during preparation of the EIR. A total of seven comment letters regarding the NOP were received, in addition to the verbal comments provided at the scoping session. Copies of the NOP and the comment letters are included in Appendix A.

The following environmental topics are addressed in this EIR:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation and Traffic
- Utilities and Service Systems
- Wildfire

2.6 REPORT ORGANIZATION

This EIR is organized into the following chapters:

- **Chapter 1.0 – Executive Summary:** Provides a summary of the impacts that would result from implementation of the proposed project, describes mitigation measures recommended to reduce or avoid significant impacts, and describes the alternatives to the proposed project.
- **Chapter 2.0 - Introduction:** Discusses the overall EIR purpose, provides a summary of the proposed project, describes the EIR scope, and summarizes the organization of the EIR.
- **Chapter 3.0 - Project Description:** Provides a description of the project site, the project objectives, the proposed project, and intended uses of this EIR.
- **Chapter 4.0 – Evaluation of Environmental Impacts:** Describes the following for each environmental technical topic: existing conditions (setting), potential environmental impacts and their level of significance, and mitigation measures recommended to mitigate identified impacts. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance of each impact is categorized before and after implementation of any recommended mitigation measures(s). Cumulative impacts are also addressed.
- **Chapter 5.0 - Alternatives:** Provides an evaluation of three alternatives to the proposed project in addition to the CEQA-required No Project alternative.

- **Chapter 6.0 – CEQA-Required Assessment Conclusions:** Provides an analysis of effects found not to be significant, growth-inducing impacts, unavoidable significant environmental impacts, and significant irreversible changes.
- **Chapter 7.0 - Report Preparation:** Identifies preparers of the EIR, references used, and the persons and organizations contacted.
- **Appendices:** The appendices contain the NOP and comment letters on the NOP (Appendix A), technical calculations, and other documentation prepared in conjunction with this EIR.

2.7 PUBLIC PARTICIPATION

The CEQA Guidelines encourage public participation in the planning and environmental review processes. The City will provide opportunities for the public to present comments and concerns regarding the CEQA and planning processes. These opportunities will occur during the Draft EIR public review and comment period and public hearings before the City of Madera Planning Commission and City Council.

This Draft EIR, in compliance with Section 15105 of the CEQA Guidelines, has been distributed to responsible and trustee agencies, and other interested organizations, agencies and individuals for review and comment on the adequacy of the environmental analysis.

The Draft EIR and Notice of Availability (NOA) are posted electronically on the City's website (<https://www.madera.gov/home/departments/planning/#tr-current-projects-environmental-review-2436011>) and hard copies are available for public review by request by contacting the City of Madera Planning Department at 559.675.5430.

The Draft EIR 45-day public review and comment period for this project began on December 23, 2021 and will end on February 7, 2022.

Written public comments may be submitted to the Planning Department during the specified public review and comment period, and oral comments may be presented at the Draft EIR public hearing before the City of Madera Planning Commission and City Council. Written comments should be delivered in person or by courier service, or be sent by mail or email to:

Gary Conte, AICP, Planning Manager
City of Madera Planning Department
205 West 4th Street
Madera, CA 93637
gconte@madera.gov

Written comments submitted on this Draft EIR via email must be 25 megabytes or less in total size (incoming mail limitations). Written comments submitted via email must include the following subject title: "**Villages at Almond Grove Draft EIR Comment Letter.**" Any attachments to the email must be in Adobe Portable Document Format (PDF). Written comments submitted to the City via

email must be follow-up with an original signed printed letter of the written comments mailed to the City of Madera Planning Department.

The City of Madera Planning Department must receive all written comment submittals (paper, digital (email)) on this Draft EIR by 5:00 p.m., February 7, 2022. The City of Madera will not accept written or digital comments on this Draft EIR after the February 7, 2022, deadline.

3.0 PROJECT DESCRIPTION

This chapter describes The Villages at Almond Grove Specific Plan (project) evaluated in this Draft Environmental Impact Report (Draft EIR) and included as Appendix B of this Draft EIR. This chapter includes a description of the project location, a list of project objectives, a description of proposed project components, and a list of required approvals and entitlements. The City of Madera (City) is the CEQA lead agency and has final authority to approve the proposed project. Information presented in this chapter was derived from current project plans and other information provided by the Project Applicant and City staff, and serves as the basis for the environmental analysis contained in this Draft EIR.

3.1 PROJECT AREA LOCATION AND SETTING

The City of Madera is located in Madera County, west of the Sierra Nevada. The City is located along California State Route (SR) 99, 13 miles southeast of Chowchilla and 15 miles northwest of Fresno. Figure 3-1, Project Location and Regional Vicinity Map, shows the regional location of the City.

The following section describes the project area, the existing circulation network, existing land uses and infrastructure, and project background.

3.1.1 Project Area

The project area (Specific Plan Area) is approximately 1,900 acres in size and is located on the western edge of the City of Madera. In October 2018, the Madera County Local Agency Formation Commission (LAFCO) approved the expansion of the City's Sphere of Influence to include the Specific Plan Area.¹ The proposed project is bounded by the Fresno River to the south, Road 24 to the east, Avenue 17 to the north, and Road 22 to the west.

The Specific Plan Area is surrounded by primarily agriculture uses on the north and western boundaries, and the Fresno River and agriculture uses to the south. The Madera Municipal Golf Course, Madera Municipal Airport, and residential uses are directly north and east of the project site, as shown in Figure 3-1.

Madera County Assessor's parcel numbers within the Specific Plan Area are listed below:

033-070-005	033-170-001	033-170-010
033-070-004	033-170-002	033-170-011
033-070-002	033-170-009	033-180-002
033-070-003	033-170-005	033-180-003

¹ Madera Local Agency Formation Commission, Resolution No. 2018-009.

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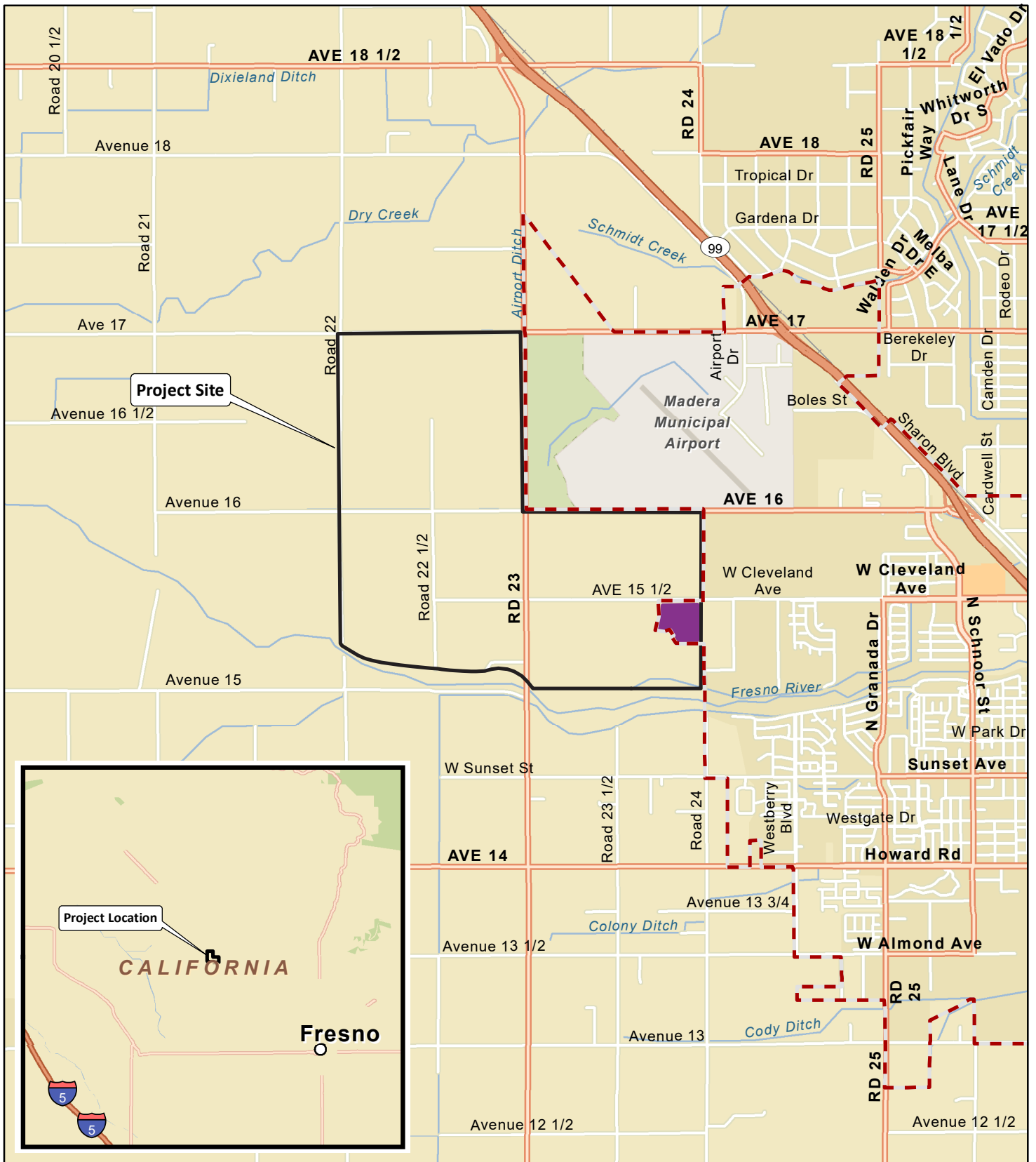





FIGURE 3-1

LSA

LEGEND

-  Specific Plan Area
-  Madera City Limit
-  Links Ranch Project



SOURCE: ESRI StreetMap North America (2012); Madera County (2021).

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The existing Madera County General Plan land use designations include Agriculture Exclusive (AE) and Agriculture (A).

The existing Madera County zoning designations include Agricultural Rural Exclusive - 40 Acres (ARE-40) and Agricultural Rural Exclusive - 20 Acres (ARE-20).

The existing City of Madera General Plan land use designations include Village Reserve (VR), Village Mixed Use (VMU), High Density Residential (HD), Medium Density Residential (MD), Low Density Residential (LD), Neighborhood Mixed Use (NMU), Open Space (OS), Resource Conservation/Agriculture (RC).

3.1.2 Existing Circulation Network

As shown in Figure 3-1, major roadways in the vicinity of the Specific Plan Area are located one mile apart, with minor collector roadways located in between each major roadway. The Fresno River to the south, and the Madera Municipal Airport and Municipal Golf Course to the north and east limit continuity of the roadway network and connectivity to surrounding development and the City. As a result, the existing circulation network contains a limited number of roadways providing access to the Specific Plan Area. Avenue 17, Avenue 16 (Kennedy Street), and Avenue 15 ½ (Cleveland Avenue) provide direct east and west access to the Specific Plan Area. Road 23 provides direct north and south access.

3.1.3 Existing Land Uses and Infrastructure

As shown in Figure 3-2, Existing Land Uses, the Specific Plan Area is predominately characterized by active agriculture operations and a mix of irrigated crops. The Specific Plan Area contains three active Williamson Act contracts.² The Specific Plan Area also contains existing residential and agricultural support structures. The Fresno River is located along the southern edge of the Specific Plan Area. The following Madera Irrigation District (MID) irrigation canals and pipeline traverse the Specific Plan Area:

- Canal 24.2-14.2 is located in the southern portion of the Specific Plan Area and runs parallel to the Fresno River.
- Canal 24.2-13.2 is located along the north side of Avenue 16/Kennedy Avenue.
- The Airport Canal is located along the Road 23.
- Airport 1.0 E. pipeline and Airport 1.0 W. canal and pipeline are located along the Avenue 17 alignment on the northern boundary of the Specific Plan Area.

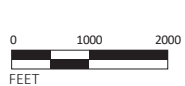
² Parcels 033-170-001, 033-170-009, and 033-170-005. These parcels are located south of Avenue 16 and west of Road 23 in the southwest portion of the project site.

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FIGURE 3-2

LSA



Project Boundary

The Villages at Almond Grove Specific Plan EIR
Existing Land Uses

SOURCES: Google Earth, 8/23/2018; LSA, 2021

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3.1.4 Project Background

The City of Madera adopted a General Plan in 2009 that includes the concept of “Urban Growth” areas and identified locations to focus future growth based on the “Building Block” concept of “Neighborhoods” and “Villages.” Neighborhoods are to be compact, walkable residential areas, generally 1/3 to 1/2 mile in radius or roughly 200 to 500 acres and are to be developed at an overall density of 6 to 8 dwelling unit/acre (du/ac) and serve a population of approximately 4,000 persons. In general, the density near the core of a Neighborhood or where the development adjoins a Village Center are to be higher than at the edges of a Neighborhood. At the core of each Neighborhood is a “Neighborhood Center,” a small-scale neighborhood serving activity center (1 to 5 acres in size) where people can congregate and interact.

A Village is a collection of 3 to 4 neighborhoods (800 to 1,200 acres) featuring a mix of residential dwelling types, including single-family areas found in Neighborhoods described above and multi-family development near the center and strategically dispersed in single-family areas at an overall density of 8 to 18 du/ac and serve a population of approximately 15,000 persons. At the center of a Village is the “Village Center” which is to serve the daily needs of their service area. Village Centers are to be spaced 1.5 to 2 miles apart. Village Centers are predominately commercial centers but may also include residential uses at a density of 6 to 12 units/acre. Village Centers should be developed with higher density residential uses adjacent to the Centers.

The 2,763-acre Village D Urban Growth area, composed of four neighborhoods, includes the entire Specific Plan Area and its three planned neighborhoods, as well as a neighborhood area east of Road 24 within the City limits and outside of the Specific Plan Area. The development of the Urban Growth areas is to be guided by specific plans, which would allow for orderly growth and adequate infrastructure and public facilities/services to support the future population within each area. A specific plan need not cover an urban growth area designated within the City’s General Plan.

In November 2021, the City of Madera approved the Links Ranch Subdivision Project, a residential project located within the southeast portion of the Specific Plan Area, as shown in Figure 3-1. The Links Ranch Subdivision Project included annexation of approximately 41 acres, and the prezone and subdivision of approximately 40 acres to facilitate the development of a 214-lot single-family residential units. The Links Ranch Subdivision Project is consistent with the proposed Specific Plan, as described below.

3.2 PROJECT OBJECTIVES

The Specific Plan is designed to implement a series of project-specific objectives to ensure that the Specific Plan is implemented with quality residential, commercial, and light industrial development. The following is a list of list of project objectives:

- Address the City of Madera’s current and projected housing needs for all segments of the community by providing a range of single- and multi-family homes.
- Promote high quality retail and mixed-use development to attract an array of businesses and employment opportunities.

- Establish a mix of land uses and local-serving activities that meet the General Plan’s objectives concerning community character and pedestrian-friendly design.
- Implement the City’s General Plan Land Use Element goal to facilitate annexation of large areas of land that are governed by a specific plan, which provides for compatibility of land uses, fiscal balance, recreation, and resource protection.
- Establish a transportation network that will fulfill the policies of the Madera General Plan’s Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimize vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.
- Promote opportunities for water efficiency in Plan Area architecture and landscaping to promote water conservation.
- Incorporate green and sustainable practices, as practicable, in developing buildings and infrastructure.
- Undertake development of the Plan Area in a manner that is economically feasible and balanced to address the City’s economic interests.

3.3 PROPOSED PROJECT

The anticipated buildout of the Specific Plan as analyzed in this EIR includes multiple residential densities, village centers, employment opportunities, and public facilities, all supported by an integrated open space and trails network. Land uses accommodated also include space for future elementary schools. The Specific Plan Area includes a maximum of 10,783 dwelling units and approximately 2.1 million square feet of non-residential uses, as summarized in Table 3.A. In addition, Table 3.B, Table 3.C, and Table 3.D include the land use summaries for the Northwest, Southeast, and Southwest neighborhoods, respectively. These tables include maximum dwelling units and square feet for non-residential uses. Target densities are included in this EIR for analysis purposes, and do not represent a minimum density. Individual projects would be governed by the Density Range for each land use. The City of Madera will be responsible for ensuring the total number of dwelling units does not exceed 10,783 units without additional analysis.

The Specific Plan provides development flexibility by allowing for permitted transfer of dwelling units and non-residential square footage within neighborhoods or village center over the life of the Specific Plan. Unused dwelling units or non-residential square footage in one neighborhood may also be transferred to other neighborhoods if the specific conditions outlined in Chapter 8 of the Specific Plan are met, including the requirement that such a transfer is consistent with the Airport Land Use Compatibility Plan for the Madera Municipal Airport.

Table 3.A: Overall Land Use Summary

Land Use Type	Land Use District	Acreage (ac)	Density Range (du/ac)	Target Density (du/ac) ¹	Dwelling Units	Commercial/ Office/ Industrial (FAR)	Commercial/ Office/ Industrial (SF)
Residential							
Village Country Estates	V-CE	36.00	0.1 - 2.0	1.5	54		
Village Low Density	V-LDR	911.30	2.1 - 7.0	5.25	4,784		
Village Medium Density	V-MDR	318.20	7.1 – 15.0	11.25	3,579		
Village High Density	V-HDR	105.20	15.1 – 50.0	22.5	2,366		
Residential Subtotal		1,370.70			10,783		
Mixed Use							
Village Mixed Use	V-MU	120.10	0 – 50.0			0.35	1,830,587.20
Village Parks and Recreation							
Community Parks	V-PR	24.80					
Neighborhood Parks		92.50					
West Trail		2.25					
South Trail		3.25					
Pocket Parks/Basins		40.90					
Village Parks and Recreation Subtotal		163.70					
Natural Open Space							
Fresno River Area	V-OS	16.78					
Industrial							
Village Business Park	V-BP	29.69				0.2	258,659.30
Public Facilities							
Elementary School Sites	V-ES	53.85					
Major Roadways							
Major Roadways	ROW	128.45					
Total		1,883.27			10,783		2,089,246.50

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

¹ This EIR used the Target Densities of each Land Use District to assess potential environmental impacts resulting from implementation of the proposed Specific Plan.

Table 3.B: Northwest Neighborhood Land Use Summary

Land Use Type	Land Use District	Acreage (ac)	Density Range (du/ac)	Target Density (du/ac)	Dwelling Units	Commercial/ Office/ Industrial (FAR)	Commercial/ Office/ Industrial (SF)
Residential							
Village Country Estates	V-CE		0.1 – 2.0	1.5			
Village Low Density	V-LDR	422.96	2.1 – 7.0	5.25	2,221		
Village Medium Density	V-MDR	99.53	7.1 – 15.0	11.25	1,120		
Village High Density	V-HDR		15.1 50.0	22.5			
Residential Subtotal		522.49			3,341		
Mixed Use							
Village Mixed Use	V-MU	12.42	7.1 – 50.0			0.35	189,355.30
Village Parks and Recreation							
Community Parks	V-PR						
Neighborhood Parks		37.86					
West Trail		2.25					
South Trail							
Pocket Parks/Basins		8					
Village Parks and Recreation Subtotal		48					
Natural Open Space							
Fresno River Area	V-OS						
Industrial							
Village Business Park	V-BP	29.69				0.2	258,659.30
Public Facilities							
Elementary School Sites	V-ES	17.17					
Major Roadways							
Major Roadways	ROW	19.82					
Total		649.50			3,341		448,014.60

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

Table 3.C: Southeast Neighborhood Land Use Summary

Land Use Type	Land Use District	Acreage (ac)	Density Range (du/ac)	Target Density (du/ac)	Dwelling Units	Commercial/ Office/ Industrial (FAR)	Commercial/ Office/ Industrial (SF)
Residential							
Village Country Estates	V-CE		0.1 – 2.0	1.5			
Village Low Density	V-LDR	295.91	2.1 – 7.0	5.25	1,554		
Village Medium Density	V-MDR	124.64	7.1 – 15.0	11.25	1,402		
Village High Density	V-HDR	45.15	15.1 – 50.0	22.5	1,016		
Residential Subtotal		465.70			3,972		
Mixed Use							
Village Mixed Use	V-MU	42.65	7.1– 50.0			0.35	650,241.90
Village Parks and Recreation							
Community Parks	V-PR	14.83					
Neighborhood Parks		34.65					
West Trail							
South Trail		3.20					
Pocket Parks/Basins		13.07					
Village Parks and Recreation Subtotal		65.75					
Natural Open Space							
Fresno River Area	V-OS	16.78					
Industrial							
Village Business Park	V-BP						
Public Facilities							
Elementary School Sites	V-ES	16.68					
Major Roadways							
Major Roadways	ROW	37.43					
Total		644.99			3,972		650,241.90

Source: The Villages at Almond Grove Specific Plan (KTGY 2021).

Table 3.D: Southwest Neighborhood Land Use Summary

Land Use Type	Land Use District	Acreage (ac)	Density Range (du/ac)	Target Density (du/ac)	Dwelling Units	Commercial/ Office/ Industrial (FAR)	Commercial/ Office/ Industrial (SF)
Residential							
Village Country Estates	V-CE	36.00	0.1 – 2.0	1.5	54		
Village Low Density	V-LDR	192.40	2.1 – 7.0	5.25	1,010		
Village Medium Density	V-MDR	94.00	7.1 – 15.0	11.25	1,058		
Village High Density	V-HDR	60.00	15.1 – 50.0	22.5	1,350		
Residential Subtotal		382.40			3,472		
Mixed Use							
Village Mixed Use	V-MU	65.00	7.1 – 50.0			0.35	990,990.00
Village Parks and Recreation							
Community Parks	V-PR	10.00					
Neighborhood Parks		20.00					
West Trail							
South Trail							
Pocket Parks/Basins		20.00					
Village Parks and Recreation Subtotal		50.00					
Natural Open Space							
Fresno River Area	V-OS	0.00					
Industrial							
Village Business Park	V-BP	0.00					
Public Facilities							
Elementary School Sites	V-ES	20.00					
Major Roadways							
Major Roadways	ROW	71.20					
Total		588.60			3,472		990,990.00

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

3.3.1 Proposed Land Uses

The Village at Almond Grove Specific Plan would establish nine land use districts, which would implement the “Specific Plan Area (SP)” land use designation of the City of Madera General Plan, as amended. As the primary implementing document for the Specific Plan Area, the intent of each land use district is described below, and the Specific Plan land use districts are shown in Figure 3-3, Land Use Plan.

In addition, the proposed Specific Plan would include infrastructure improvements including roadways and utilities. Additional details for all proposed Specific Plan components, including the location of land uses within the Specific Plan Area would be developed and refined as part of the preparation of the Specific Plan, during the application review, and during the environmental review process.

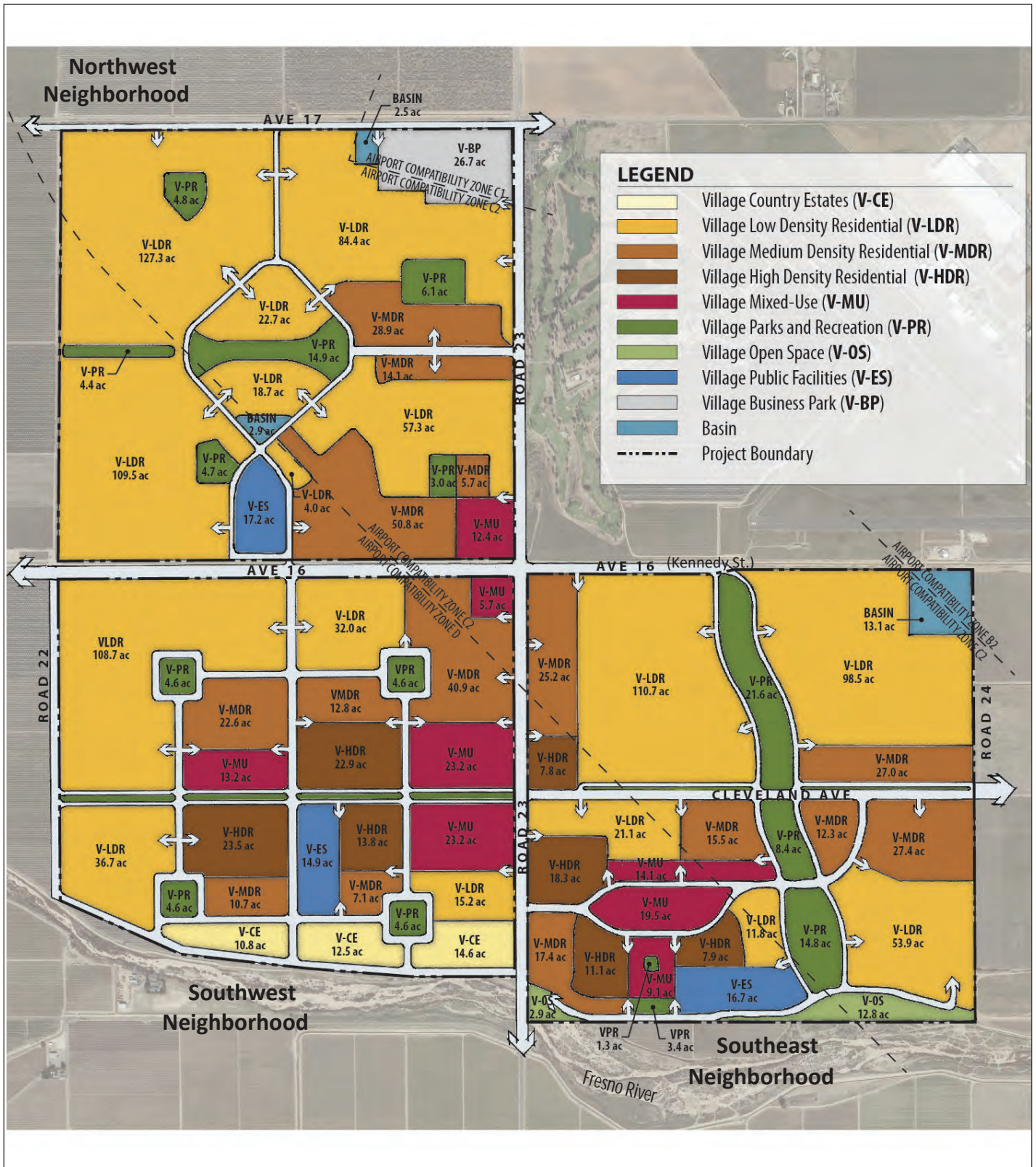


FIGURE 3-3

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Tables 3.B through 3.D show the proposed land uses divided into three neighborhoods:

- Northwest Neighborhood. This area is approximately 650 acres in size and is bounded by Avenue 17 to the north, Road 23 to the east, Avenue 16 to the South, and agriculture to the west.
- Southeast Neighborhood. This area is approximately 589 acres in size and is bounded by Avenue 16 to the north, Road 23 to the east, the Fresno River to the South, and agriculture to the west.
- Southwest Neighborhood. This area is approximately 645 acres in size and is bounded by Avenue 16 to the north, agriculture to the east, the Fresno River to the South, and Road 23 to the west.

3.3.1.1 Residential

The proposed Specific Plan includes the four residential land use districts described below.

- **Village Country Estates (V-CE).** This district supports single-family detached residential development at a density range of 0.1 to 2.0 dwelling units per acre (du/ac).
- **Village Low Density Residential (V-LDR).** This district supports single-family detached residential development at density range of 2.1 to 7.0 du/ac.
- **Village Medium Density Residential (V-MDR).** This district supports a combination of single-family detached, single-family attached (e.g., townhomes, condominiums) and multi-family development at a density of 7.1 to 15.0 du/ac.
- **Village High Density Residential (V-HDR).** This district supports a combination of single-family attached and multi-family development at a density of 15.1 to 50.0 du/.

3.3.1.2 Mixed Use

The Specific Plan includes the following mixed-use land use district:

- **Village Mixed Use (V-MU).** The Specific Plan identifies three Village Mixed Use (VMU) plan areas. The VMU district is designed to provide flexibility to respond to changing market conditions and consumer preferences, while allowing for innovation in project design. The V-MU district may be developed with one or more types of land uses, including higher density residential (7.1 to 50.0 du/ac), commercial, office, public and/or semi-public uses. Single-family detached homes shall not be permitted in the V-MU districts.

3.3.1.3 Industrial

The Specific Plan includes the following industrial land use district.

- **Village Business Park (V-BP).** The V-BP district accommodates industrial-serving, commercial and office uses, and very light industrial uses, which may be developed at a target intensity of

0.2 FAR, as limited by Airport Land Use Compatibility Plan. Development within this land use district is typically multi-tenant in nature; however, single-tenant buildings are not precluded.

3.3.1.4 Parks, Recreation and Open Space

The Specific Plan includes the following land use districts for parks, recreation and open space within the Plan Area.

- **Village Parks and Recreation (V-PR).** The V-PR district includes community parks, neighborhood parks, pocket parks, village paseos, neighborhood paseos, landscape corridors, and development edge buffers. Basins are also accommodated within this land use district.
- **Village Open Space (V-OS).** The V-OS district includes the preservation and enhancement of natural open space. The area along the Fresno River is included in this land use district.

3.3.1.5 Public Facilities

The Specific Plan includes the following land use district for public facilities.

- **Village Public Facilities (V-PF).** The V-PF district includes elementary school sites and public facilities such as fire stations, libraries, museums, police stations and post offices. Development of school facilities on the proposed elementary school sites identified within the Plan Area would be subject to review and approval by Madera Unified School District.

3.3.2 Development Regulations and Design Guidelines

Chapter 6 of the Specific Plan establishes permitted uses and physical development standards and regulations for the planned development of the Specific Plan. Development standards include criteria for site design, architecture, landscaping, parking, and circulation that would apply to development of the Project and which would serve as the Specific Plan Area's zoning. At the time that a developer/builder proposes a project under the Specific Plan, the future project would be reviewed for consistency with the development regulations and guidelines included in the Specific Plan when more project-specific information and details are available.

The standards and guidelines establish requirements specific to each proposed land use category such as maximum FAR, maximum building area, maximum building heights, building setbacks from property lines, landscaping standards, and required off-street parking. See Table 6.1 for development standards and Table 6.2 for permitted uses of the Specific Plan.

Chapter 7 of the Specific Plan sets forth design guidelines applicable in the Specific Plan Area generally, and in each of the land use districts. These guidelines apply to site design, landscaping, and building materials and architecture.

3.3.3 Proposed Circulation

The following provides a description of the proposed automobile, pedestrian and bicycle circulation within the Specific Plan Area. Figure 3-4, Circulation Plan, shows the proposed roadways and classifications.

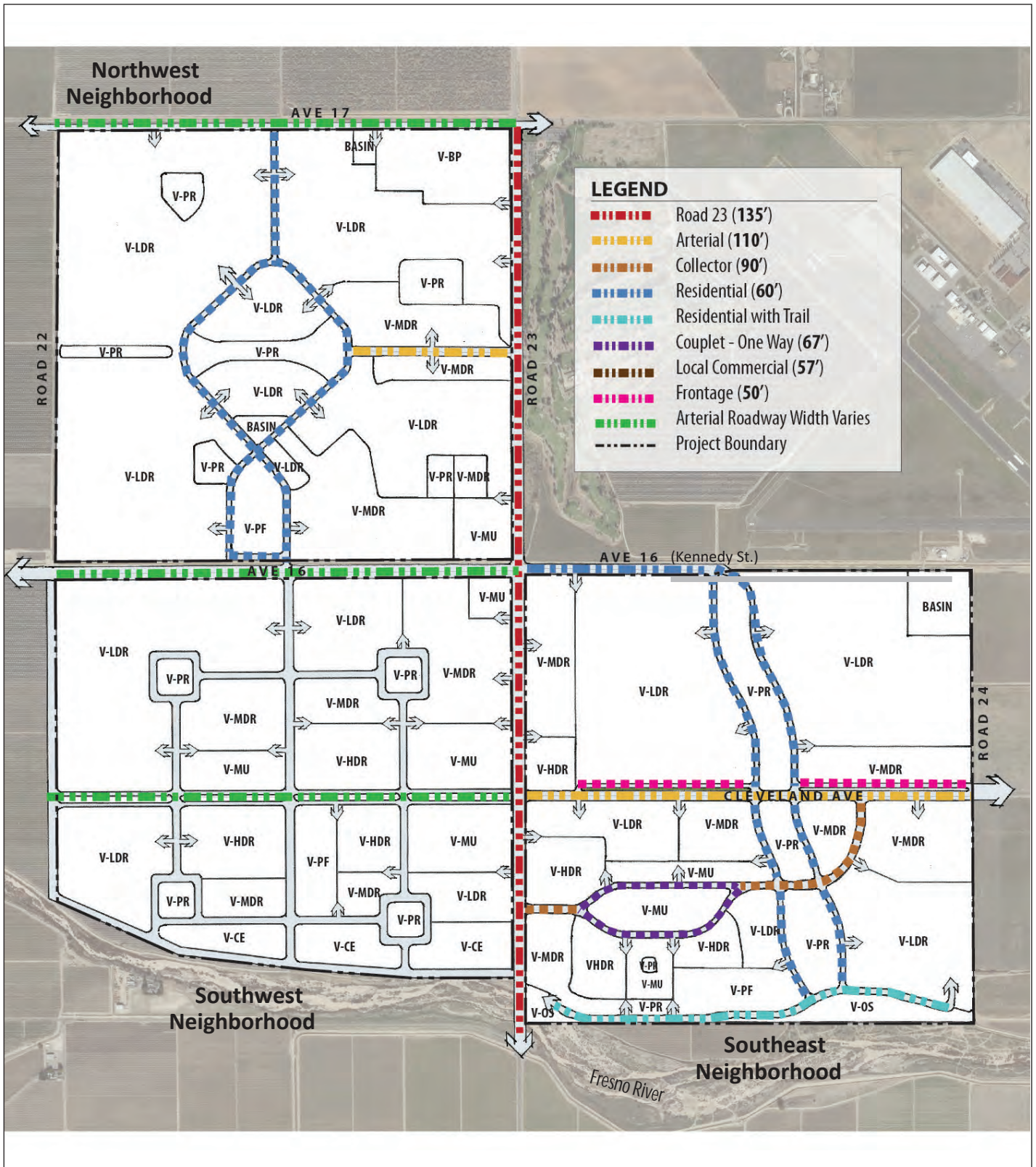


FIGURE 3-4

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The Villages at Almond Grove Specific Plan EIR
Circulation Plan

SOURCE: The Villages at Almond Grove Specific Plan, February 2021

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3.3.3.1 Vehicle Access

Primary access roads to the Specific Plan Area include Avenue 17, Avenue 16 (Kennedy Street), and Avenue 15 ½ (Cleveland Avenue) and Road 23. Current access to the Specific Plan Area would not be altered as a part of the Specific Plan.

The General Plan's circulation system for the Specific Plan Area consists of Arterials, Collectors, loop Road and local Streets. Arterials and Major Collectors are located alternately every mile with a Minor Collector located approximately every half-mile. The Vern McCullough Fresno River trail is a Class I³ trail that provides access and mobility opportunities for pedestrians, runners and bicyclists. Currently the system does not extend to the project site.

3.3.3.2 Pedestrian Circulation

The pedestrian circulation system would utilize sidewalks and paseos throughout the Specific Plan Area. Sidewalks would be provided along all streets and would be a minimum of five feet wide to a maximum of 12 feet wide. Sidewalks on Residential, Collector, Arterial, and Frontage roads would be 5 feet wide, while sidewalks on Local Commercial streets would be 10 feet wide. Sidewalks along Road 23 would be 8 feet wide, and sidewalks on the One-Way Couplets would be 12 feet wide. Sidewalks would be constructed of concrete as part of the roadway improvements. Paseos would be incorporated as part of the open space area and would provide pedestrian connections throughout the Specific Plan Area.

3.3.3.3 Bicycle Circulation

Bicycle lanes and off-street trails would provide accessibility and mobility throughout the Specific Plan Area. In addition, a multi-purpose pedestrian and bicycle trail would be constructed along the Fresno River. Trail connections would be constructed to link the multi-purpose trail along the river that connects to the Vern McCullough Fresno River trail with on-street bicycle network. Proposed bike paths would provide linkages to the City's master planned bike path system.

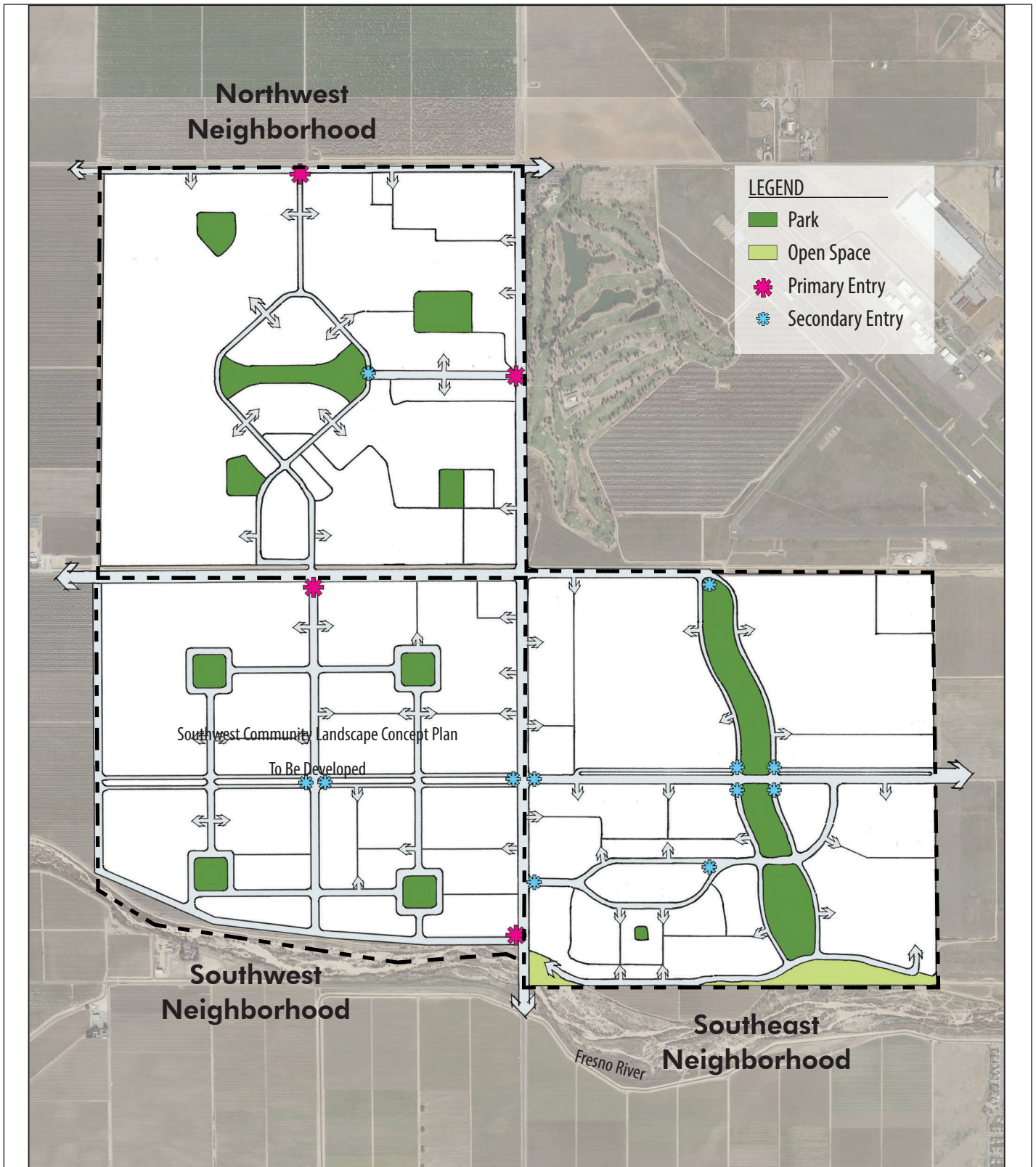
3.3.4 Landscape Guidelines

3.3.4.1 Master Landscape Concept Plan

Figure 3-5, Master Landscape Plan, shows the proposed locations of key landscape features in the Specific Plan Area, including the community entries, landscape corridors, paseos, parks and development edge buffers.

³ A Class I provides a completely separated facility for the exclusive use of bicycles and pedestrians with crossflow by vehicles minimized.

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FIGURE 3-5



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The Villages at Almond Grove Specific Plan EIR
Master Landscape Plan

SOURCE: The Villages at Almond Grove Specific Plan, 2021

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3.3.4.2 Streetscapes

The streetscape sections included in the Specific Plan are intended to illustrate the general streetscape design and depict only typical street conditions. For cross sections showing different conditions of each street, please refer to Chapter 5 of the Specific Plan. Final streetscape design may vary based on actual site conditions. A list of recommended trees, shrubs and groundcovers for arterial and collector streets is provided in the Plant Palette in Section 7.4.8 of this Specific Plan.

3.3.4.3 General Landscape Criteria

In both public and private spaces, landscape will be designed with an understanding of massing, scale and view opportunities. The following design criteria will be taken into consideration:

1. Landscaping should define edges, soften building contours, highlight important architectural features, provide shade for pedestrians, add visual interest, and screen less attractive elements.
2. Incorporate special landscape treatments at entry areas and special nodes such as building entries, street intersections and public gathering areas.
3. Where appropriate, use special landscape elements such as arbors, trellis, and benches to create focal points, enhance visual interest and provide pedestrian comfort. Landscape elements should relate to the character and scale of the neighborhood and the surrounding space.
4. Plant material selections and locations should consider the site, soil conditions, solar orientations and relationships to adjacent streets and buildings.
5. Wherever possible, select plant materials that require minimal or no irrigation following establishment, do not require active maintenance such as mowing or use of chemical fertilizers, pesticides or herbicides.
6. Combine plant materials of different colors and textures to create visual interest.
7. Protect and preserve native plant species in natural open space, wherever feasible.
8. Consider view opportunities from the neighborhoods to surrounding amenities, using landscaping to frame these views rather than leaving view areas completely open.
9. Development perimeter edges should be buffered by using planting materials that blend harmoniously with the surrounding landscape.
10. Perennials are encouraged in parks to create colorful, animated gardens.
11. Vines may be used to soften arbors, architecture, garages and front porches. Vine grouped in a cluster (pocket) are encouraged along streets to break up lines of garages.
12. Street trees may be either informally or formally spaced, but should average not less than 30 feet on center spacing where the site plan can accommodate such spacing. Planting of street

trees should be coordinated with public utility easements and above-ground structures, as necessary.

13. Specimen trees should be used at community and neighborhood entries, parks and key planting medians to provide focal points.
14. In alley drives, shrub pockets should be planted with vertical shrubs, along with ground cover and smaller shrubs at the base. Trees may be provided where space allows. Trees in alleys are optional and at the discretion of the developer/builder, and are not required as part of project approvals.
15. Combine informal plant and tree groupings should be combined along natural open space adjacent to the Fresno River and open space trails. Tree sizes should vary within informal areas.
16. Paseos/trails and residential streets should offer canopy trees and flowering accent trees to provide shade and color.
17. Planting in the Village Center should be more formal in character than the rest of the community. The Village Center should incorporate a more enhanced palette, emphasizing year-round greenery with color accents.
18. Suitable deciduous trees that will provide full canopy shade at maturity should be planted along the Village Center streets, where appropriate.
19. Landscape plans for any development should consider traffic safety sight line requirements and structures on adjacent properties to avoid conflicts as the trees and shrubs mature.
20. Street trees and trees in private landscaped areas near public walkways and street curbs should be selected and installed to prevent damage to sidewalks, curbs, gutters and other public improvements as much as possible.
21. Automatic irrigation systems should be installed in rights-of-way, public areas and mixed-use areas. In areas where irrigation is required, the irrigation system should be designed to maximize efficiency and limit or eliminate the use of potable water. Potential strategies for reducing irrigation water include using native/adapted plantings, high-efficiency equipment including, but not limited to, drip irrigation, use of captured rainwater, and use of recycled wastewater where feasible. Irrigation design should utilize weather- and climate-smart controllers, irrigation zones to suit plant requirements, and high-efficiency nozzles.
22. Erosion control techniques to mitigate increased runoff should be integrated with the overall landscape design. Emphasis should be placed on drainage solutions that conform to the natural character of the landscape.
23. Landscaping should be continuously maintained and replanted as necessary. All landscaped areas should be kept free of debris and litter.

3.3.4.4 General Hardscape Criteria

1. Hardscape materials should be selected with an understanding of massing, scale and programmed use.
2. Use durable paving and hardscape materials. Materials may include, but are not limited to, natural color concrete with medium water-wash finish, retardant finish or seeded aggregate finish, colored concrete and decomposed granite.
3. Enhanced paving should be used at community and neighborhood entries, and heavy pedestrian traffic areas in the Village Center.
4. Consider the use of permeable paving materials that help promote infiltration and reduce stormwater runoff.
5. Consider the use of paving materials with a high Solar Reflectivity Index.

3.3.4.5 Entry Treatments

Community Entries. The guidelines included in Table 3.E would apply to the neighborhood entries.

Table 3.E: Neighborhood Entries Guidelines

Neighborhood Entries Guidelines	
1.	The primary neighborhood entry treatment establishes the overall theme that will be reinforced at other key entry locations throughout the neighborhood. Locations and design of primary entries are identified in the proposed Specific Plan. The design includes a main feature as a vertical monument in the median supported by supplemental walls on one or both side of the road as the space allows and will be determined with each Tentative Map. The vertical element may be located on a prominent corner rather than in a median, but the design intent of the Specific Plan would be maintained.
2.	Secondary neighborhood entries should feature similar treatments as the primary neighborhood entry, but at a smaller scale.
3.	Enhanced plantings may be incorporated around project entry monumentation.
4.	Discreetly placed lighting should be used to enhance the entry experience during the nighttime hours.

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

Mixed Use Area Entries. The mixed use area entries would reflect the neighborhood entry treatment and the overall landscape concept of the Specific Plan. The locations of the mixed use area entries would be determined at the time of the Tentative Map submittal for the mixed use areas. The guidelines included in Table 3.F would apply to the mixed use area entries.

Table 3.F: Mixed Use Area Entries Guidelines

Mixed Use Area Entries Guidelines	
1.	Provide enhanced landscaping at the Village Center entries that complement the surrounding streetscape. Layer shrub planting at the entry areas to create depth, texture and interest.
2.	Enhanced paving, such as concrete pavers or colored and textured concrete, should be provided at the entry corners.
3.	Consider using planters and/or low seat walls at the entries to delineate public spaces. Materials should complement the landscape theme(s).
4.	Incorporate special identity signage, lighting and/or architectural icon elements at the entries, where appropriate.

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

Residential Neighborhood Entries. At the discretion of the developer/builder, each residential neighborhood entry may contain signage. Where provided, the signage should identify the name of the development within the planning area(s). The locations of the residential neighborhood entries would be determined at the time of the Tentative Map submittal for the planning areas.

3.3.5 Parks, Recreation, and Open Space

An integrated network of open spaces, park areas, and trails would facilitate connectivity throughout the Specific Plan Area and would provide passive and active use opportunities for Project users, employees and the community at large. The proposed park, open space and recreational facilities are described more fully in Chapter 5 of the Specific Plan.

The open space includes parks, landscape corridors adjacent to major streets, development edge buffers, and paseos. These areas are identified as open space to provide recreation areas, pedestrian/bicycle travel, flood control through the use of enhanced drainage ways, and buffer zones. The locations of the open space areas are shown in Figure 3-5.

3.3.5.1 Parks

Community Parks. Community parks would be over 10 acres in size and would provide a variety of active and passive recreation amenities. Amenities may include open turf areas, ballfields for organized sports, basketball courts, volleyball courts, children play areas with playground equipment, picnic facilities, amphitheaters, walking and bike paths, shade structures, community rooms, swimming pools, restrooms and parking. In addition, the community parks may include interpretive areas commemorating the history of Madera.

Neighborhood Parks. Neighborhood parks would range in size from 3 to 10 acres, and may include active and passive recreation amenities and associated facilities such as open play areas, basketball courts, playground equipment, picnic and BBQ areas, shade structures, walking and bike paths, and parking.

Pocket Parks. A series of pocket parks, in size of three or fewer acres, would be located throughout the Specific Plan Area. These smaller parks would generally provide recreation amenities and open space intended to serve the uses located in the area surrounding each respective pocket park. Typical amenities at pocket parks would include children's play areas with playground equipment, picnic tables and seating, gardens, and walking and bike paths.

General Park Development Guidelines. The guidelines listed in Table 3.G would apply to parks within the Specific Plan Area.

3.3.5.2 Trails and Paseos

Trails and paseos would be located throughout the Specific Plan Area to provide pedestrian and bicycle connectivity within neighborhoods as well as to natural open space features.

Table 3.G: Park Development Guidelines

Park Development Guidelines	
1.	Parks should contain recreation amenities and facilities consistent with the needs of nearby residents.
2.	Park landscaping should incorporate native plant species, wherever possible, to reduce irrigation and maintenance needs.
3.	Parks should be linked to the surrounding land uses via trails and/or sidewalks.
4.	Park amenities should be designed and constructed for maximum durability and safety and minimal maintenance.
5.	Parks should be designed to facilitate surveillance by police, security services and nearby residents.
6.	Park development should occur in conjunction with the adjacent residential development on a project-by-project basis.
7.	Some basin locations where feasible may serve dual purposes for recreation and drainage.
8.	Parks shown on the Conceptual Master Landscape Plan shall be dedicated to the City in accordance with the requirements stipulated in the development agreements between the individual developers and the City. Maintenance of these public parks shall be provided by the City. Maintenance of private parks will be the responsibility of individual homeowners' associations.

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

Village Paseos. Village paseos would provide pedestrian and bicycle linkages to traverse each community and various residential neighborhoods. The village paseos would include multi-use trails, drainage and bioswales, and open space areas. The village paseos would be accessible from various residential areas and would connect to a series of parks via neighborhood paseos. In most locations, the village paseo would vary from 10 to 25 feet in width, including a minimum 10-foot-wide multi-use trail that would be constructed of asphalt, decomposed granite or other suitable all-weather surfaces, and landscaped areas adjacent to the trail. Benches and seating areas would be provided along the trail, where appropriate.

Vernon McCullough Fresno River Trail. The Vernon McCullough Fresno River Trail currently provides access to the natural riparian environment along the Fresno River east of the Specific Plan Area. The Specific Plan would construct an extension of the trail along the Fresno River in the Specific Plan Area. The trail would be connected to residential neighborhoods, parks and open space areas within the Specific Plan Area. The trail would incorporate a multi-use trail adjacent to natural open space and the future alignment would avoid existing trees whenever possible. The multi-use trail would be a minimum of 10 feet wide and would be constructed with asphalt, decomposed granite or other suitable all-weather surfaces.

Landscape Corridor Trails. Multi-use trails would be located within the landscape corridors along streets. These landscape corridor trails would provide pedestrian and bicycle connections between neighborhoods within the Specific Plan Area and future communities surrounding the Specific Plan area. The landscape corridor trails would be a minimum of eight feet wide and would be constructed of concrete, asphalt, decomposed granite or other suitable all-weather surfaces. Plantings adjacent to the landscape corridor trails would be informal in nature.

Sidewalks. Sidewalks within the Specific Plan Area would be provided along all streets, and would be a minimum of 5 feet wide to a maximum of 12 feet wide. Sidewalks on Residential, Collector, Arterial, and Frontage roads would be 5 feet wide, while sidewalks on Local Commercial streets would be 10 feet wide. Sidewalks along Road 23 would be 8 feet wide, and sidewalks on the One-Way Couplets would be 12 feet wide.

3.3.5.3 Natural Open Space

Natural open space areas would be included along the southern boundary of Specific Plan Area to allow for biological resource protection, and enhanced drainage features for flood control. Public access to the natural open space areas would be provided, to the extent permitted by regulatory agencies. The guidelines listed in Table 3.H would apply to the design and development of natural open space areas:

Table 3.H: Natural Open Space Guidelines

Natural Open Space Guidelines	
1.	Natural open space should be connected to other land uses by trails or paseos to the greatest extent feasible.
2.	All-weather pedestrian/bicycle trails are permitted in the natural open space areas.
3.	Landscaping, if provided, should incorporate native plant materials and blend with the natural character of the surrounding open space areas.
4.	A program for removal of invasive plant species should be developed for all open space areas.
5.	Grading and construction should be limited to trails, drainage channels and related features such as access road and bridge improvements, water quality enhancement basins, irrigation pumping facilities, etc. Areas disturbed by these construction activities should be re-vegetated with native annual grasses and/or other riparian vegetation.
6.	Construction activities within natural open space areas will be subject to regulatory agency approvals, where applicable.
7.	Land uses located adjacent to natural open space areas should be designed so as not to adversely impact the protected resources.

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

3.3.6 Lighting Guidelines

The lighting guidelines listed in Table 3.I would apply to development within the Specific Plan Area.

Table 3.I: Lighting Guidelines

Lighting Guidelines	
1.	Lighting design should be an integral part of the overall site and building design. Lighting design should complement the surrounding streetscape and architecture, and be incorporated into other nearby design elements.
2.	Street lights, walkway lighting, architectural lighting and landscape accent lighting should be aesthetically pleasing and subdued, while providing for public safety. Use low-energy, shielded light fixtures that direct light downward to minimize glare. Up-lighting of architectural features and landscaping may be permitted.
3.	Street lights should be located at regular intervals along streets and at intersections, cul-de-sacs, corners, and areas where pedestrians might commonly encounter vehicular traffic, or as required by the City of Madera.
4.	Public Right of Way and parking areas should be adequately illuminated for public safety as required by City of Madera. Human-scaled light poles, bollards or path lights should clearly mark the path of travel to enhance pedestrian safety and comfort.
5.	Lighting for non-residential development should be screened from direct view from adjacent residential uses. Lighting for non-residential development should be designed to minimize glare, obtrusive light and artificial sky glow by limiting lighting that is misdirected, excessive or unnecessary, while at the same time maintaining a safe environment.
6.	Lighting that represents movement, flashes, blinks or is of unusually high intensity or brightness is prohibited, except during holiday seasons when flashing lights used for holiday displays are permitted.
7.	Lighting in residential areas and along streets and trails should be designed to minimize artificial lighting from reflecting into adjacent natural open space.
8.	Incorporate energy-saving light fixtures, where feasible.
9.	Lighting should conform to local codes and ordinances, applicable safety and illumination requirements, and California Title 24 requirements.

Source: The Villages at Almond Grove Specific Plan (KTYG 2021).

3.3.7 Sustainability Guidelines

Development would be encouraged to incorporate sustainable building and design practices to lessen the environmental impacts of the proposed Specific Plan. These practices can include compact development, reduced impervious surfaces, improved water detention and conservation, preservation of habitat areas, mixing of compatible land uses, water-efficient landscaping and irrigation, and enhanced pedestrian and bicycle amenities that reduce reliance on the use of automobiles.

It is anticipated that new sustainable strategies would be continually developed during the buildout of the Specific Plan, but the Specific Plan would encourage the implementation of realistic sustainable design strategies into project design as the community continues to evolve over time. Table 3.J provides a summary of possible sustainable design strategies that may be utilized during implementation of the Specific Plan.

3.3.8 Utilities and Service Systems

3.3.8.1 Potable Water

The City of Madera would provide water to the Specific Plan Area. The Water System Master Plan shown on Figure 3-6, Conceptual Water Master Plan, illustrates the major water facilities proposed for the project. The proposed master plan, distribution system, and pipe sizes, were developed based on the proposed Land Use Plan. Adjustments to the land uses would require modifications to the Conceptual Water System Master Plan based on approval of subsequent development entitlements that finalize residential densities, Neighborhood Commercial, Recreational Center and office use.

3.3.8.2 Wastewater

The City of Madera would provide wastewater services to the Specific Plan Area. The City of Madera Sanitary Sewer System Master Plan (SSSMP) identified the need for an additional sewer trunk line on Road 23 to connect to the existing Waste Water Treatment Plant (WWTP). The Wastewater System Master Plan included as Figure 3-7, Wastewater System Master Plan, shows the wastewater pipeline system for the Specific Plan. Adjustments to the sewer master plan would be made with subsequent development entitlements approving final street alignments and actual residential densities and specific commercial uses.

The sewer trunk line in Road 23 would be a 30-inch line that would connect to a 48-inch line that would run parallel to an existing 48-inch pipeline that connects to the existing WWTP. A lift station would be installed at the intersection of Avenue 16 and Road 23.

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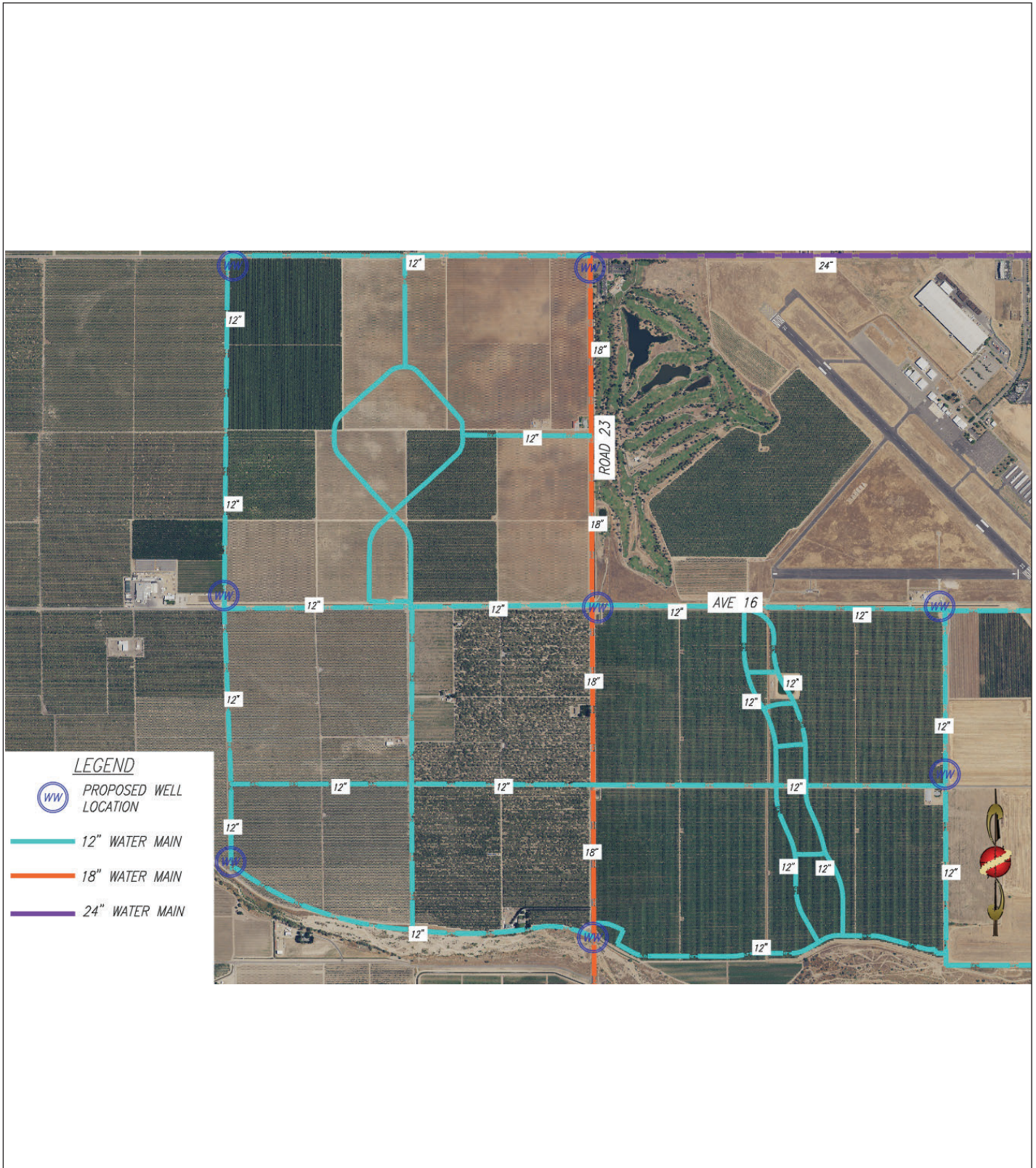


FIGURE 3-6

LSA



NOT TO SCALE

The Villages at Almond Grove Specific Plan EIR
 Conceptual Water Master Plan

SOURCE: The Villages at Almond Grove Specific Plan, February 2021

\\ACORP04\FREProjects\CMD1801 Madera Village D\PRODUCTS\Graphics\Figure 3-6.ai (12/20/2021)

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FIGURE 3-7

LSA



NOT TO SCALE

The Villages at Almond Grove Specific Plan EIR
Wastewater System Master Plan

SOURCE: The Villages at Almond Grove Specific Plan, February 2021

\\ACORP04\FREProjects\CMD1801 Madera Village D\PRODUCTS\Graphics\Figure 3-7.ai (12/20/2021)

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Table 3.J: Sustainability Guidelines

Sustainability Guidelines	
Site Planning	
1.	In Village Core areas, encourage compact development that concentrates residential areas close to other land uses such as retail commercial uses and parks.
2.	Incorporate a range of housing types and densities in the community.
3.	Create an interconnected street network that facilitates movement of pedestrians, cyclists and NEV users
4.	Enhance public transportation accessibility.
5.	Provide basic services in the Village Mixed Use areas and enhance the community's connectivity to such services.
6.	Encourage design of landscape areas that capture and direct stormwater runoff, particularly in open space areas, parks and trails/paseos.
7.	Stabilize slopes to limit erosion as part of the stormwater management plan and erosion control plan.
Energy Efficiency	
The Specific Plan encourages future development to strive for energy reduction in excess of that required by Title 24 standards. Where feasible and appropriate, the following strategies are encouraged, but not required:	
1.	Develop strategies to provide natural lighting, where feasible, to reduce reliance on artificial lighting.
2.	Encourage the use of Low-E or EnergyStar windows.
3.	Encourage the use of high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.
4.	A properly sized and energy-efficient heat/cooling system may be used in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
5.	Encourage implementing some of the strategies of the EnergyStar program, which is an energy performance rating system developed by the U.S. Department of Energy and the Environmental Protection Agency. The program certifies products and buildings that meet strict energy-efficiency guidelines. Involvement in the EnergyStar program will be completely optional at the discretion of each individual developer/builder.
6.	For retail, commercial and office uses, promote the use of light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.
7.	In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel efficient vehicles.
Materials Efficiency	
1.	Use dimensional planning and other material efficiency strategies, where feasible. These strategies reduce the amount of building material wastes and cut construction costs.
2.	Consider using recycled base, crushed concrete base, recycled content asphalt, shredded tires in base and asphalt in roads, parking areas and drive aisles, if feasible and economically viable.
3.	Encourage the provision of adequate space to facilitate recycling collection.
4.	Encourage the use of rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) into new homes. Examples of materials that could achieve this goal include, but are not limited to, bamboo, wool, cotton insulation, agrifiber, linoleum, wheatboard, strawboard and cork.
Water Efficiency	
1.	Where feasible reduce water consumption by providing low-flush toilets, low-flow shower heads and other water conserving fixtures, where feasible.
2.	Promote the use of recirculating systems for centralized hot water distribution.
3.	Promote the use of tankless water heaters.
4.	Use micro-irrigation (which excludes sprinklers and high-pressure sprayers) to supply water in non-turf areas, where applicable.
5.	Encourage the use of state-of-the-art irrigation controllers and self-closing nozzles on hoses.
6.	Where feasible, use separate valves for planting areas with different water usage levels, so that plants with similar water needs are irrigated by the same valve.
Landscape Design	
1.	Use low- or medium-water use and native plant materials where appropriate. Turf areas should be minimized in the community to promote water conservation. Limit the use of turf to areas that experience high functional use and are needed to accommodate outdoor activities such as sports, picnicking, etc. Only turf varieties that are suited to the climate should be used.

Table 3.J: Sustainability Guidelines

Sustainability Guidelines	
2.	Promote the use of plant materials that are well suited to the solar orientation and shading of the buildings.
3.	Encourage grouping of plants according to water use, slope aspect and sun/shade requirements. Each hydrozone may be irrigated on a separate valve using high-efficiency irrigation techniques.
4.	Consider the use of organic wood or shredded bark mulch and soil amendments to retain soil moisture.
5.	Encourage the use of colored hardscape materials to reduce glare and/or reflect heat in outdoor plazas and gathering areas.
6.	Encourage the use of low-growing, low- to medium-water use plant material in parkways instead of turf.
7.	Provide shade trees in paved areas and adjacent to buildings, where feasible, to increase natural cooling and conserve energy.
Occupant Health and Safety	
1.	Provide adequate ventilation and high-efficiency, in-duct filtration systems, where feasible, for commercial and office buildings. Heating and cooling systems that ensure adequate ventilation and proper filtration can have a dramatic and positive impact on indoor air quality.
2.	Potential pollutants generated in the home can be managed through the use of exhaust fans for kitchens, baths and laundry rooms.
3.	Provide effective drainage from the roof and surrounding landscape.
4.	Criteria may be established for the delivery and storage of absorptive materials, and the ventilation of spaces once the materials are installed to prevent mold.
Operation, Maintenance and Homeowner Education	
1.	Provide home manuals to owners/occupants on the use and care of “green” components in the home or building, where applicable.
2.	Provide built-in space for recycling containers in the home or building to encourage recycling, where possible.

Source: The Villages at Almond Grove Specific Plan (KTGY 2021).

3.3.8.3 Stormwater

The Conceptual Storm Drainage Master Plan delineating the proposed storm drainage zones and major facilities for Project are included in the Infrastructure Master Plan, included in Appendix C. The Conceptual Storm Drainage Master Plan includes a description of the storm drainage system design and design standards that will provide flood protection to the Northwest Neighborhood and Southeast Neighborhood. A storm drainage master plan for the Southwest Neighborhood would be developed at a future date. The Conceptual Storm Drainage Master Plan was designed by calculating the estimated runoff based on the proposed land uses in the Specific Plan, and may be subject to modification pending approvals of more specific development entitlements over time.

3.3.8.4 Solid Waste

Mid Valley Disposal would provide solid waste disposal services to the project site.

3.3.8.5 Electricity and Natural Gas

Pacific Gas & Electric Company (PG&E) provides electricity and natural gas to the Specific Plan Area. PG&E would install natural gas mains to the Specific Plan Area, as necessary. All new electric lines and all existing lines within the Specific Plan Area would be installed according to City of Madera requirements.

3.3.9 Public Services

3.3.9.1 Fire Services

The City of Madera Fire Department would provide fire protection, paramedic, and emergency response services to the Specific Plan Area.

The fire station closest to the Specific Plan Area is Fire Station 58 at 2558 Condor Drive, less than one mile east of the Specific Plan Area. Fire Station 58 houses a quintuple combination pumper truck and has a staff of three firefighters.

3.3.9.2 Police Services

The Madera Police Department would provide law enforcement service to the Specific Plan Area. The police station is located in Madera at 330 South C Street, approximately four miles to the southeast.

3.3.9.3 Schools

The Madera Unified School District provides public school services to the Specific Plan Area. As discussed above, the development of school facilities within the Specific Plan Area would be subject to review and approval by Madera Unified School District.

3.3.10 Tentative Tract Maps

Two Tentative Tract Maps are included as part of the proposed project. Descriptions of each Tentative Tract Map are included below.

3.3.10.1 Vesting Tentative Tract Map Number 2020-02

Vesting Tentative Tract Map No. 2020-02 pertains to the Southeast Neighborhood, approximately 645 gross acres of property located east of Road 23, between Avenue 16 and the Fresno River (APN: 033-180-002, 003). This map is proposed in conjunction with an annexation request, General Plan Amendment, and the proposed Specific Plan that will establish the requested zone districts. The lot sizes, lot pattern, street design, etc., are proposed in conformance with the requirements detailed in the proposed Specific Plan. Vesting Tentative Tract Map No. 2020-02 proposes the creation of a 2,390-lot residential subdivision with lots ranging in size from 40 feet by 80 feet, to 55 feet by 110 feet. In addition to these residential lots, the tentative tract map proposes to create 29 outlots, 10 of which will be used for parks or open space, 2 for storm drain basins, 12 for future mixed-use developments, 4 for high-density residential uses, and 1 for a future school site. The site will be primarily a mix of Low-Density, Medium-Density, and High-Density residential uses. This tract map will conform to the Permitted Uses pursuant to the Specific Plan; however, Conditional Uses will require separate land use entitlements pursuant to the Specific Plan and may require future environmental analysis.

Because the proposed subdivision is larger than a typical tract map, the Tentative Tract Map 2020-02 has been broken up into 27 blocks. These blocks represent logical boundaries for development and are grouped by land use and/or drainage area whenever possible. The blocks are generally numbered in the logical order of development, however, the blocks could be developed out of sequence. Tentative Tract Map Number 2020-02 is shown in Figure 3-8, Tentative Tract Map Number 2020-02.

3.3.10.2 Vesting Tentative Tract Map Number 2020-03

Vesting Tentative Tract Map No. 2020-03 pertains to the Northwest Neighborhood, approximately 661 gross acres of property located west of Road 23, between Avenue 16 and Avenue 17 (APN: 033-700-02, 03, 04, 05). This map is proposed in conjunction with an annexation request, General Plan Amendment, and the proposed Specific Plan that will establish the requested zone districts. The lot sizes, lot pattern, street design, etc., are proposed in conformance with the requirements detailed in the proposed Specific Plan.

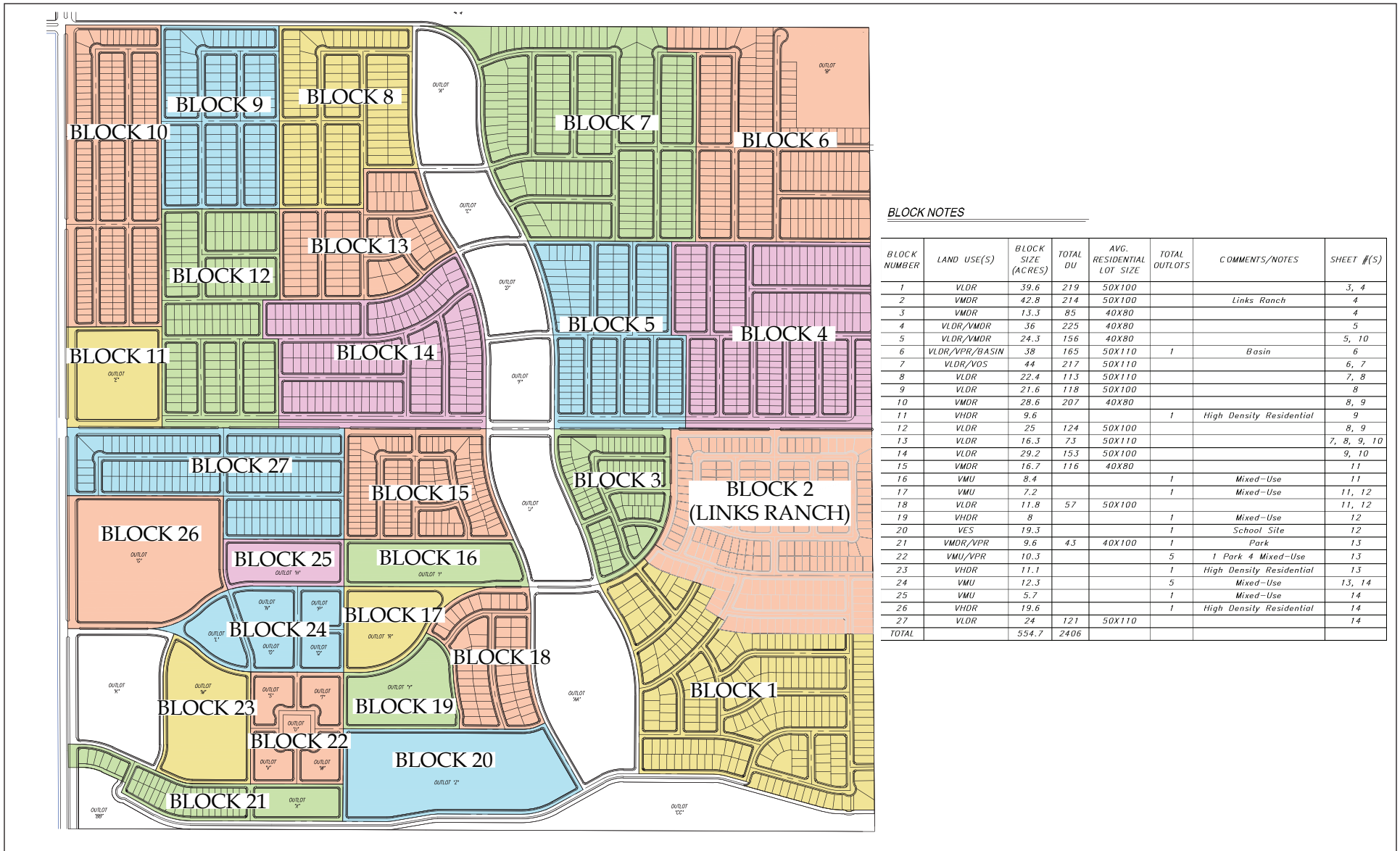
Vesting Tentative Tract Map No. 2020-03 proposes the creation of a 2,815-lot residential subdivision with lots ranging in size from 40 feet by 80 feet to 55 feet by 110 feet. In addition to these residential lots, the tentative tract map proposes to create 17 outlots, 6 of which will be used for parks or open space, 6 for future business park developments, 3 for storm drain basins, 1 for future mixed-use developments, and 1 for a future school site. This tentative tract map will conform to the Permitted Uses pursuant to the proposed Specific Plan; however, Conditional Uses will require separate land use entitlements pursuant to the proposed Specific Plan and may require future environmental analysis.

Because the proposed subdivision is larger than a typical tract map, the map for Tentative Tract Map 2020-03 has been broken up into 36 blocks. These blocks represent logical boundaries for development and are grouped by land use and/or drainage area whenever possible. The blocks are generally numbered in the logical order of development; however, the blocks could be developed out of sequence. Tentative Tract Map Number 2020-03 is shown in Figure 3-9, Tentative Tract Map Number 2020-03.

3.3.11 General Plan Amendment

The proposed project would include several amendments to the General Plan.

The proposed project would modify policies in the Land Use Element related to “Village D: Northwest Madera” to allow for consistency between the General Plan and the proposed Specific Plan. Under “Village D: Specific Policies” beginning on page 8-48 of the General Plan, the following text would be amended.

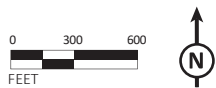


BLOCK NOTES

BLOCK NUMBER	LAND USE(S)	BLOCK SIZE (ACRES)	TOTAL DU	AVG. RESIDENTIAL LOT SIZE	TOTAL OUTLOTS	COMMENTS/NOTES	SHEET #(S)
1	VLDR	39.6	219	50X100			3, 4
2	VMDR	42.8	214	50X100		Links Ranch	4
3	VMDR	13.3	85	40X80			4
4	VLDR/VMDR	36	225	40X80			5
5	VLDR/VMDR	24.3	156	40X80			5, 10
6	VLDR/VPR/BASIN	38	165	50X110	1	Basin	6
7	VLDR/VOS	44	217	50X110			6, 7
8	VLDR	22.4	113	50X110			7, 8
9	VLDR	21.6	118	50X100			8
10	VMDR	28.6	207	40X80			8, 9
11	VHDR	9.6			1	High Density Residential	9
12	VLDR	25	124	50X100			8, 9
13	VLDR	16.3	73	50X110			7, 8, 9, 10
14	VLDR	29.2	153	50X100			9, 10
15	VMDR	16.7	116	40X80			11
16	VMU	8.4			1	Mixed-Use	11
17	VMU	7.2			1	Mixed-Use	11, 12
18	VLDR	11.8	57	50X100			11, 12
19	VHDR	8			1	Mixed-Use	12
20	VES	19.3			1	School Site	12
21	VMDR/VPR	9.6	43	40X100	1	Park	13
22	VMU/VPR	10.3			5	1 Park 4 Mixed-Use	13
23	VHDR	11.1			1	High Density Residential	13
24	VMU	12.3			5	Mixed-Use	13, 14
25	VMU	5.7			1	Mixed-Use	14
26	VHDR	19.6			1	High Density Residential	14
27	VLDR	24	121	50X110			14
TOTAL		554.7	2406				

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FIGURE 3-8

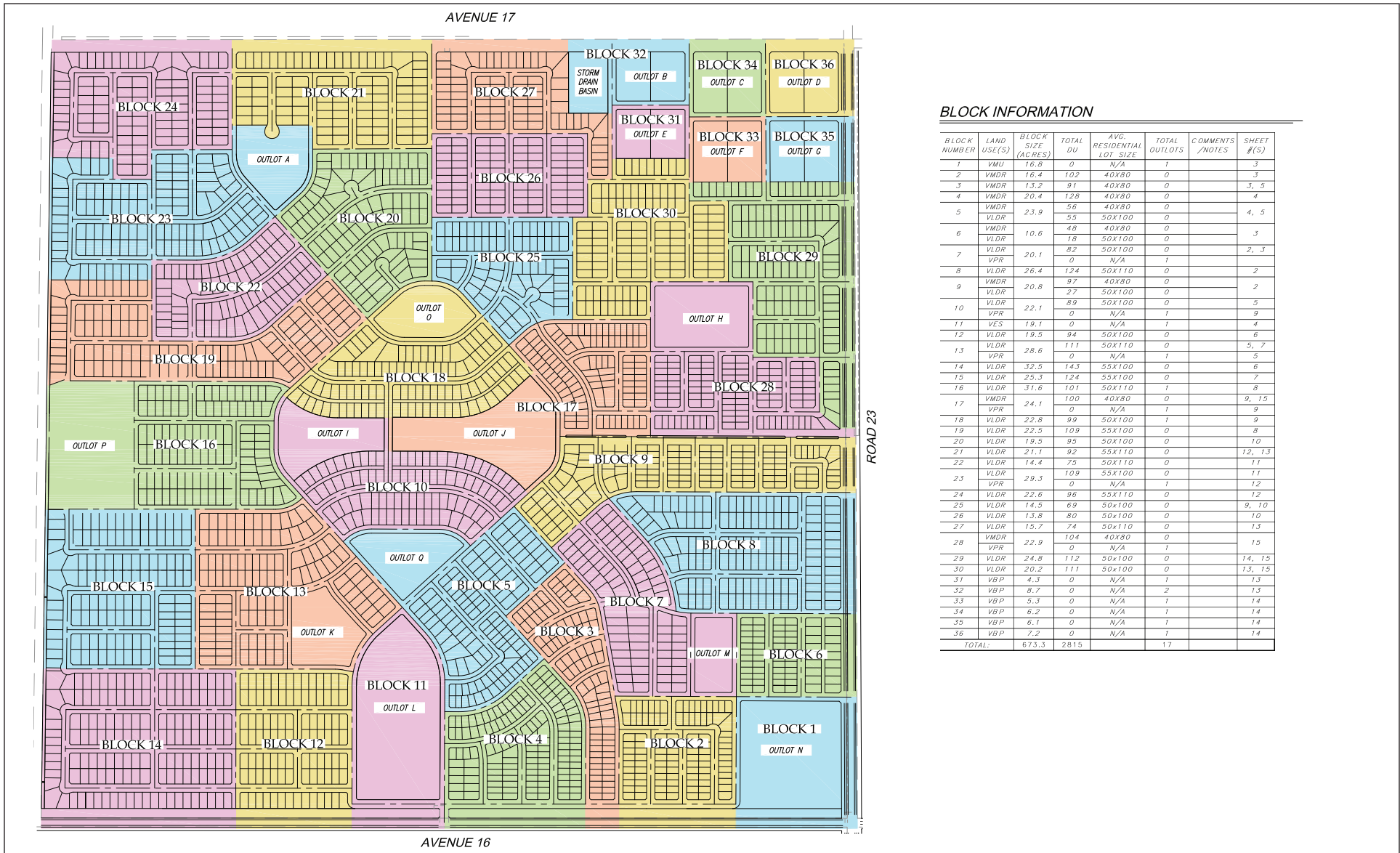


The Villages at Almond Grove Specific Plan EIR
Tentative Tract Map Number 2020-02

SOURCE: Precision Civil Engineering (2020)

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BLOCK INFORMATION

BLOCK NUMBER	LAND USE(S)	BLOCK SIZE (ACRES)	TOTAL DU	AVG. RESIDENTIAL LOT SIZE	TOTAL OUTLOTS	COMMENTS /NOTES	SHEET #(S)
1	VMU	16.8	0	N/A	1		3
2	VMDR	16.4	102	40X80	0		3
3	VMDR	13.2	91	40X80	0		3, 5
4	VMDR	20.4	128	40X80	0		4
5	VDR	23.9	55	50X100	0		4, 5
	VMDR		48	40X80	0		
6	VDR	10.6	18	50X100	0		3
	VDR		82	50X100	0		2, 3
7	VPR	20.1	0	N/A	1		
	VDR	26.4	124	50X110	0		2
9	VMDR	20.8	97	40X80	0		2
	VDR		27	50X100	0		
10	VDR	22.1	89	50X100	0		5
	VPR		0	N/A	1		9
11	VES	19.1	0	N/A	1		4
12	VDR	19.5	94	50X100	0		6
13	VDR	28.6	111	50X110	0		5, 7
	VPR		0	N/A	1		5
14	VDR	32.5	143	55X100	0		6
15	VDR	25.3	124	55X100	0		7
16	VDR	31.6	101	50X110	1		8
17	VMDR	24.1	100	40X80	0		9, 15
	VPR		0	N/A	1		9
18	VDR	22.8	99	50X100	1		9
19	VDR	22.5	109	55X100	0		8
20	VDR	19.5	95	50X100	0		10
21	VDR	21.1	92	55X110	0		12, 13
22	VDR	14.4	75	50X110	0		11
23	VDR	29.3	109	55X100	0		11
	VPR		0	N/A	1		12
24	VDR	22.6	96	55X110	0		12
25	VDR	14.5	69	50X100	0		9, 10
26	VDR	13.8	80	50X100	0		10
27	VDR	15.7	74	50X110	0		13
28	VMDR	22.9	104	40X80	0		15
	VPR		0	N/A	1		
29	VDR	24.8	112	50X100	0		14, 15
30	VDR	20.2	111	50X100	0		13, 15
31	VBP	4.3	0	N/A	1		13
32	VBP	8.7	0	N/A	2		13
33	VBP	5.3	0	N/A	1		14
34	VBP	6.2	0	N/A	1		14
35	VBP	6.1	0	N/A	1		14
36	VBP	7.2	0	N/A	1		14
TOTAL:		673.3	2815		17		

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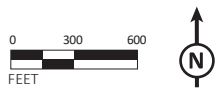


FIGURE 3-9

The Villages at Almond Grove Specific Plan EIR
Tentative Tract Map Number 2020-03

SOURCE: Precision Civil Engineering (2020)

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VILLAGE D: SPECIFIC POLICIES

The following policies are intended to identify some of the unique issues for this area which will need to be addressed, and to guide development, as the area transitions to urban use.

- All future development in this Village shall conform to the Building Blocks principles as described in this General Plan.
- ~~In conjunction with village and neighborhood planning, a mechanism shall be established which creates a permanent agricultural buffer where the westerly edge of the Village abuts the Growth Boundary. This buffer shall average at least 400' in depth, with a minimum depth of 250', and must run continuously along westerly edge of the Village. No habitable structures are to be located within this buffer, although passive recreational opportunities (such as trails and community gardens) may be allowed. Alternative methods and designs to establish the buffer may be proposed, and including placing the buffer on either side of the Growth Boundary. Physical maintenance of the buffer shall be provided consistent with the design and function of the space.~~
- The Village core area shall provide for an integrated mix of uses, including park and open space uses, along the river.
- Future development along the Fresno River should be designed to take advantage of the river frontage, including orienting development to front the river where not otherwise prohibited by site conditions.
- Village and neighborhood planning shall provide for the alignment of the designated arterial collector which runs through the Village east and west (~~Cleveland Avenue~~), to bend to the south to provide circulation to the proposed village core located along the Fresno River.
- All development proposals within Village D shall comply with the provisions of the Airport Land Use Master Plan. The establishment of land use designations at the village and neighborhood levels, as well as the layouts of individual projects, shall reflect the allowable uses and densities in the Airport Land Use Master Plan.

The proposed project would result in the removal of Policy LU-7 from the General Plan, as shown in ~~strikeout~~ text below.

~~Policy LU-7~~

~~Residential development shall conform to the "Target Density" requirement for each land use category. Development density (dwelling units per acre, as calculated using the same methodology as described in Policy LU-5), shall be at or above the Target Density unless one or more of the following findings can be made:~~

- ~~Specific characteristics of the site (flooding, topography, protected habitat areas, airport proximity, etc.) cannot be built on and reduce the development potential below the Target Density.~~
- ~~Development at the Target Density would result in unacceptable impacts to roadways or other infrastructure or the exceedence of any City-adopted Threshold Standards.1~~
- ~~Development was limited by a Development Agreement, Vesting Tentative Tract Map, or other City-approved plan or agreement existing before October 1, 2009.~~
- ~~Target Density requirements shall apply to all land which was part of a parcel of at least ten (10) acres in size on or after October 1, 2009.~~

The proposed project would add Policy LU-45 to the General Plan, as shown below.

Policy LU-45

The following is the City's specific plan land use category:

Specific Plan Area: The Specific Plan Area (SP) may be applied to areas where a Specific Plan has been adopted by the City. A Specific Plan is a detailed plan for the development of a particular area and may contain residential, commercial, industrial, public, and/or open space uses. Detailed land use regulations are contained within each adopted Specific Plan document.

As a result of the addition of Policy LU-45, Table LU-A General Plan/Zoning Consistency, on page 8-28, would be amended to add the General Plan Land Use Category of "Specific Plan Area", and "All Districts, SP" as its Consistent Zoning District.

On page 8-34, a policy is added to clarify the relationship between Village Reserve land use and the Specific Plan Area land use:

Policy LU-X

After the establishment of the Specific Plan for Village Reserve areas, the Specific Plan Area land use may be adopted in place of the existing land use designation through a General Plan Amendment. The area should be named "Specific Plan Area" with a number or the name of the project appended after (e.g., Specific Plan Area - Villages at Almond Grove).

Figure LU-2 of the General Plan would be amended to identify the Specific Plan Area and label it "Specific Plan Area – Villages at Almond Grove".

3.3.12 Zoning Code Amendment

The proposed project would include the following addition to the City's Municipal Code.

§ 10-3.12.501 PURPOSE AND APPLICATION

- (A) The purpose of the SP Zone is to accomplish the following:
 - (1) To provide a framework for how to analyze project level development standards and permitted uses in the SP zone district; and
 - (2) To provide a framework and requirements for approving Specific Plans proposed in the City by establishing a development review framework for comprehensively planned communities pursuant to Government Code Section 65450 to 65457 for the preparation of Specific Plans.

§ 10-3.12.502 APPLICABILITY

- (A) For properties already zoned SP, the allowed uses, allowed density, and required property development standards shall be as outlined in the applicable Specific Plan. Where the regulations of a Specific Plan are silent or not specifically referenced, the comparable regulations of this Zoning Ordinance and all adopted ordinances, regulations, standards, and guidelines of the City shall apply, subject to the Planning Director's discretion, unless otherwise declared by the Planning Commission.
- (B) For properties proposed to be rezoned to the SP Zone District, a Specific Plan meeting the requirements outlined below is required and must be submitted concurrently with the rezone request. The Specific Plan Zone District, including all standards and processes, is available to all new development proposals within the City of Madera, except those areas within the city limits already regulated by an existing adopted Specific Plan and approved prior to the adoption of this ordinance. Those areas shall be exempt from this chapter, and all activities within such areas shall be subject to the existing standards and procedures of the applicable Specific Plan.
- (C) All new SP Zone Districts must encompass an area of no less than five (5) acres of contiguous property.

§ 10-3.12.503 SPECIFIC PLAN REQUIRED ELEMENTS

- (A) A Specific Plan shall provide regulations and design standards governing the minimum and maximum development parameters of all real property within the proposed SP Zone District. All Specific Plans prepared and adopted under this chapter shall be consistent with the requirements of Government Code Section 65450, and shall include, at a minimum, the following:
 - (1) Purpose. State the relationship to the goals and policies of the General Plan.
 - (2) Setting. State the existing and regional setting to establish the conditions and reasons for the project.

-
- (3) Proposed Land Uses. Establish the distribution, type, definitions of, and regulations for all proposed land uses. The uses described within the Specific Plan shall be designed and developed in a manner consistent with the General Plan and § 10-3.12.504 below.
 - (4) Development Standards. Establish all regulating policies and include all of the following for all building types:
 - a) Building height, setbacks, massing, and design standards.
 - b) Lot area, width, depth, and structural limitations.
 - c) Maximum number of dwelling units and the maximum residential density (of the Specific Plan Area and any individual site or portion).
 - d) Usable open space provisions and requirements within the development.
 - e) Off-street parking and loading facilities.
 - f) Design and development standards (architectural, landscape, streetscape, street furniture, utilities, fence/wall types, etc.), which may include design themes or similar architectural treatments to control future construction of buildings on parcels covered by the Specific Plan. Site planning at the perimeter of the Zone boundaries shall provide for the mutual protection of the Zone and the surrounding property.
 - (g) Signage requirements shall be addressed, either through Section 10-6 (Sign Regulations) or by a unique sign program codified in the Specific Plan.
 - (h) All areas for storage of vehicles, maintenance equipment, refuse and collection facilities, manufactured products, or other similar materials used by or in a manufacturing/fabricating process on-site shall be prohibited or shall be enclosed by a decorative, block, or brick wall and/or landscape screening in combination.
 - (5) Site Planning. Establish a comprehensive map of all major streets, open spaces, private and public property, and land uses for all affected property, consistent with the intent of the General Plan.
 - (a) Consider and preserve environmentally sensitive resources (water courses, view sheds, drainage areas, wooded areas, rough terrain

[canyons, ravines, steep slopes, ridges, knolls, promontories], and other similar natural features) and make provisions to retain natural features and amenities found on-site.

- (b) Provide landscape architectural concept plans and standards, including project entries, streetscapes, fencing details, lighting, signage, utility, and street furniture.
- (6) Infrastructure. Identify the proposed distribution, extent, intensity, and location of major components of public and private circulation/transportation, drainage, energy, sewers, solid waste disposal, water, and other essential facilities proposed.
- (a) Include written analysis detailing plans for the construction, improvement, or extension of transportation facilities, public utilities, and all other public facilities/services required to serve the properties.
 - (b) Dedicate all public right-of-ways and public park spaces within or abutting the development to applicable City specifications.
 - (c) Private streets and alleys shall be designed to public street standards (where applicable), or propose modifications, and be privately owned and maintained for their intended purpose without public cost or maintenance responsibility.
 - (d) Consideration of other forms of access, such as pedestrian ways, paseos, courts, plazas, driveways, horse trails, bike trails, or open public parking areas, may be made at the time of Specific Plan consideration by the City.
- (7) Maintenance. Provisions assuring the continued maintenance of private property, grounds, and all common areas shall be required.
- (8) Phasing. Specific Plans developed in phases or neighborhoods over a period of time, not developed in a consecutive and uninterrupted manner, shall be required to process each phase or neighborhood through separate entitlement processes.

§ 10-3.12.504 ALLOWED LAND USES

- (A) All use of lands within the SP Zone Districts shall be compatible with the purpose and intent of this Zoning Ordinance.

- (B) All use of lands within the SP Zone Districts shall be consistent or made consistent with the City of Madera General Plan Land Use Map, which may include varying densities of residential, commercial, and/or industrial development.

§ 10-3.12.505 APPROVAL PROCESS

- (A) A new Specific Plan shall be processed as a General Plan Amendment and a Rezone.

3.3.13 Project Implementation and Phasing

The proposed Specific Plan would be implemented in three phases and would be implemented to provide the services and infrastructure required for each of the development planning areas. Table 3.K provides a summary of the development anticipated to be built in each phase. Phase I consists of the Southeast Neighborhood and is anticipated to be completed by 2029. Phase II consists of the Northwest Neighborhood and is anticipated to be completed by 2039. Phase III consists of the Southwest Neighborhood and is anticipated to be completed by 2049.

Table 3.K: Conceptual Implementation Phases

Phase	Single-Family Residential (Dwelling Units)	Multifamily Residential (Dwelling Units)	Business Park (Square Feet)	Village Mixed-Use (Square Feet)
Phase I – Southeast Neighborhood	2,250	1,718	-	650,242
Phase II – Northwest Neighborhood	2,780	560	258,659	189,355
Phase III – Southwest Neighborhood	1,595	1,880		990,990
Total	6,625	4,158	258,659.3	1,830,587.2

Source: LSA (2020)

The phasing set forth in the proposed Specific Plan would be conditioned on the approval of tentative tract maps. It should be noted that the ultimate pace and phasing of the development is dependent on a number of internal and external factors and may change based on a variety of factors indicating market conditions and development demand. Not all planned development within a given phase may be completed prior to the initiation of the next phase. In cases where development within a new phase is to begin prior to the completion of a phase in progress, all infrastructure improvements would be funded and designed for the phase in progress before any new phase may begin.

3.3.13.1 Infrastructure

Infrastructure within the Specific Plan Area would be installed by the project developer in accordance with the Specific Plan and an approved project Development Agreements or as approved by the City.

Grading and installation of infrastructure to serve the Specific Plan Area is anticipated to be completed in two phases: Phase I would consist of the Southeast Neighborhood and the Northwest

Neighborhood; and Phase II would consist of the Southwest Neighborhood. These phases may be developed as subphases and may occur either sequentially or concurrently with one another.

3.4 DISCRETIONARY ACTIONS AND USES OF THIS EIR

A number of permits and approvals, including discretionary actions, are listed in Table 3.L and would be required prior to implementation of the proposed project. As lead agency for the proposed project, the City of Madera would be responsible for the majority of the approvals required for development. Other agencies may also have some authority related to the project and its approvals.

Table 3.L: Required Permits and Approvals

Agency	Permit/Approval
State Water Resources Control Board (SWRCB)	National Pollutant Discharge Elimination System (NPDES) General Permit (with requisite Storm Water Pollution Prevention Plan, Conceptual Storm Water Pollution Prevention Plan, and Permanent Control Measures)
City of Madera	General Plan Amendment Specific Plan Precise Plans Site Plan Reviews Municipal Code Amendments Rezoning Parcel Maps, Lot Line Adjustments, Tentative and Final Subdivision Maps Development Agreement(s) Conditional Use Permits Encroachment Permits, Grading Permits, Building Permits Zoning Administrator Approvals
Madera Local Agency Formation Commission (LAFCO)	Annexation
Madera County Airport Land Use Commission	Verification of Consistency with Airport Land Use Plan

Source: LSA (2019).

It is expected that the proposed project would require a General Plan Amendment, rezoning, and annexation of the Specific Plan Area into the City. Annexation of the Specific Plan Area into the City requires approval by LAFCO prior to any discretionary actions on the Tentative Tract Maps. Additionally, future development proposals within the Specific Plan Area would be required to be consistent with the Airport Land Use Compatibility Plan for Madera Municipal Airport, and three parcels would require removal of active Williamson Act contracts prior to development.

In addition, implementation of the Project may require permits or approvals from the following local, regional, state and federal agencies, all of whom are expected to use this EIR in their decision making:

- California Air Resources Board (CARB)
- California Department of Conservation
- California Department of Fish and Wildlife
- California Department of Forestry and Fire Protection

- California Department of Housing and Community Development
- California Department of Parks and Recreation
- California Department of Transportation (Caltrans)
- California Department of Toxic Substances Control
- California Public Utilities Commission
- California State Office of Historic Preservation
- California State Lands Commission
- California State Water Resources Control Board
- Central Valley Regional Water Quality Control Board
- County of Madera
- Madera County Transportation Commission
- Madera Local Area Formation Commission
- Madera Irrigation District (if applicable)
- Madera County Mosquito and Vector Control District
- San Joaquin Valley Unified Air Pollution Control Agency
- Madera Unified School District
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Any other Responsible or Trustee Agency that may need to provide discretionary approval

4.0 EVALUATION OF ENVIRONMENTAL IMPACTS

This chapter contains an analysis of each potentially significant environmental issue that has been identified for the Villages at Almond Grove Specific Plan (“project” or “Specific Plan”). The following: 1) identifies how a determination of significance is made; 2) identifies the environmental issues addressed in this chapter; 3) describes the context for the evaluation of cumulative effects; 4) lists the format of the topical issue section; and 5) provides an evaluation of each potentially significant issue in Sections 4.1 through 4.18.

DETERMINATION OF SIGNIFICANCE

Under the California Environmental Quality Act (CEQA), a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment. The CEQA Guidelines direct that this determination be based on scientific and factual data. The impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant. These criteria of significance are based on the CEQA Guidelines and applicable City policies.

ISSUES ADDRESSED IN THE DRAFT EIR

Sections 4.1 through 4.18 of this chapter describe the environmental setting of the project as evaluated in this Environmental Impact Report (EIR) and the impacts that are expected to result from implementation of the proposed project. Mitigation measures are proposed to reduce potential impacts, where appropriate.

1. Aesthetics
2. Agriculture and Forestry Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources and Tribal Cultural Resources
6. Energy
7. Geology and Soils
8. Greenhouse Gas Emissions
9. Hazards and Hazardous Materials
10. Hydrology and Water Quality
11. Land Use and Planning
12. Mineral Resources
13. Noise
14. Population and Housing
15. Public Services and Recreation
16. Transportation
17. Utilities and Service Systems
18. Wildfire

ENVIRONMENTAL SETTING

This chapter has been prepared in accordance with CEQA Guidelines Section 15125, which states: “An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. The environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant. The description of the

environmental setting shall be no longer than is necessary to provide an understanding of the physical effects of the proposed project and its alternatives.”

The Notice of Preparation (NOP) of an EIR for the proposed project was published on August 17, 2018 and then reissued on December 3, 2018. Thus, each of the environmental topical sections in this chapter includes a discussion of physical conditions in the vicinity of the Specific Plan Area on or around December 3, 2018.

CUMULATIVE ANALYSIS CONTEXT

CEQA defines cumulative impacts as “two or more individual effects which, when considered together, are considerable, or which can compound to increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project’s incremental effect is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of “reasonably foreseeable probable future” projects, per CEQA Section 15355. Cumulative impacts can result from a combination of the proposed project together with other closely related projects that cause an adverse change in the environment. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. CEQA requires that cumulative impacts be discussed using either a list of past, present, and probable future projects producing related or cumulative impacts, or a summary of projections contained in an adopted local, regional, or Statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. This EIR uses both approaches to evaluate cumulative impacts, and the particular approach used depends on the topical area under consideration. Refer to the cumulative discussion in the individual topic sections for further discussion and the identification of the cumulative study area for each topic.

FORMAT OF ISSUE SECTIONS

The environmental topical section comprises two primary parts: 1) Environmental Setting, and 2) Impacts and Mitigation Measures. An overview of the general organization and the information provided in the two parts is provided below:

- **Environmental Setting.** The Environmental Setting section for the environmental topic generally provides a description of the applicable physical setting (e.g., existing land uses, existing traffic conditions) for the Specific Plan Area. An overview of regulatory considerations that are applicable to each specific environmental topic is also provided.
- **Impacts and Mitigation Measures.** The Impacts and Mitigation Measures section for the environmental topic presents a discussion of the impacts that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds to determine whether an impact is significant. The latter part of this section presents

the impacts from the proposed project and mitigation measures, as appropriate. Cumulative impacts are also addressed.

Impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Impacts and mitigation measures are numbered consecutively and begin with an acronymic or abbreviated reference to the impact section (e.g., TRA for Transportation). The following symbols are used for individual topics:

AES	Aesthetics
AG	Agriculture and Forestry Resources
AIR	Air Quality
BIO	Biological Resources
CUL	Cultural Resources and Tribal Cultural Resources
EN	Energy
GEO	Geology and Soils
GHG	Greenhouse Gas Emissions
HAZ	Hazards and Hazardous Materials
HYD	Hydrology and Water Quality
LU	Land Use and Planning
MIN	Mineral Resources
NOI	Noise
POP	Population and Housing
PSR	Public Services and Recreation
TRA	Transportation
UTL	Utilities and Service Systems
WF	Wildfire

Impacts are also categorized by type of impact, as follows: No Impact, Less-Than-Significant, Less-Than-Significant with Mitigation Incorporated, and Potentially Significant.

ENVIRONMENTAL ISSUES

Sections 4.1 through 4.18 of this chapter describe the environmental setting of the project as it relates to each specific environmental topic evaluated in the EIR and the impacts that are expected to result from implementation of the proposed project. Mitigation measures are proposed to reduce potential impacts, where appropriate.

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4.1 AESTHETICS

This section describes the existing aesthetic character of the Specific Plan Area and evaluates the potential impacts to visual resources associated with the proposed Specific Plan, both at the individual and cumulative levels.

4.1.1 Environmental Setting

The following sections provide an overview of the physical setting of the Specific Plan Area, as well as the regulatory setting established by the proposed Specific Plan.

4.1.1.1 Specific Plan Area

The majority of the Specific Plan Area is currently undeveloped, and is used for agriculture production. Although the Fresno River is located adjacent to the southern boundary of the Specific Plan Area, there are no unique or distinguishing visual or aesthetic characteristics within the Specific Plan Area. Much of the Specific Plan Area's aesthetic value can be attributed to its agriculture uses.

There are a number of existing residential and associated agricultural structures within the Specific Plan Area. These structures consist of seven existing residences and associated structures; agriculture-related structures; and four public roadways (i.e., Cleveland Avenue, Avenue 16, Road 23, and Avenue 17).

Agricultural lands offer a break from the urban landscape by providing a viewshed of open land with minimal structures or human-made features. Agricultural lands surround the City of Madera and include row crops, field crops, orchards, vineyards, and dairies, as well as grazing land for cattle.

4.1.1.2 Visual Character of the Surrounding Area

The Specific Plan Area is generally surrounded by agriculture and row crops to the north and west. The southern boundary of the Specific Plan Area is adjacent to the Fresno River which is an intermittent river that is typically dry in the summer months. South of the Fresno River is additional agriculture and row crops.

The Madera Municipal Golf Course is located north of Avenue 16 and east of Road 23, and east of the golf course is the Madera Municipal Airport.

Representative photos of the project site and far-field views are shown in Figure 4.1-1 and Figure 4.1-2.

4.1.1.3 Scenic Vistas

Expansive views of agricultural land and distant Sierra Nevada mountains can be seen to the east from various locations within and around the Specific Plan Area. However, depending on the agriculture uses, views of the mountains to the east are somewhat obstructed, as shown in Figure 4.1-1 and Figure 4.1-2.

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LSA

FIGURE 4.1-1

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LSA

FIGURE 4.1-2

SOURCE: LSA 2021.

\\ACORP04\FREProjects\CMD1801 Madera Village D\PRODUCTS\Graphics\Figure 4.1-2.ai (1/14/2021)

The Villages at Almond Grove Specific Plan EIR
Photos of Specific Plan Area

4.1.1.4 Regulatory Setting

This section summarizes existing laws, policies, and regulations relevant to a review of aesthetic impacts in Madera. For the most part, the aesthetic quality of the project would be subject to the state and local laws, policies, and regulations, as there are no recent federal regulations pertaining to aesthetics.

State Regulations

Nighttime Sky – Title 24 Outdoor Lighting Standards. The California Legislature passed a bill in 2001 requiring the California Energy Commission (CEC) to adopt energy efficiency standards for outdoor lighting for both the public and private sector. In November 2003, CEC adopted changes to the Title 24, parts 1 and 6, Building Energy Efficiency Standards. These standards became effective on October 1, 2005, and included changes to the requirements for outdoor lighting for residential and nonresidential development. The new standards were intended to improve the quality of outdoor lighting and help to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures of the 2000 Census. Areas can be designated as LZ1 (dark), LZ2 (rural), or LZ3 (urban). Lighting requirements for dark and rural areas are stricter in order to protect the areas from new sources of light pollution and light trespass.

Local Regulations

City of Madera General Plan. The General Plan Update contains several goals, policies, and action items that are related to aesthetics and visual resources. Table 4.1-A includes General Plan policies and action items related to aesthetics.

Madera Municipal Code. Title IV, Chapter 6 of the City's Municipal Code provides guidelines for replacing and protecting trees located within public places.

4.1.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to aesthetics that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

Table 4.1.A: General Plan Policies Related to Aesthetics

Policy/Action Item Number	Policy
Policy CD-1	The City of Madera will require that all new development is well-planned and of the highest possible quality. The City will seek to build an image of Madera as a contemporary small city with vibrant, livable neighborhoods and walkable pedestrian- and bicycle-oriented development.
Action CD-2.1	Adopt a set of comprehensive Design Guidelines to establish basic design standards and criteria for public and private development projects.
Policy CD-5	New development shall be approved only if it meets the design principles set forth in this Community Character Element and to any local, project-specific, or citywide design guidelines.
Policy CD-7	All new development projects requiring site plan approval, shall establish landscape and façade maintenance programs for the first three years, ensuring that streetscapes and landscapes areas are installed and maintained as approved.
Policy CD-8	In order to improve and protect the quality of neighborhoods and commercial districts, the City will enforce established building codes and community standards.
Policy CD-10	Madera will seek to transition the density and intensity of uses from an urban to rural character while maintaining a clear City edge and establishing a sense of entry and arrival to the City. To implement this policy, the City will: <ul style="list-style-type: none"> • Encourage the County of Madera to preserve undeveloped lands outside of the Sphere of Influence. • Apply and implement land use designations and open space preservation techniques to create a clearly identifiable edge to the city.
Policy CD-45	New development in the Downtown shall be designed to be similar in character to the existing pattern of development, including: <ul style="list-style-type: none"> • Placement of buildings adjacent to the sidewalk; • Building heights (although multi-story mixed use is encouraged); • Use of storefront display windows; and • Other features as determined appropriate by the City based on the location of the new building and the desirable features of adjacent and nearby structures.
Policy LU-10	The Growth Boundary is considered by the City to define the physical limits of development in Madera. The City shall direct all future growth in Madera and in the unincorporated area outside the city limits to occur inside the Growth Boundary shown on the Land Use Map in this General Plan. Within the City’s Planning Area, the City encourages the County to assist the City in maintaining an agricultural green belt around the Growth Boundary by only allowing agricultural uses where land is designated for such use on the City’s General Plan Land Use Map. The following apply to the Growth Boundary: <ul style="list-style-type: none"> • The Growth Boundary may only be revised as part of a comprehensive update of the General Plan involving, at a minimum, the Land Use and Circulation elements. • Any revision to the Growth Boundary shall be accompanied by a statement of findings which demonstrate the following: <ol style="list-style-type: none"> 1. That the revision is consistent with the intent of the Growth Boundary and all other applicable policies in this General Plan 2. That the revision is necessary to accommodate planned growth in Madera
Action LU-12.1	Develop and implement programs and strategies that support the Growth Boundary and keep urban growth inside the Growth Boundary.

Source: City of Madera General Plan (October 2009).

4.1.2.1 Significance Criteria

The thresholds for impacts related to aesthetics used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to aesthetics if it would:

- Threshold 4.1.1** **Have a substantial adverse effect on a scenic vista;**
- Threshold 4.1.2** **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;**
- Threshold 4.1.3** **In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality;**
- Threshold 4.1.4** **Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

4.1.2.2 Project Impacts

The following discussion describes the potential impacts related to aesthetics that could result from implementation of the proposed Specific Plan.

Threshold 4.1.1 Would the project have a substantial adverse effect on a scenic vista?

The General Plan does not identify any view corridors or scenic vistas in Madera. Many roads outside the Madera City Limits pass through agricultural areas and provide views of the mountain ranges in the distance. Although not located within or adjacent to the Specific Plan Area, State Route (SR) 99 and SR 145 are located in Madera and pass through agricultural and rural lands. In addition, the Fresno River is located immediately south of the Specific Plan Area and is visible from several vantage points within the Specific plan Area. Conversion of agricultural land to urban uses would cause a change in these views and would result in a change in the views. On days of good air quality, these State Routes provide views of the distant Sierra Nevada to the east and the Coast Ranges to the west. However, given the flat topography and limited long-distance viewshed available, as shown in Figure 4.1-1 and Figure 4.1-2, scenic vistas and far-field views from public vantage within the Specific Plan Area points (i.e. the four public roadways of Cleveland Avenue, Avenue 16, Road 23, and Avenue 17) are currently partially obstructed by existing agricultural uses. Implementation of the proposed Specific Plan would result in mixed-use urban development, including single- and multi-family housing, public schools, parks, and commercial buildings, adjacent to public vantage points within the Specific Plan Area. The proposed Specific Plan includes Design Guidelines that provide direction for community design, neighborhood design, landscape design, entry treatments, open space, signage, lighting, architectural design, and site planning. Section 7.14, Architectural Guidelines, of the proposed Specific Plan (included as Appendix B of this Draft EIR), provides architecture styles for residential development in the Specific Plan Area. Architectural styles include American Farmhouse, American, Foursquare, Bungalow, Craftsman, Monterey, Ranch

and Spanish Eclectic. Although the architectural styles are not limited to these residential styles, these styles establish an architectural character of the Specific Plan Area. The Design Guidelines are intended to result in high-quality design, however, given the substantial change in land uses that would occur through implementation of the proposed Specific Plan, existing views from the Specific Plan Area and across the Specific Plan Area would be substantially altered. As a result, implementation of the proposed Specific Plan would substantially effect long range views and a significant impact would occur.

Significance Without Mitigation: Significant and unavoidable. The primary objective of the proposed Specific Plan is to implement a long-term buildout plan that would convert existing agriculture land uses to mixed-use urban land uses. As a result of this change in land uses, a substantial effect on scenic vistas would occur but cannot be mitigated.

Threshold 4.1.2 Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No officially designated state scenic highways are located within the Specific Plan Area, or the City of Madera. Portions of SR 49 and SR 41 are eligible, but those highway segments are located in the Sierra Nevada, over 30 miles northeast of the Specific Plan Area. As a result, implementation of the proposed Specific Plan would not affect scenic resources within a state scenic highway. No impact would occur.

Significance Without Mitigation: No impact. No mitigation is required.

Threshold 4.1.3 In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Implementation of the proposed Specific Plan would result in the conversion of approximately 1,900 acres of agricultural farmland to urban uses. This conversion would substantially change the visual character of the Specific Plan Area. As discussed above, Chapter 7 of the proposed Specific Plan (included as Appendix B of this Draft EIR) includes design guidelines and direction for community design, neighborhood design, landscape design, entry treatments, open space, signage, lighting, architectural design, and site planning in order to provide a high-quality community design. However, the conversion of agricultural land to urban uses would result in a substantial change in visual resources of the Specific Plan Area. There is no feasible mitigation as implementation of the Specific Plan would irreversibly change the visual resources within the Specific Plan Area. As a result, a significant impact would occur.

Significance Without Mitigation: Significant and unavoidable. Although the proposed Specific Plan would include design guidelines to minimize visual impacts related to the conversion of agricultural lands to urban uses, there are no feasible mitigation measures available to address the change in visual resources. Because the proposed urban uses are fundamentally different and result in a

permanent change to the visual character of the Specific Plan Area, this impact would be considered significant and unavoidable.

Threshold 4.1.4 Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The main sources of daytime glare are generally sunlight reflecting from structures and other reflective surfaces and windows. Implementation of the proposed Specific Plan would introduce new sources of daytime glare through the construction of new structures and use of automobiles associated with the proposed Specific Plan. The proposed land uses consist of various densities of residential, commercial, and other public uses. Building materials (i.e., reflective glass and polished surfaces) are the most substantial sources of glare. Daytime glare would result in adverse impacts in the Specific Plan Area because the area currently contains primarily agriculture and non-developed areas.

Implementation of the proposed Specific Plan would also introduce new light sources into the Specific Plan Area, including temporary light and glare resulting from construction activities that would adversely affect day or nighttime views. Although construction activities are anticipated to occur primarily during daylight hours, it is possible that some activities could occur during dusk or early evening hours (construction activities are allowed in Madera between 6:00 AM and 8:00 PM). Construction during these time periods could result in light and glare from construction vehicles or equipment. However, once construction of any Specific Plan phase is completed, light and glare from these activities would cease to occur.

Nighttime lighting levels would increase substantially over current levels in the Specific Plan Area, and incrementally with future projects in developed areas. New light sources would include new residential developments, street lighting, parking lot lights, and security-related lighting for non-residential uses. These new light sources could result in adverse effects to adjacent land uses through the “spilling over” of light into these areas and increased light pollution. In addition, implementation of the proposed Specific Plan would result in intensified nighttime lighting levels associated with increased traffic levels and further residential and commercial development.

The General Plan contains policies and action items that are intended to prevent light and glare impacts. The following General Plan action items and policies contain specific, enforceable requirements and/or restrictions and corresponding performance standards that address potential impacts related to implementation of the proposed Specific Plan:

Action CD-2.1: Adopt a set of comprehensive Design Guidelines to establish basic design standards and criteria for public and private development projects.

Policy CD-5: New development shall be approved only if it meets the design principles set forth in this Community Character Element and to any local, project-specific, or citywide design guidelines.

Policy CD-8: In order to improve and protect the quality of neighborhoods and commercial districts, the City will enforce established building codes and community standards.

Policy CON-38: The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of all private buildings and projects, including:

- Land planning and design techniques that preserve the natural environment and minimize disturbance of the land.
- Site development to reduce erosion, minimize paved surfaces and runoff and protect vegetation, especially trees.
- Water conservation indoors and outdoors.
- Energy efficiency in heating/cooling systems, appliances, lighting and the building envelope.
- Selection of materials based on recyclability, durability and the amount of energy used to create the material.
- Waste reduction, reuse and recycling during construction and throughout the life of the project.
- Other new aspects of green design and construction included in LEED or other certification programs.
- Control nighttime lighting to lower energy use, reduce glare, and prevent illumination of the night sky.

Implementation of the above policies and action item would minimize impacts associated with light and glare through the adoption and enforcement of development design standards, building codes, and community standards, as well as the control of nighttime lighting. In addition, the proposed Specific Plan includes the following lighting guidelines:

1. Lighting design should be an integral part of the overall site and building design. Lighting design should complement the surrounding streetscape and architecture, and be incorporated into other nearby design elements.
2. Street lights, walkway lighting, architectural lighting and landscape accent lighting should be aesthetically pleasing and subdued, while providing for public safety. Use low-energy, shielded light fixtures that direct light downward to minimize glare. Up-lighting of architectural features and landscaping may be permitted.
3. Street lights should be located at regular intervals along streets and at intersections, cul-de-sacs, corners, and areas where pedestrians might commonly encounter vehicular traffic, or as required by the City of Madera.

4. Public Right of Way and parking areas should be adequately illuminated for public safety as required by City of Madera. Human-scaled light poles, bollards or path lights should clearly mark the path of travel to enhance pedestrian safety and comfort.
5. Lighting for non-residential development should be screened from direct view from adjacent residential uses. Lighting for non-residential development should be designed to minimize glare, obtrusive light and artificial sky glow by limiting lighting that is misdirected, excessive or unnecessary, while at the same time maintaining a safe environment.
6. Lighting that represents movement, flashes, blinks or is of unusually high intensity or brightness is prohibited, except during holiday seasons when flashing lights used for holiday displays are permitted.
7. Lighting in residential areas and along streets and trails should be designed to minimize artificial lighting from reflecting into adjacent natural open space.
8. Incorporate energy-saving light fixtures, where feasible.
9. Lighting should conform to local codes and ordinances, applicable safety and illumination requirements, and California Title 24 requirements.

Implementation of Mitigation Measure AES-4, which requires implementation of the lighting guidelines included in the proposed Specific Plan, would reduce potential impacts related to daytime glare and nighttime light. In addition, compliance with Title 24 Outdoor Lighting Standards related Nighttime Sky would reduce potential impacts related to nighttime light. However, even with implementation of this mitigation, due the substantial change in land uses within the Specific Plan Area, potential impacts related to lighting would result in a significant and unavoidable impact.

Mitigation Measure AES-4 During Development Plan review of future discretionary projects developed under the Specific Plan, the City shall ensure that proposed projects demonstrate that the lighting guidelines identified in the Specific Plan are implemented through preparation of a lighting plan. The lighting plan shall be approved by the City of Madera Community Development Director or designee.

Level of Significance With Mitigation: Significant and unavoidable. The conversion of existing farmland with no nighttime lighting to urban uses would result in a significant increase in both daytime glare and nighttime light that cannot be mitigated to less-than-significant levels.

4.1.2.3 Cumulative Impacts

Implementation of the proposed Specific Plan would result in the conversion of approximately 1,900 acres of farmland which would contribute to the alteration of the visual character of the region anticipated from growth and development in the region (e.g., growth and development in Madera and Fresno counties).

Implementation of policies included in the proposed Specific Plan would reduce the potential cumulative impacts on visual resources through the adoption and enforcement of development design standards, landscape guidelines, and community standards, as well as the implementation of open space, building design standards, and nighttime lighting controls. However, with implementation of the proposed Specific Plan, development would occur in an area that is currently used for active agricultural uses. As a result, impacts associated with the conversion of land uses would result in permanent changes to scenic resources as well as an increase in daytime glare and nighttime light. Therefore, this impact would be considered cumulatively considerable and significant and unavoidable.

Level of Significance With Mitigation: Significant and unavoidable. Refer to Mitigation Measure AES-4.

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4.2 AGRICULTURE AND FORESTRY RESOURCES

This section describes the regulatory framework and existing conditions within the Specific Plan Area related to, and the potential impacts on, agriculture and forestry resources resulting from implementation of the proposed Specific Plan. Information in this section is based partly on the Agricultural Conversion Study prepared for the proposed Specific Plan, and included in Appendix D.

4.2.1 Environmental Setting

4.2.1.1 Specific Plan Area

Agriculture Resources. The Specific Plan Area is approximately 1,900 acres in size and is located on the western edge of the City of Madera. In October 2018, the Madera County Local Agency Formation Commission (LAFCO) approved the expansion of the City's Sphere of Influence (SOI) to include the Specific Plan Area.

The Specific Plan Area is predominantly characterized by active agricultural operations and a mix of irrigated crops. The Specific Plan Area contains three active Williamson Act contracts and contains existing residential and agricultural support structures. The following Madera Irrigation District (MID) irrigation canals and pipeline traverse the Specific Plan Area:

- Canal 24.2-14.2 is located in the southern portion of the Specific Plan Area and runs parallel to the Fresno River.
- Canal 24.2-13.2 is located along the north side of Avenue 16/Kennedy Avenue.
- The Airport Canal is located along Road 23.
- Airport 1.0 E. pipeline and Airport 1.0 W. canal and pipeline are located along the Avenue 17 alignment on the northern boundary of the Specific Plan Area.
- The Specific Plan Area is surrounded by primarily agriculture uses on the northern and western boundaries, and the Fresno River and agriculture uses to the south. The Madera Municipal Golf Course, Madera Municipal Airport, and residential uses are located north and east of the Specific Plan Area.

Forestry Resources. As discussed above, the Specific Plan Area is predominantly characterized by active agricultural operations and a mix of irrigated crops, and the areas surrounding the Specific Plan Area are primarily agriculture uses. The Specific Plan Area is currently designated Agriculture Exclusive (AE) and Agriculture (A) in the Madera County General Plan and does not contain any areas that include forest land, timberland or timberland zoned for Timberland Production.

4.2.1.2 Regulatory Context

State

California Department of Conservation Farmland Mapping and Monitoring Program. In 1982, the Department of Conservation (DOC) began coordinating with the United States Department

of Agriculture (USDA) Soil Conservation Service in the preparation and completion of Important Farmland mapping for California through the establishment of the Farmland Mapping and Monitoring Program (FMMP). The FMMP created a greater level of mapping compared to the USDA Soil Conservation Service by modifying the federal criteria for use in California and incorporating irrigation criteria for farmland significance. The primary purpose of the FMMP is to monitor the conversion of California's agricultural lands. The DOC Division of Land Resource Protection works with landowners, local governments, and researchers to conserve California's farmland and open space resources based on information provided in the FMMP.

The DOC FMMP produces maps and statistical data used for analyzing impacts on agricultural resources. Agricultural land is categorized according to soil quality and irrigation status. The maps are updated every 2 years through review of aerial photographs, a computer mapping system, public review, and field reconnaissance. The latest countywide data available are for the period from 2014 to 2016. The FMMP categories are defined as follows:

- **Prime Farmland.** Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland.** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.
- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. In some counties, Confined Animal Agriculture facilities are part of Farmland of Local Importance, but they are shown separately.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.
- **Urban and Built Up Land.** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation (Williamson) Act. The California Land Conservation Act, better known as the Williamson Act, has been the State’s most important agricultural land protection program since its enactment in 1965. Fundamentally, the Williamson Act is a State policy administered by local governments. Local governments are not mandated to administer the act, but those that do have some latitude to tailor the program to suit local goals and objectives.

Williamson Act contracts have a minimum term of 10 years, with renewal occurring automatically each year (local governments can establish initial contract terms for longer periods of time). The contracts run with the land and are binding on all successors in interest of the landowner. Only land located within an agricultural preserve is eligible for Williamson Act contracts. An agricultural preserve defines the boundary of an area within which a city or county would enter into contracts with landowners. The boundary is designated by resolution of the board of supervisors or city council having jurisdiction. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural uses would be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit.

California Environmental Quality Act. CEQA was adopted in 1970 by the California State Legislature to identify, protect, and minimize impacts to the State’s environmental resources, and codified as Section 21000 of the State’s Public Resources Code. CEQA vests the primary responsibility of carrying out its objectives to local municipalities. In determining whether a proposed project may have a significant effect on agricultural resources, the City of Madera uses the thresholds provided in Appendix G of the CEQA Guidelines.

Public Resources Code 21095 - California Agricultural Land Evaluation and Site Assessment Model. Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of agricultural land based upon specific measurable features.

The formulation of a California LESA Model is the result of Senate Bill 850 (Chapter 812/1993), which charges the Resource Agency (in consultation with the Governor’s Office of Planning and Research) with developing an amendment to Appendix G of the CEQA Guidelines concerning agricultural lands. Such an amendment is intended “to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process” (Public Resources Code Section 21095).

A LESA analysis is based on the following definition of agricultural land contained in CEQA, Public Resources Code Section 21060.1:

21060.1 (a) "Agricultural land" means prime farmland, farmland of statewide importance, or unique farmlands, as defined by the United States Department of Agriculture land inventory and monitoring criteria as modified for California.

21060.1 (b) In those areas of the state where lands have not been surveyed for the classifications specific in subdivision (a), "agricultural land" means land that meets the requirement of "prime agricultural land" as defined in paragraph (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code [the Williamson Act].

Public Resources Code 12220 (g) – Forest Land. "Forest land" is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

Public Resources Code 4526 - Timberland. "Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.

Public Resources Code 51104 (g) – Timberland Production Zone. "Timberland production zone" or "TPZ" means an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses.

County of Madera

Madera County General Plan. The Madera County General Plan (MCGP) is used as a blueprint to guide future development in the unincorporated areas of the County, including portions of the City Planning Area that are outside the Madera City limits. The County General Plan is applicable to areas outside the existing City limits of Madera until the area is annexed by the City.

Existing Land Use Designation. The Specific Plan Area is currently designated Agriculture Exclusive (AE) and Agriculture (A) in the Madera County General Plan.

The AE designation provides for agricultural uses, limited agricultural support service uses, agriculturally oriented services, timber production, mineral extraction, airstrips, public and commercial refuse disposal sites, recreational uses, public and quasi-public uses, and similar and compatible uses. The minimum parcel size shall be 36 to 640 acres. Allowable residential development in areas designated Agriculture Exclusive includes one to two single family homes per parcel, secondary residential units, caretaker/employee housing, and farmworker housing.

The A designation is identical to the AE designation except the minimum parcel size is 18 acres.

Table 4.2-1 lists the Madera County General Plan policies related to agricultural and forestry resources.

Table 4.2-1: Madera County General Plan Policies Related to Agricultural Resources

Goal/Policy Item Number	Policy/Action Item
Land Use Element	
Goal 1.A.	To promote the wise, efficient, and environmentally sensitive use of Madera County land to meet the present and future needs of Madera County residents and businesses.
Policy 1.A.4.	The County shall encourage infill development and development contiguous to existing cities and unincorporated communities to minimize premature conversion of agricultural land and other open space lands.
Goal 1.J	To foster cooperative planning and to address regional concerns on a regional basis.
Policy 1.J.3.	The County shall coordinate its policies regarding conversion of agricultural lands with the County Local Agency Formation Commission (LAFCO) and the cities of Madera and Chowchilla.
Agriculture and Natural Resources Element	
Goal 5.A.	To designate adequate agricultural land and promote development of agricultural uses to support the continued viability of Madera County's agricultural economy.
Policy 5.A.1.	The County shall maintain agriculturally-designated areas for agricultural uses and direct urban uses to designated new growth areas, existing communities, and/or cities.
Policy 5.A.2.	The County shall discourage the conversion of prime agricultural land to urban uses unless an immediate and clear need can be demonstrated that indicates a lack of land for non-agricultural uses.
Policy 5.A.3.	The County shall seek to ensure that new development and public works projects do not encourage further expansion of urban uses into designated agricultural areas.
Policy 5.A.5.	The County shall allow the conversion of existing agricultural land to urban uses only within designated urban and rural residential areas, new growth areas, and within city spheres of influence where designated for urban development on the General Plan Land Use Diagram.
Policy 5.A.6.	The County shall encourage continued and, where possible, increased agricultural activities on lands designated for agricultural uses.
Policy 5.A.9.	The County shall encourage infill development in urban areas as an alternative to expanding urban boundaries into agriculturally-designated areas.
Policy 5.A.13.	The County shall require development within or adjacent to designated agricultural areas to incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.
Policy 5.A.14.	The County shall continue to enforce the provisions of its Right-to-Farm Ordinance and of the existing state nuisance law.
Goal 5.B:	To conserve Madera County's forest resources, enhance the quality and diversity of forest ecosystems, reduce conflicts between forestry and other uses, and encourage a sustained yield of forest products
Policy 5.B.1.	The County shall encourage the sustained productive use of forest land as a means of providing open space and conserving other natural resources.
Policy 5.B.4.	The County shall encourage qualified landowners to enroll in the Timberland Production Zone (TPZ) program.

Source: County of Madera General Plan, October 1995.

Madera County Code of Ordinances

Title 6. Animals and Agriculture. Madera County adopted a right-to-farm ordinance in 1989 (Chapter 6.28 of the Madera County Code). The County recognizes that where nonagricultural land uses extend into agricultural areas or exist side-by-side, agricultural operations become the subject of nuisance complaints. As a result, some agricultural operations are forced to cease or curtail operations, others are discouraged from making investments in farm improvements, and efficient agricultural production is generally discouraged due to burdensome litigation against farmers. It is the intent of the County to conserve, protect, and encourage the development, improvement, and continued viability of its agricultural land and industries for the long-term production of food and other agricultural products, and for the economic well-being of the County's residents. The right-to-farm policies are as follows:

1. No agricultural activity, operation or facility, or appurtenances thereof, conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards, as established and followed by similar agricultural operations in the same locality, shall be or become a nuisance, private or public, due to any changed condition in or about the locality, after the same has been in operation for more than 1 year if it was not a nuisance at the time it began.
2. This section shall not invalidate any provision contained in Health and Safety Code, Fish and Game Code, Food and Agricultural Code, or Division 7 (commencing with Section 13000) of the Water Code of the State of California, if the agricultural activity, operation or facility, or appurtenances thereof, constitutes a nuisance, public or private, as specifically defined or described in any such provision.
3. This section is not to be construed so as to modify or abridge the State law set out in the California Civil Code relative to nuisances, but rather it is only to be utilized in the interpretation and enforcement of the provisions of county ordinances and regulations.

Title 18. Zoning. The Specific Plan Area is zoned Agricultural Rural Exclusive - 20 Acres (ARE-20) and Agricultural Rural Exclusive - 40 Acres (ARE-40):

- **ARE-20.** This zone allows a guest house and/or communications tower/wireless communications facilities and conditionally accommodates a wide range of agricultural uses. This zone is applied to lands that are in agricultural use. The minimum parcel size is 18 acres.
- **ARE-40.** This zone allows a guest house and/or communications tower/wireless communications facilities and conditionally accommodates a wide range of agricultural uses. This zone is applied to lands that are in agricultural use. The minimum parcel size is 36 acres.

City of Madera

City of Madera General Plan. The City of Madera General Plan (CMGP) is the official policy statement of the City Council to guide private and public development of the City, as well as the City’s own operations and decisions. The General Plan helps to ensure that land use decisions are in conformance with the long-range program designed to protect and further the public interest related to the City of Madera’s growth and development. Table 4.2-2 lists the City of Madera General Plan policies related to agricultural and forestry resources.

Table 4.2-2: City of Madera General Plan Policies Related to Agricultural Resources

Policy/Action Item Number	Policy/Action Item
Conservation Element	
Policy CON-15	The City will seek to protect land in the Planning Area which is designated for Agricultural and Resource Conservation, and will encourage the County of Madera to do the same. Measures the City will use (and encourage the County to use) include: <ul style="list-style-type: none"> • Maintaining parcels large enough to sustain agricultural production (preferably a minimum of 20 acres); • Preventing the premature conversion of agricultural uses; and • Prohibiting uses that are incompatible with long term agricultural production. Action Item CON-15.1 Implement the policies and actions in this General Plan to uphold Madera’s Growth Boundary, including limiting the extension of urban services such as water and sewer beyond the Growth Boundary.
Policy CON-16	The City will facilitate and support agricultural conservation easements, farmland security zone contracts, and land conservation programs when used to preserve agricultural lands and resources. Action Item CON-16.1 Pursue partnerships with private non-profit conservation organizations to preserve Madera’s agricultural lands.
Policy CON-17	The City supports the protection of agricultural operations by requiring that buffers be established between urban residential areas and areas planned to remain in agricultural use. The buffers shall be designed to address the physical effects of agricultural practices on urban uses, such as chemical spraying, noise, etc.
Policy CON-18	The City recognizes that some agricultural soils in the city and the Planning Area are proposed for future urban development; in these cases, the following apply: <ul style="list-style-type: none"> • Agricultural use should be allowed to continue as long as possible. • The purchase of fee interest, easements, or other measures which would have the effect of permanently precluding the planned conversion to urban uses consistent with the Land Use Map of this General Plan should be avoided.
VILLAGE D: SPECIFIC POLICIES	The following policies are intended to identify some of the unique issues for this area which will need to be addressed, and to guide development, as the area transitions to urban use. <ul style="list-style-type: none"> • All future development in this Village shall conform to the Building Blocks principles as described in this General Plan. • In conjunction with village and neighborhood planning, a mechanism shall be established which creates a permanent agricultural buffer where the westerly edge of the Village abuts the Growth Boundary. This buffer shall average at least 400’ in depth, with a minimum depth of 250’, and must run continuously along westerly edge of the Village. No habitable structures are to be located within this buffer, although passive recreational opportunities (such as trails and

Table 4.2-2: City of Madera General Plan Policies Related to Agricultural Resources

Policy/Action Item Number	Policy/Action Item
	<p>community gardens) may be allowed. Alternative methods and designs to establish the buffer may be proposed, and including placing the buffer on either side of the Growth Boundary. Physical maintenance of the buffer shall be provided consistent with the design and function of the space.</p> <ul style="list-style-type: none"> • The Village core area shall provide for an integrated mix of uses, including park and open space uses, along the river. • Future development along the Fresno River should be designed to take advantage of the river frontage, including orienting development to front the river where not otherwise prohibited by site conditions. • Village and neighborhood planning shall provide for the alignment of the designated arterial<u>collector</u> which runs through the Village east and west (Cleveland Avenue), to bend to the south to provide circulation to the proposed village core located along the Fresno River. • All development proposals within Village D shall comply with the provisions of the Airport Land Use Master Plan. The establishment of land use designations at the village and neighborhood levels, as well as the layouts of individual projects, shall reflect the allowable uses and densities in the Airport Land Use Master Plan.

Source: City of Madera General Plan, October 2009.

* Changes to Village D policies proposed by the Project Applicant are shown in strikeout text.

Existing Land Use Designations. The existing City of Madera land use designations in the City of Madera General Plan for the Specific Plan Area include Village Reserve (VR), Village Mixed Use (VMU), High Density Residential (HD), Medium Density Residential (MD), Low Density Residential (LD), Neighborhood Mixed Use (NMU), Open Space (OS), and Resource Conservation/Agriculture (RC).

Zoning Ordinance of the City of Madera. The City of Madera adopted a right-to-farm ordinance in 1998 (Chapter 10-3.148 of the Madera Municipal Code). This ordinance seeks to protect and encourage agricultural operations in the City, as long as proper and accepted customs and standards are met. The intent of the policy is for residents of property in or near agricultural districts to be prepared to accept the inconveniences and discomfort associated with normal farm activities. The policy also establishes that no agricultural operation conducted in a manner consistent with proper and accepted customs and standards shall be or become a nuisance due to any changed condition after the operation has been in operation for more than 1 year, if it was not a nuisance at the time it began. The ordinance also includes a provision to record a right-to-farm notice in conjunction with rezoning and subdivision applications within 300 feet of agricultural lands. The right-to-farm ordinance reads as follows:

Section 10-3.418 Right to Farm

(A) The City Council hereby finds that where nonagricultural land uses extend into agricultural areas or exist side-by-side, agricultural operations often become the subject of nuisance complaints. As a result, some agricultural operations are forced to cease or curtail operations, others are discouraged from making

investments in farm improvements, and efficient agricultural production is generally discouraged due to burdensome litigation against farmers.

(B) It is the intent of the city to conserve, protect and encourage the development, improvement and continued viability of its agricultural land and industries for the long-term production of food and other agricultural products, and for the economic well-being of the city's and county's residents. It is also the intent of the city to balance the rights of farmers to produce food and other agricultural products with the rights of non-farmers who own, occupy or use land within or adjacent to agricultural areas. It is the intent of this chapter to reduce the loss to the city's and county's agricultural resources by limiting the circumstances under which agricultural operations may be deemed to constitute a nuisance. Nothing in this chapter shall be construed to limit the right of any owner of real property to request that the city consider a change in the zoning classification of his property in accordance with the procedures set forth in the Municipal Code.

4.2.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to agriculture and forestry resources that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.2.2.1 Significance Criteria

The thresholds for impacts related to agriculture and forestry resources used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to agricultural and forestry resources if it would:

- | | |
|------------------------|--|
| Threshold 4.2.1 | Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use; |
| Threshold 4.2.2 | Conflict with existing zoning for agricultural use, or a Williamson Act contract; |
| Threshold 4.2.3 | Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)); |
| Threshold 4.2.4 | Result in the loss of forest land or conversion of forest land to non-forest use; or |

Threshold 4.2.5 **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.**

4.2.2.2 Project Impacts

The following discussion describes the potential impacts related to agriculture and forestry resources that could result from implementation of the proposed Specific Plan.

Threshold 4.2.1 **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

The Specific Plan Area is currently being primarily farmed for almonds, and contains agricultural support structures and residences. Table 4.2-3 contains the total acreage of Farmland as designated by the DOC FMMP that would be directly impacted by implementation of the proposed Specific Plan.

Table 4.2-3: Farmland Acres by Category on the Specific Plan Area

Land Mapping Category	Farmland Acres within the Specific Plan Area
Prime Farmland	943.5
Farmland of Statewide Importance	201.6
Unique Farmland	706.9
Farmland of Local Importance	N/A
Grazing Land	N/A
Total	1,852

Source: Madera County (2018); DOC Farmland Mapping & Monitoring Program (2016).

As shown in Table 4.2-3, The DOC FMMP identifies 1,852 acres of farmland within the Specific Plan Area, not including non-agricultural or urban uses. Implementation of the proposed Specific Plan would permanently convert 1,852 acres of Important Farmland to accommodate a new mixed-use community that includes residential units, commercial office spaces, industrial spaces, parks and recreation areas, and public facilities, including schools. The loss of 1,852 acres of Important Farmlands is approximately 0.5 percent of the total acres of Important Farmland in Madera County. The proposed Specific Plan includes a General Plan Amendment that would remove the requirement of establishing a permanent agriculture buffer along the western edge of the Specific Plan Area. The loss of 1,852 acres of important farmland assumes the area that would be set aside as an agriculture buffer would be converted to a non-agriculture use. Although the proposed Specific Plan would convert a small percentage of Madera County’s total farmland to a nonagricultural use, Madera County is California’s 11th largest agricultural producer and the conversion of any Important Farmland is considered a significant impact.

The California LESA Model was prepared as a method for quantitatively assessing project impacts on Important Farmlands.

The California LESA Model worksheets that were completed for the proposed Specific Plan Area are attached to the Agricultural Conversion Study, included as Appendix D of this Draft EIR. The final score for the Specific Plan Area is provided below in Table 4.2-4.

Table 4.2-4: Land Evaluation and Site Assessment Scoring

Factor Name	Factor Rating (0-100 Points)	×	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
Land Evaluation					
1. Land Capability Classification	70.70	×	0.25	=	17.68
2. Storie Index Rating	62.82	×	0.25	=	15.71
Land Evaluation (LE) Subscore					33.38
Site Assessment					
1. Project Size	100	×	0.15	=	15
2. Water Resource Availability	100	×	0.15	=	15
3. Surrounding Agricultural Land	60	×	0.15	=	9
4. Protected Resource Lands	0	×	0.05	=	0
Site Assessment (SA) Subscore					39.00
Total LESA Score (LE + SA)					72.38

Source: Land Evaluation and Site Assessment Model (LSA 2020).

The Specific Plan Area achieved a Final LESA score of 72.38. According to the LESA Model instructions, a final score between 60 and 79 points is considered significant unless either the land evaluation (LE) or site assessment (SA) subscore is less than 20 points. Both the LE subscore and the SA subscore are above 20 points. Therefore, converting approximately 1,852 acres of Important Farmlands to a nonagricultural use would be considered a significant impact.

Level of Significance Without Mitigation: Significant and unavoidable impact as no feasible mitigation is available. Although the Madera County General Plan includes numerous polices that seek to conserve agricultural lands and uses, the Madera County LAFCO approved the expansion of the City’s SOI to include the proposed Specific Plan Area in October of 2018. It can be assumed that the Madera County LAFCO understood that the Specific Plan Area would be used for urban uses when it approved the City’s SOI expansion in the Specific Plan Area. This is consistent with Policy 5.A.5 of the Madera County General Plan, which states that the County shall allow the conversion of existing agricultural land to urban uses only within designated urban and rural residential areas, new growth areas, and within city spheres of influence where designated for urban development on the General Plan Land Use Diagram. In addition, the Specific Plan Area is identified in the City’s General Plan as an Urban Growth Area and is envisioned to be developed with urban uses in the future.

In March 2020, Madera County staff expressed concern regarding the establishment of new agricultural easements within the County in order to offset potential environmental impacts resulting from the conversion of agricultural land.¹ County staff stated that there are several factors

¹ Madera County Community and Economic Development. 2020. Treber, Matthew, Chief of Development Services. March 24. Personal communication with Norman Allinder.

that affect the use of agricultural easements, one of which is maintaining and achieving sustainable groundwater management in the Madera Subbasin. Due to substantial groundwater needed for agriculture uses, the continued use and preservation of agriculture prevents sustainable groundwater management. The Madera Subbasin Joint Groundwater Sustainability Plan (GSP), which was adopted in January 2020, states that the City relies only on groundwater for its water supply and, by expanding the City's services as population grows, the City would use more groundwater for urban uses when compared to current water use for urban projects. Although large projects such as the proposed Specific Plan would result in urban development that would extend primarily into agricultural lands, water use requirements would decrease when compared to agricultural uses, thereby benefitting subbasin sustainability.² Based on the net decrease in groundwater use that would result from converting agricultural land uses to non-agricultural land uses under the proposed Specific Plan, the use of agricultural easements within the County would not be considered a feasible mitigation measure. Preserving agricultural land and allowing continued use of groundwater would not allow for maintaining and achieving sustainable groundwater management. Therefore, the use of agricultural easements would preserve agricultural land, but those agricultural lands would not be provided sufficient groundwater if the Madera Subbasin is to be managed sustainably. In addition, farmland mitigation guidance provided by the California Department of Conservation, including following the California Council of Land Trusts' Farmland Mitigation Guidebook and the California Department of Water Resources Agricultural and Land Stewardship (ALS) Strategies are not feasible given the need for on-site conservation that would conflict with buildout of the proposed Specific Plan. As a result, there are no feasible mitigation measures available to reduce impacts associated with conversion of agricultural lands to nonagricultural uses, and this would be considered a significant and unavoidable impact pursuant to CEQA.

Threshold 4.2.2 Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The Specific Plan Area is currently zoned Agricultural Rural Exclusive – 20 Acres (ARE-20) and Agricultural Rural Exclusive – 40 Acres (ARE-40) in the Madera County Zoning Code. These zones are applied to lands that are in agricultural use. The City has not provided zoning for the Specific Plan Area; rather, detailed regulations/development standards will be included in and adopted as part of the Specific Plan approval process. The proposed Specific Plan intends to develop the lands currently zoned for agricultural uses for nonagricultural uses (i.e., a mixed-use community) including residential units, commercial office spaces, industrial spaces, parks and recreation areas, and public facilities (e.g., schools). None of the proposed uses are consistent with the existing agricultural zoning. Therefore, implementation of the proposed Specific Plan would conflict with the existing zoning for agricultural use. There are no feasible mitigation measures available to reduce impacts associated with zoning conflicts to a less-than-significant level. Therefore, the proposed Specific Plan's conflicts with existing agricultural zoning are significant and unavoidable.

The Specific Plan Area contains three active Williamson Act contracts (APNs 033-170-001, 033-170-009, and 033-170-005) in the southwest area of the Specific Plan Area totaling 402.9 acres. The

² Madera Subbasin Coordination Committee. 2020. *Joint Groundwater Sustainability Plan*. Page 2-17 and 2-18. January.

intended use of the entire Specific Plan Area, including the portion governed by Williamson Act contracts, is to develop a new mixed-used community that includes residential units, commercial office spaces, industrial spaces, parks and recreation areas, and public facilities, including schools. Implementation of the proposed Specific Plan would conflict with the 402.9 acres of agricultural land currently under a Williamson Act contract, which is a conflict pursuant to CEQA. Canceling the Williamson Act contract can be an option pursuant to conditions set forth in Government Code Section 51280 et seq. Nevertheless, the lands are currently under Williamson Act contracts and there is no feasible mitigation measures available to reduce impacts associated with a project's conflict with an existing Williamson Act contract. Therefore, the proposed Specific Plan's conflicts with Williamson Act contracts would be significant and unavoidable.

Level of Significance Without Mitigation: Significant and Unavoidable Impact as no feasible mitigation is available.

Threshold 4.2.3 **Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

The Specific Plan Area does not include any areas that include forest land, timberland or timberland zoned for Timberland Production. The zoning for within the Specific Plan Area is identified as agriculture resource-related. As a result, no impact would occur.

Level of Significance Without Mitigation: No Impact. No mitigation is required.

Threshold 4.2.4 **Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

As described above in response to Threshold 4.2.3, the Specific Plan Area does not contain any forest land, nor would the proposed Specific Plan result in the conversion of forest land to non-forest use. As result, no impact would occur.

Level of Significance Without Mitigation: No Impact. No mitigation is required.

Threshold 4.2.5 **Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.**

No changes to the existing environment other than those analyzed resulting from implementation of the proposed Specific Plan would result in the direct conversion of agricultural uses to nonagricultural uses. The Specific Plan Area is being developed as an active urban center, which could create an incompatible urban interface with the adjacent agricultural land to the north, west, and south of the Specific Plan Area. The eastern boundary of the Specific Plan Area is already adjacent to the City's urban boundary. Developing existing agricultural land with high density urban development could induce adjacent landowners to convert agricultural land for urban or suburban uses

for economic reasons or because of nuisance complaints. The Specific Plan Area is expanding into an agriculturally designated area. However, because the Specific Plan Area is adjacent to the existing City boundary, developing it would shift the City boundary westward but would not isolate any existing agricultural lands such that they would prompt the conversion of surrounding agricultural lands to nonagricultural uses. Also, both the County and City implement Right-to-Farm Ordinances to prevent agricultural operations from being the subject of nuisance complaints and being forced to cease or curtail operations. Furthermore, construction of development associated with the proposed Specific Plan would be subject to mitigation measures identified in Section 4.3, Air Quality, which would address potential dust generation on adjacent uses, including agricultural uses. In addition, regulatory requirements identified in Section 4.10, Hydrology and Water Quality, would address construction-related stormwater runoff. With these measures, construction of projects associated with buildout of the proposed Specific Plan would not adversely affect surrounding farmland such that surrounding farmland would be converted to non-agricultural uses.

The objective of the County and City is to conserve, protect and encourage the development, improvement, and continued viability of its agricultural land and industries for the long-term production of food and other agricultural products. In addition, the City's General Plan proposes 10 other urban growth areas that are spread throughout the City of Madera and on the boundary of the City and Madera County. Because the County General Plan includes numerous policies that support agricultural areas and encourages infill development as an alternative to developing agricultural lands, these 10 urban growth zones would be more intensively developed before future development expands into agricultural lands. As such, implementation of the proposed Specific Plan would not influence the conversion of farmland to nonagricultural uses and impacts associated with changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use would be less than significant.

Level of Significance Without Mitigation: Less than Significant. No mitigation is required.

4.2.2.3 Cumulative Impacts

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to agriculture and forestry. The cumulative impact area is the County of Madera which contains the lands identified as Important Farmland.

Implementation of the proposed Specific Plan would result in the conversion of agricultural land to non-agricultural and urban uses. As discussed above, the proposed Specific Plan area has been designated for development by the City of Madera General Plan, and the Specific Plan Area has been brought inside of the City's SOI. Based on long-term buildout of the City, other areas in and around the City of Madera would be converted from agricultural uses as development pressures extend to the edges of the city. Although the City has identified several growth areas around the City that would result in the conversion of agricultural uses to non-agricultural uses, including Village A (Madera Acres), Village B (Northwest Madera), and Village E (West Madera), and these areas would encourage infill development occur before agricultural lands develop, the full buildout of the City would include permanent loss of agricultural lands. As a result, a cumulative impact related to the conversion of agricultural land would result in significant and unavoidable impacts.

In addition, the loss of Williamson Act Contract lands in the City's SOI would be considered a significant and unavoidable impact resulting from the proposed Specific Plan. Similar to the loss of other agricultural lands throughout the County, as development moves to the edge of the City, the proposed Specific Plan in combination with other development would result in significant and unavoidable cumulative impacts.

The Specific Plan Area does not include any forestry lands or land that currently serve as timber resources. As a result, implementation of the proposed Specific Plan would result in no impact to forestry resources.

Level of Significance Without Mitigation: Significant and Unavoidable. As discussed in response to Threshold 4.2.1 and Thresholds 4.2.1, there are no feasible mitigation measures available to reduce the potential impacts resulting from the conversion of agricultural land to non-agricultural, urban uses.

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4.3 AIR QUALITY

This section has been prepared using the methodologies and assumptions contained in the San Joaquin Valley Air Pollution Control District's (SJVAPCD) *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI).¹ In keeping with these guidelines, this section describes existing air quality and the regulatory framework for air quality. The section also describes the potential effects of the proposed Specific Plan on air quality, including the effects of construction and operational traffic associated with the proposed Specific Plan on regional pollutant levels and health risks. The following analysis is based on the anticipated buildout as described in Chapter 3, Project Description, and as included in Table 3.A. Mitigation measures to reduce potentially significant air quality impacts are identified, as necessary.

4.3.1 Environmental Setting

The following discussion provides an overview of existing air quality conditions in the region and in the City of Madera. Ambient air quality standards and the regulatory framework are summarized and climate, air quality conditions, and typical air pollutant types and sources are also described.

4.3.1.1 Specific Plan Area

The City of Madera is located in Madera County in the San Joaquin Valley Air Basin (SJVAB). The Air Basin consists of Kings, Madera, San Joaquin, Merced, Stanislaus, and Fresno counties, as well as a portion of Kern County. The local agency with jurisdiction over air quality in the Basin is the SJVAPCD. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season.

4.3.1.2 Air Pollutants and Health Effects

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and suspended particulate matter. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Two criteria pollutants, O₃ and NO₂, are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO₂, and Pb are considered local pollutants that tend to accumulate in the air locally.

The primary pollutants of concern in the project area are O₃, CO, and suspended particulate matter. Significance thresholds established by an air district are used to manage total regional and local emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual development projects that would contribute to regional and local emissions and could adversely affect or delay the air basin's projected attainment target goals for nonattainment criteria pollutants.

¹ San Joaquin Valley Air Pollution Control District. 2015. *Guidance for Assessing and Mitigating Air Quality Impacts*. March 19. Website: www.valleyair.org/transportation/ceqa_idx.htm (accessed February 2020).

Because of the conservative nature of the significance thresholds, and the basin-wide context of individual development project emissions, there is no direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like nitrogen oxides (NO_x) and reactive organic gases (ROG).

Occupants of facilities such as schools, daycare centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to air pollutants because these population groups have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered sensitive compared to commercial and industrial uses due to greater exposure to ambient air quality conditions associated with exercise.

Air pollutants and their health effects, and other air pollution-related considerations are summarized in Table 4.3.A and are described in more detail below. Table 4.3.B presents a summary of State and Federal ambient air quality standards (AAQS).

Ozone. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. The main sources of ROG and NO_x, often referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. Automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide. CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. CO transport is limited - it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Extremely high levels of CO, such as those generated when a vehicle is running in an unventilated garage, can be fatal.

Table 4.3.A: Sources and Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	<ul style="list-style-type: none"> • Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter. 	<ul style="list-style-type: none"> • Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO ₂)	<ul style="list-style-type: none"> • Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions. 	<ul style="list-style-type: none"> • Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O ₃)	<ul style="list-style-type: none"> • Atmospheric reaction of organic gases with nitrogen oxides in sunlight. 	<ul style="list-style-type: none"> • Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	<ul style="list-style-type: none"> • Contaminated soil. 	<ul style="list-style-type: none"> • Impairment of blood functions and nerve construction. • Behavioral and hearing problems in children.
Suspended Particulate Matter (PM _{2.5} and PM ₁₀)	<ul style="list-style-type: none"> • Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions. • Soil/Dust 	<ul style="list-style-type: none"> • Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardiorespiratory diseases. • Increased cough and chest discomfort. • Reduced visibility.
Sulfur Dioxide (SO ₂)	<ul style="list-style-type: none"> • Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes. 	<ul style="list-style-type: none"> • Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board (2015).

Table 4.3.B: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a		Federal Standards ^b			
		Concentration ^c	Method ^d	Primary ^{c,e}	Secondary ^{c,f}	Method ^g	
Ozone (O ₃) ^h	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry	
	8-Hour	0.07 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)			
Respirable Particulate Matter (PM ₁₀) ⁱ	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³		–			
Fine Particulate Matter (PM _{2.5}) ⁱ	24-Hour	–	Gravimetric or Beta Attenuation	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³		12.0 µg/m ³			
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	–	Non-Dispersive Infrared Photometry (NDIR)	
	1-Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)			
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		–			
Nitrogen Dioxide (NO ₂) ^j	Annual Arithmetic Mean	0.03 ppm (57 µg/m ³)	Gas Phase Chemi- luminescence	53 ppb (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemi- luminescence	
	1-Hour	0.18 ppm (339 µg/m ³)		100 ppb (188 µg/m ³)			
Lead (Pb) ^{l,m}	30-Day Average	1.5 µg/m ³	Atomic Absorption	–	Same as Primary Standard	High-Volume Sampler and Atomic Absorption	
	Calendar Quarter	–		1.5 µg/m ³ (for certain areas) ^l			
	Rolling 3- Month Average ⁱ	–		0.15 µg/m ³			
Sulfur Dioxide (SO ₂) ^k	24-Hour	0.04 ppm (105 µg/m ³)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)	–	Ultraviolet Fluorescence; Spectro- photometry (Pararosaniline Method)	
	3-Hour	–		–			0.5 ppm (1300 µg/m ³)
	1-Hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³) ^k			–
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas) ^k			–
Visibility- Reducing Particles ^l	8-Hour	See footnote n	Beta Attenuation and Transmittance through Filter Tape.	No Federal Standards			
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography				
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ^j	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				

Table notes are provided on the following page.

Source: California Air Resources Board (2016).

- ^a California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, 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 National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 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. For PM_{2.5}, the 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 USEPA for further clarification and current national policies.
- ^c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ^d Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
- ^e National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ^f National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ^g Reference method as described by the USEPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the USEPA.
- ^h On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- ⁱ On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- ^j To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- ^k On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
- ^l The CARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ^m The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- ⁿ In 1989, the CARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the Statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius

CARB = California Air Resources Board

USEPA = United States Environmental Protection Agency

ppb = parts per billion

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are 10 microns or less in diameter, or PM₁₀. Fine, suspended particulate matter with an aerodynamic diameter of 2.5 microns or less, or PM_{2.5}, is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM₁₀ and PM_{2.5}. These small particles can be directly emitted into the atmosphere as byproducts of fuel combustion; through abrasion, such as tire or brake lining wear; or through fugitive dust (wind or mechanical erosion of soil). They can also be formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces and can enter the human body through the lungs.

Nitrogen Dioxide. NO₂ is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Aside from its contribution to ozone formation, NO₂ also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO₂ may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO₂ decreases lung function and may reduce resistance to infection.

Sulfur Dioxide. SO₂ is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO₂ levels in the region. SO₂ irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Lead. Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery factories. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the USEPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The United States Environmental Protection Agency (USEPA) banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the USEPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Odors. Odors are also an important element of local air quality conditions. Specific activities can raise concerns related to odors on the part of nearby neighbors. Major sources of odors include restaurants and manufacturing plants. Other odor producers include the industrial facilities within the region. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally-produced odors often exceeds regulatory thresholds.

Toxic Air Contaminants. In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the USEPA and California Air Resources Board (CARB). Some examples of TACs include benzene, butadiene, formaldehyde, and hydrogen sulfide. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants.

TACs do not have ambient air quality standards, but are regulated by the USEPA, CARB, and the SJVAPCD. In 1998, the CARB identified particulate matter from diesel-fueled engines as a TAC. The CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.² High-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high-volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

Unlike TACs emitted from industrial and other stationary sources noted above, most diesel particulate matter is emitted from mobile sources—primarily “off-road” sources such as construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as trucks and buses traveling on freeways and local roadways.

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in 1,000,000) that is greater than all other measured TACs combined.³ The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and Federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. The CARB anticipated that in 2020, average statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of the CARB’s Diesel Risk Reduction Plan,⁴ meaning that the statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000. It is likely that cancer risk in the SJVAB from diesel particulate matter will decrease by a similar factor by 2020.

High Volume Roadways. Air pollutant exposures and their associated health burdens vary considerably within places in relation to sources of air pollution. Motor vehicle traffic is perhaps the most important source of intra-urban spatial variation in air pollution concentrations. Air quality research consistently demonstrates that pollutant levels are substantially higher near freeways and busy roadways, and human health studies have consistently demonstrated that children living within 100 to 200 meters (328 to 656 feet) of freeways or busy roadways have reduced lung function and higher rates of respiratory disease. At present, it is not possible to attribute the effects of roadway proximity on non-cancer health effects to one or more specific vehicle types or vehicle pollutants. Engine exhaust, from diesel, gasoline, and other combustion engines, is a complex mixture of particles and gases, with collective and individual toxicological characteristics.

Valley Fever. Valley fever is a fungal infection caused by coccidioides organisms. It can cause fever, chest pain and coughing, among other signs and symptoms. The coccidioides species of fungi that cause valley fever are commonly found in the soil in certain areas, including Madera County. These

² California Air Resources Board. 2000. Stationary Source Division and Mobile Source Control Division. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

³ Ibid.

⁴ California Air Resources Board. 2000, op. cit.

fungi can be stirred into the air by anything that disrupts the soil, such as farming, construction and wind. The fungi can then be breathed into the lungs and cause valley fever, also known as acute coccidioidomycosis. A mild case of valley fever usually goes away on its own. In more severe cases of valley fever, doctors prescribe antifungal medications that can treat the underlying infection. Valley Fever is not contagious and therefore does not spread from person to person. Most cases (approximately 60 percent) have no symptoms or only very mild flu-like symptoms and do not see a doctor. When symptoms are present, the most common are fatigue, cough, fever, profuse sweating at night, loss of appetite, chest pain, generalized muscle and joint aches particularly of the ankles and knees. There may also be a rash that resembles measles or hives but develops more often as tender red bumps on the shins or forearms.

Asbestos. Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.

Construction sometimes requires the demolition of existing buildings that may include materials containing asbestos. Asbestos is also found in a natural state known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs).

The CARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

4.3.1.3 Background

The following provides a discussion of the local and regional air quality and climate in the Madera area.

Existing Climate and Air Quality. Air quality is a function of both local climate and local sources of air pollution. The amount of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and for photochemical pollutants, sunshine.

The Specific Plan Area is located within the SJVAB and is under the jurisdiction of the SJVAPCD. A region's topographic features have a direct correlation with air pollution flow and therefore are used to determine the boundary of air basins. The SJVAB is comprised of approximately 25,000 square miles and covers of eight counties including Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare, and the western portion of Kern. The SJVAB is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Straits where the San Joaquin-Sacramento Delta empties into San Francisco Bay. An aerial view of the SJVAB would simulate a "bowl" opening only to the north. These topographic features restrict air movement through and out of the basin.

Although marine air generally flows into the basin from the San Joaquin River Delta, the Coast Range hinders wind access into the SJVAB from the west, the Tehachapi Mountains prevent southerly passage of air flow, and the high Sierra Nevada range is a significant barrier to the east. These topographic features result in weak air flow which becomes blocked vertically by high barometric pressure over the SJVAB. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet).

Local climatological effects, including wind speed and direction, temperature, inversion layers, precipitation and fog, can exacerbate the air quality in the SJVAB. Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing vertically and by transporting it to other locations. For example, in the summer, wind usually originates at the north end of the SJVAB and flows in a south-southeasterly direction through the SJVAB, through Tehachapi pass, into the Southeast Desert Air Basin. In the winter, wind direction is reversed and flows in a north-northwesterly direction. In addition to the seasonal wind flow, a sea breeze flows into SJVAB during the day and a land breeze flowing out of the SJVAB at night. The diversified wind flow enhances the pollutant transport capability within SJVAB.

The annual average temperature varies throughout the SJVAB, ranging from the low 40s to high 90s, measured in degrees Fahrenheit (°F). With a more pronounced valley influence, inland areas show more variability in annual minimum and maximum temperatures than coastal areas. The climatological station closest to the site is the Madera (045533) AP Station. The monthly average maximum temperature recorded at this station from January 1928 to June 2016 ranged from 54.0°F in January to 98.2°F in July, with an annual average maximum of 76.6°F. The monthly average minimum temperature recorded at this station ranged from 35.7°F in December to 61.4°F in July,

with an annual average minimum of 47.5°F.⁵ These levels are still representative of the project area. January and December are typically the coldest months and July is typically the warmest month in this area of the SJVAB.

The majority of annual rainfall in the SJVAB occurs between November and March. Summer rainfall is minimal and is generally limited to scattered thundershowers in desert regions and slightly heavier showers near the lower portion of the Basin and along the Sierra Nevada mountains to the east. Average monthly rainfall during that period varied from 0.01 inches in July to 2.46 inches in February, with an annual total of 6.17 inches.⁶ Patterns in monthly and yearly rainfall totals are predictable due to the recognizable differences in seasons within the valley.

The vertical dispersion of air pollutants in the SJVAB is limited by the presence of persistent temperature inversions. Because of cooling of the atmosphere, air temperature usually decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Inversions can exist at the surface, or at any height above the ground. The height of the base of the inversion is known as the “mixing height.” This is the level within which pollutants can mix vertically. Air above and below the inversion base does not mix because of the differences in air density. Semi-permanent systems of high barometric pressure fronts frequently establish themselves over the SJVAB, preventing low pressure systems that might otherwise bring rain and winds that clean the air.

Inversion layers are significant in determining ozone formation, and CO and PM₁₀ concentrations. Ozone and its precursors will mix and react to produce higher ozone concentrations under an inversion. The inversion will also simultaneously trap and hold directly emitted pollutants such as carbon monoxide. PM₁₀ is both directly emitted and created in the atmosphere as a chemical reaction. Concentration levels of pollutants are directly related to inversion layers due to the limitation of mixing space.

Surface or radiation inversions are formed when the ground surface becomes cooler than the air above it during the night. The earth’s surface goes through a radiative process on clear nights, where heat energy is transferred from the ground to a cooler night sky. As the earth’s surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. Periods of low inversions and low wind speeds are conditions favorable to high concentrations of CO and PM₁₀. In the winter, the greatest pollution problems are CO and NO_x because of extremely low inversions and air stagnation during the night and early morning hours. In

⁵ Western Regional Climate Center. n.d. Madera, California (045233), Period of Record Monthly Climate Summary. Website: wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5233 (accessed January 2021).

⁶ Ibid.

the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form photochemical smog.

Attainment Status. The CARB is required to designate areas of the State as attainment, nonattainment or unclassified for all State standards. An *attainment* designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A *nonattainment* designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An *unclassified* designation signifies that data does not support either an attainment or nonattainment status. The California Clean Air Act divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The USEPA also designates areas as attainment, nonattainment, or classified. The air quality data are also used to monitor progress in attaining air quality standards. Table 4.3.C provides a summary of the attainment status for the SJVAB with respect to national and State ambient air quality standards.

Table 4.3.C: Attainment Status of Criteria Pollutants in the San Joaquin Valley Air Basin

Pollutant	State	Federal
O ₃ 1-hour	Nonattainment/Severe	No Federal Standard ¹
O ₃ 8-hour	Nonattainment	Extreme Nonattainment ²
PM ₁₀	Nonattainment	Attainment ³
PM _{2.5}	Nonattainment	Nonattainment ⁴
CO	Attainment/Unclassified	Attainment/Unclassified
NO ₂	Attainment	Attainment/Unclassified
SO ₂	Attainment	Attainment/Unclassified
Lead	Attainment	No Designation/Classification
All others	Attainment/Unclassified	N/A

Source: Ambient Air Quality Standards and Valley Attainment Status (SJVAPCD 2020).

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

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

³ On September 25, 2008, USEPA re-designated the San Joaquin Valley to attainment for the PM₁₀ National Ambient Air Quality Standard (NAAQS) and approved the PM₁₀ Maintenance Plan.

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

CO = carbon monoxide

PM₁₀ = particulate matter less than 10 microns in size

N/A = not applicable

PM_{2.5} = particulate matter less than 2.5 microns in size

NO₂ = nitrogen dioxide

SO₂ = sulfur dioxide

O₃ = ozone

Air Quality Monitoring Results. Air quality monitoring stations are located throughout the nation and maintained by the local air pollution control district and state air quality regulating agencies. Ambient air data collected at permanent monitoring stations are used by the USEPA to identify regions as attainment or nonattainment depending on whether the regions met the requirements stated in the primary National Ambient Air Quality Standards (NAAQS). Attainment areas are required to maintain their status through moderate, yet effective air quality maintenance plans. Nonattainment areas are imposed with additional restrictions as required by the USEPA. In addition, different classifications of attainment such as marginal, moderate, serious, severe, and extreme are used to classify each air basin in the state on a pollutant-by-pollutant basis. Different classifications have different mandated attainment dates and are used as guidelines to create air quality management strategies to improve air quality and comply with the NAAQS by the attainment date. A region is determined to be unclassified when the data collected from the air quality monitoring stations do not support a designation of attainment or nonattainment, due to lack of information, or a conclusion cannot be made with the available data.

The SJVAPCD, together with CARB, maintains ambient air quality monitoring stations in the SJVAB. The air quality monitoring station closest to the site is the Madera – 28261 Avenue 14 monitoring station. The air quality trends from this station are used to represent the ambient air quality in the project area. Ambient air quality in the project area from 2017 to 2019 is shown in Table 4.3.D. The pollutants monitored were O₃, PM_{2.5}, and PM₁₀. Air quality trends for CO, NO₂, and SO₂ are not monitored at this air quality monitoring station; therefore, CO (2017 and 2018) and NO₂ data were obtained from the Madera County – Road 29 ½, north of Avenue 8 monitoring station and CO (2019) and SO₂ data were obtained from the Fresno – 3727 North First Street monitoring station.

As indicated in the monitoring results, the State 1-hour O₃ standard was exceeded 3 times in 2017, 2 times in 2018, and an unknown number of times in 2019 and the State 8-hour O₃ standard was exceeded 29 times in 2017, 17 times in 2018, and an unknown number of times in 2019. In addition, the federal 8-hour O₃ standard was exceeded 27 times in 2017, 14 times in 2018, and 10 times in 2019. The State PM₁₀ standard was exceeded an unknown number of times in 2017, 2018, and 2019. The federal PM_{2.5} standard was exceeded 16 times in 2017 and 23 times in 2018. The CO, NO₂, and SO₂ standards were not exceeded in this area during the 3-year period.

In addition, Table 4.3.E shows the emissions for Madera County. Emissions within the City of Madera are included in these emissions, though it also includes other emissions in the County. As shown in Table 4.3.E, the main source of NO_x and CO is from on-road mobile vehicles (cars and trucks on the road). The main source of total organic gases (TOG), ROG, particulate matter (PM), PM₁₀, and PM_{2.5} is from miscellaneous processes. The main source of sulfur oxides (SO_x) is from industrial processes.

**Table 4.3.D: Ambient Air Quality at the 28261 Avenue 14,
 Madera Monitoring Station**

Pollutant	Standard	2017	2018	2019
Carbon Monoxide (CO)^a				
Maximum 1-hour concentration (ppm)		3.1	1.9	1.9 ^b
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.2	1.2	1.5 ^b
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O₃)				
Maximum 1-hour concentration (ppm)		0.101	0.097	0.091
Number of days exceeded:	State: > 0.09 ppm	3	2	ND
Maximum 8-hour concentration (ppm)		0.092	0.083	0.082
Number of days exceeded:	State: > 0.07 ppm	29	17	ND
	Federal: > 0.07 ppm	27	14	10
Coarse Particulates (PM₁₀)				
Maximum 24-hour concentration (µg/m ³)		149.5	159.0	191.0
Number of days exceeded:	State: > 50 µg/m ³	ND	ND	ND
	Federal: > 150 µg/m ³	0	1	2
Annual arithmetic average concentration (µg/m ³)		35.3	ND	ND
Exceeded for the year:	State: > 20 µg/m ³	Yes	ND	ND
	Federal: > 50 µg/m ³	No	ND	ND
Fine Particulates (PM_{2.5})				
Maximum 24-hour concentration (µg/m ³)		70.6	81.7	31.2
Number of days exceeded:	Federal: > 35 µg/m ³	16	23	0
Annual arithmetic average concentration (µg/m ³)		12.4	13.9	9.0
Exceeded for the year:	State: > 12 µg/m ³	Yes	Yes	No
	Federal: > 15 µg/m ³	No	No	No
Nitrogen Dioxide (NO₂)^a				
Maximum 1-hour concentration (ppm)		0.049	0.047	0.032
Number of days exceeded:	State: > 0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.006	0.006	0.006
Exceeded for the year:	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO₂)^b				
Maximum 1-hour concentration (ppm)		0.008	0.007	0.009
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Maximum 3-hour concentration (ppm)		ND	ND	ND
Number of days exceeded:	Federal: > 0.50 ppm	ND	ND	ND
Maximum 24-hour concentration (ppm)		0.002	0.003	0.002
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.0006	0.0006	0.0004
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No

Source: CARB, USEPA, and BAAQMD (2020).

^a Data from the Road 29 1/2 No. of Avenue 8, Madera County monitoring site.

^b Data from the 3727 N First St, Fresno monitoring site.

ppm = parts per million

µg/m³ = micrograms per cubic meter

ND = No data. There was insufficient (or no) data to determine the value.

Table 4.3.E: Madera County Emissions

Emissions Source	Emissions (tons per day)							
	TOG	ROG	CO	NO _x	SO _x	PM	PM ₁₀	PM _{2.5}
Stationary Sources								
Fuel Combustion	0.2	0.1	0.9	1.3	0.1	0.2	0.2	0.2
Waste Disposal	6.2	0.0	-	-	-	-	-	-
Cleaning and Surface Coatings	1.0	0.9	-	-	-	0.0	0.0	0.0
Petroleum Production and Marketing	2.5	0.2	-	0.0	0.0	0.0	0.0	0.0
Industrial Processes	1.3	1.3	0.2	1.2	0.3	1.8	0.8	0.5
Total Stationary Sources	11.2	2.5	1.2	2.5	0.3	2.0	1.0	0.7
Area Wide Sources								
Solvent Evaporation	2.6	2.4	-	-	-	-	-	-
Miscellaneous Processes	32.1	4.9	4.7	0.4	0.0	32.8	16.7	2.8
Total Areawide Sources	34.7	7.3	4.7	0.4	0.0	32.8	16.7	2.8
Mobile Sources								
On-Road Motor Vehicles	1.5	1.3	8.9	4.7	0.0	0.4	0.0	0.2
Other Mobile Sources	1.9	1.6	10.1	4.2	0.0	0.3	0.3	0.2
Total Mobile Sources	3.3	3.0	19.0	8.9	0.0	0.7	0.6	0.4
Grand Total for Fresno County	49.3	12.8	24.9	11.9	0.4	35.4	18.3	3.9

Source: CARB (2016).

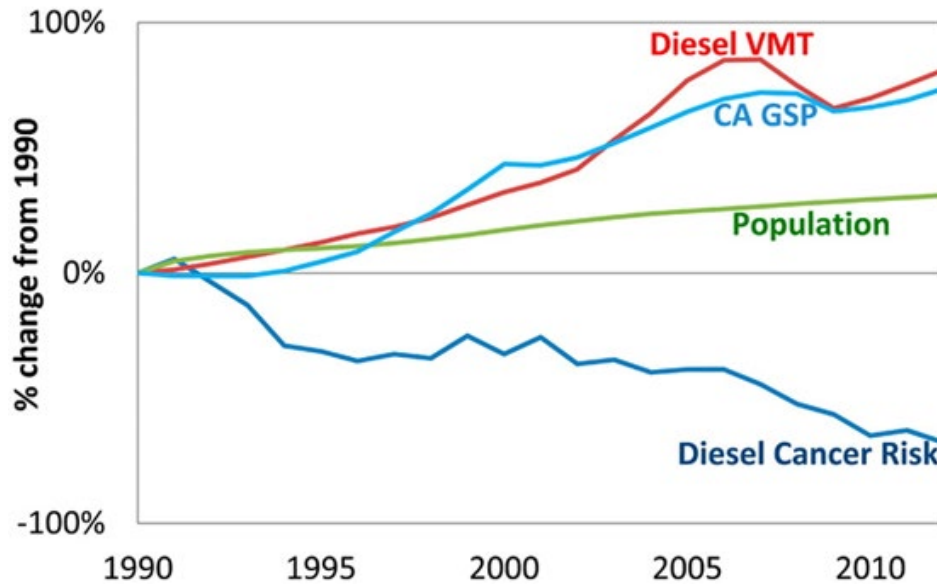
Toxic Air Contaminant Trends. In 1984, CARB adopted regulations to reduce TAC emissions from mobile and stationary sources, as well as consumer products. A CARB study showed that ambient concentrations and emissions of the seven TACs responsible for the most cancer risk from airborne exposure declined by 76 percent between 1990 and 2012.⁷ Concentrations of diesel particulate matter, a key TAC, declined by 68 percent between 1990 and 2012, despite a 31 percent increase in State population and an 81 percent increase in diesel vehicle miles traveled (VMT), as shown on Figure 4.3-1. The study also found that the significant reductions in cancer risk to California residents from the implementation of air toxics controls are likely to continue.

The USEPA and the CARB regulate direct emissions from motor vehicles. The SJVAPCD is the regional agency primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as monitoring ambient pollutant concentrations.

Federal Regulations. The 1970 Federal Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the Clean Air Act, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

⁷ Propper, Ralph, et al. 2015. Ambient and Emission Trends of Toxic Air Contaminants in California. *American Chemical Society: Environmental Science & Technology*.

Figure 4.3-1: California Population, Gross State Product (GSP), Diesel Cancer Risk, and Diesel Vehicle Miles Traveled (VMT) Regulatory Context



Source: Propper, Ralph et al. (2015).

State Regulations. The CARB is the lead agency for implementing air quality regulations in the State. Key efforts by the State are described below.

California Clean Air Act. In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain California ambient air quality standards (CAAQS) for carbon monoxide, ozone, sulfur dioxide and nitrogen dioxide by the earliest practical date. The California Clean Air Act provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

California Air Resources Handbook. The CARB has developed an Air Quality and Land Use Handbook⁸ which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. According to the CARB Handbook, recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing

⁸ California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April.

chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. The CARB Handbook recommends that county and city planning agencies strongly consider proximity to these sources when finding new locations for "sensitive" land uses such as homes, medical facilities, daycare centers, schools and playgrounds.

Land use designations with air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners and large gasoline service stations. Key recommendations in the CARB Handbook include taking steps to avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles/day;
- Within 1,000 feet of a major service and maintenance rail yard;
- Immediately downwind of ports (in the most heavily impacted zones) and petroleum refineries;
- Within 300 feet of any dry cleaning operation (for operations with two or more machines, provide 500 feet); and
- Within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater).

The CARB Handbook specifically states that its recommendations are advisory and acknowledges land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

The recommendations are generalized and do not consider site specific meteorology, freeway truck percentages or other factors that influence risk for a particular project site within the Specific Plan Area. The purpose of the land use compatibility analysis is to further examine project sites within the Specific Plan Area for actual health risk associated with the location of new housing within the Specific Plan Area.

San Joaquin Valley Air Pollution Control District. The SJVAPCD has specific air quality-related planning documents, rules, and regulations. This section summarizes the local planning documents and regulations that may be applicable to the proposed Specific Plan as administered by the SJVAPCD with CARB oversight.

Rule 2280—Portable Equipment Registration. Portable equipment used at project sites for less than six consecutive months must be registered with the SJVAPCD. The SJVAPCD will issue the registrations 30 days after receipt of the application.⁹

⁹ San Joaquin Valley Air Pollution Control District. 1996. Rule 2280 Portable Equipment Registration. Amended May 16.

Rule 2303—Mobile Source Emission Reduction Credits. A project may qualify for SJVAPCD vehicle emission reduction credits if it meets the specific requirements of Rule 2303 for any of the following categories:¹⁰

- Low-Emission Transit Buses
- Zero-Emission Vehicles
- Retrofit Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles
- Retrofit Heavy-Duty Vehicles

Rule 4201 and Rule 4204—Particulate Matter Concentration and Emission Rates. Rule 4201 and Rule 4202 apply to operations that emit or may emit dust, fumes, or total suspended particulate matter.¹¹

Rule 8011—General Requirements: Fugitive Dust Emission Sources. Fugitive dust regulations are applicable to outdoor fugitive dust sources. Operations, including construction operations, must control fugitive dust emissions in accordance with SJVAPCD Regulation VIII. According to Rule 8011, the SJVAPCD requires the implementation of control measures for fugitive dust emission sources. For projects in which construction-related activities would disturb equal to or greater than 1 acre of surface area, the SJVAPCD recommends that demonstration of receipt of an SJVAPCD-approved Dust Control Plan or Construction Notification Form, before issuance of the first grading permit, be made a condition of approval.

Rule 9510—Indirect Source Review. In December 2005, the SJVAPCD adopted the Indirect Source Rule (Rule 9510) to meet its emission reduction commitments in the PM₁₀ and O₃ Attainment Plans. Indirect Source Review regulation applies to any development project that includes at least 2,000 square feet of commercial space. This Rule requires project applicants to reduce operation emission of NO_x by 33.3 percent of the project's operational baseline and 50 percent of the project's operational PM₁₀ emissions.

Guidance for Assessing and Mitigating Air Quality Impacts. The SJVAPCD prepared the GAMAQI to assist lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SJVAB. The GAMAQI provides SJVAPCD-recommended procedures for evaluating potential air quality impacts during the CEQA environmental review process. The GAMAQI provides guidance on evaluating short-term (construction) and long-term (operational) air emissions. The most recent version of the GAMAQI, adopted March 19, 2015, was used in this evaluation. It contains guidance on the following:

¹⁰ Ibid.

¹¹ San Joaquin Valley Air Pollution Control District, 1992. Rule 4202 Particulate Matter – Emission Rate. Amended December 17, 1992.

- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- Methods to mitigate air quality impacts; and
- Information for use in air quality assessments and environmental documents, including air quality, regulatory setting, climate, and topography data.

Regional Air Quality Management Plan. The SJVAPCD is responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the SJVAB. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. The SJVAPCD does not have one single AQMP for criteria pollutants, rather the District address each criteria pollutant with its own Plan. The SJVAPCD has the following AQMPs:

- 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards
- 2016 Moderate Area Plan for the 2012 PM_{2.5} standard
- 2016 Plan for the 2008 8-Hour Ozone Standard
- 2013 Plan for the Revoked 1-Hour Ozone Standard
- 2007 PM₁₀ Maintenance Plan
- 2004 Revision to the California State Implementation Plan for Carbon Monoxide

The SJVAPCD's AQMPs incorporate the latest scientific and technological information and planning assumptions, including updated emission inventory methodologies for various source categories. The SJVAPCD's AQMPs included the integrated strategies and measures needed to meet the national ambient air quality standards (NAAQS), implementation of new technology measures, and demonstrations of attainment of the 1-hour and 8-hour ozone NAAQS as well as the latest 24-hour and annual PM_{2.5} standards.

The SJVAPCD's current air quality plans are discussed below.

Ozone Plans. The SJVAPCD's Governing Board approved the 2016 Plan for the 2008 8-Hour Ozone Standard on June 16, 2016. The comprehensive strategy in this plan will reduce NO_x emissions by over 60 percent between 2012 and 2031, and will bring the San Joaquin Valley into attainment of USEPA's 2008 8-hour ozone standard as expeditiously as practicable, no later than December 31, 2031.

Particulate Matter Plans. The SJVAPCD adopted the 2007 PM₁₀ Maintenance Plan in September 2007 to assure the SJVAB's continued attainment of the USEPA's PM₁₀ standard. The USEPA designated the valley as an attainment/maintenance area for PM₁₀.

The 2008 PM_{2.5} Plan builds upon the comprehensive strategy adopted in the 2007 Ozone Plan to bring the Basin into attainment of the 1997 national standards for PM_{2.5}. The USEPA has identified NO_x and SO₂ as precursors that must be addressed in air quality plans for the 1997 PM_{2.5} standards. The 2008 PM_{2.5} Plan is a continuation of the SJVAPCD's strategy to improve the air quality in the SJVAB.

The SJVAPCD prepared the 2012 PM_{2.5} Plan to bring the San Joaquin Valley into attainment of the USEPA's most recent 24-hour PM_{2.5} standard of 35 µg/m³. The CARB approved the SJVAPCD's 2012 PM_{2.5} Plan at a public hearing on January 24, 2013. The plan, approved by the SJVAPCD Governing Board on December 20, 2012, will bring the Valley into attainment of USEPA's 1997 PM_{2.5} standard as expeditiously as practicable, but no later than, December 31, 2020.

The SJVAPCD adopted the 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards on November 15, 2018. This plan addresses the USEPA federal 1997 annual PM_{2.5} standard of 15 µg/m³ and 24-hour PM_{2.5} standard of 65 µg/m³; the 2006 24-hour PM_{2.5} standard of 35 µg/m³; and the 2012 annual PM_{2.5} standard of 12 µg/m³. This plan demonstrates attainment of the federal PM_{2.5} standards as expeditiously as practicable.

City of Madera General Plan. The City of Madera addresses air quality in the Conservation Element of the General Plan.¹² The Conservation Element provides goals, policies, and action items that work to meet or exceed all State and federal air quality standards. The policies and action items from the Conservation Element, listed in Table 4.3.F, would be applicable to the proposed Specific Plan.

4.3.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to air quality that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

¹² Madera, City of. 2009. *City of Madera General Plan. Conservation Element*. October 7.

Table 4.3.F: General Plan Policies Related to Air Quality

Policy/Action Item Number	Policy/Action Item
Conservation Element	
Policy CON-28	Residential development projects and projects categorized as sensitive receptors shall be located an adequate distance from existing and potential sources of toxic emissions such as freeways, major arterials, industrial sites, and hazardous material locations. "Adequate distance" will be based on site-specific conditions, on the types and amounts of potential toxic emissions, and other factors.
Policy CON-29	The City shall require new air pollution point sources (such as, but not limited to, industrial, manufacturing, and processing facilities) to be located an adequate distance from residential areas and other sensitive receptors. "Adequate distance" will be based on site-specific conditions, the type and location of sensitive receptors, on the types and amounts of potential toxic emissions, and other factors.
Policy CON-30	The creation of dust during construction/demolition activities should be reduced to the extent feasible.
Action Item CON-30.1	Work with the San Joaquin Valley Air Pollution Control District to reduce particulate emissions from construction, grading, excavation, and demolition through standard and/or special conditions on these activities.
Policy CON-31	<p>The City seeks to reduce the urban heat island effect in the City, which causes increased temperatures and increases in ground level ozone formation through methods such as:</p> <ul style="list-style-type: none"> • Increasing the amount of tree coverage in the city. • Green roofs and rooftop gardens. • The use of reflective treatments on roofs (such as those which qualify for the USEPA/Department of Energy's Energy Star rating). • The use of cool pavements such as permeable and light colored and reflective pavements.
Action Item CON-31.1	Develop and adopt a tree ordinance that protects existing trees in the public right of way and promotes the establishment of new tree resources in public areas, including the placement of trees in parkway strips to allow shading of streets. The tree ordinance could establish a City-approved tree-planting list and provide for the creation of a Master Tree Plan that would include an inventory of trees in public areas, including tree type, condition and size.
Action Item CON-31.2	<p>Update or amend the City's zoning and building codes, and provide training to the City's Community Development Department staff, to incorporate features which will have the effect of reducing exterior heat gain, such as:</p> <ul style="list-style-type: none"> • Allowances for the construction of green roofs; • Standards for surface shading of paved areas; • Standards for the use of paving materials with an enhanced solar reflective index (SRI); • Standards that provide for pervious pavement options.
Policy CON-43	The City shall consider air quality when making changes to planned land uses and transportation systems.

Source: City of Madera General Plan (October 2009).

4.3.2.1 Significance Criteria

The thresholds for impacts related to air quality used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to air quality if it would:

Threshold 4.3.1 **Conflict with or obstruct implementation of the applicable air quality plan;**

Threshold 4.3.2 **Result in a cumulatively considerable net increase of any criteria pollutant for which the project is nonattainment under an applicable federal or state ambient air quality standard;**

Threshold 4.3.3 **Expose sensitive receptors to substantial pollutant concentrations; or**

Threshold 4.3.4 **Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**

4.3.2.2 Project Impacts

The following discussion describes the potential impacts related to air quality that could result from implementation of the proposed Specific Plan.

Threshold 4.3.1 **Would the project conflict with or obstruct implementation of the applicable air quality plan?**

An air quality plan describes air pollution control strategies to be implemented by a city, county, or region classified as a non-attainment area. The main purpose of the air quality plan is to bring the area into compliance with the requirements of the federal and State air quality standards. To bring the San Joaquin Valley into attainment, the SJVAPCD has developed the 2013 Plan for the Revoked 1-Hour Ozone Standard (Ozone Plan), adopted on September 19, 2013. The SJVAPCD also adopted the 2016 Plan for the 2008 8-Hour Ozone Standard in June 2016 to satisfy Clean Air Act requirements and ensure attainment of the 75 parts per billion (ppb) 8-hour ozone standard.

To assure the SJVAB's continued attainment of the USEPA PM₁₀ standard, the SJVAPCD adopted the 2007 PM₁₀ Maintenance Plan in September 2007. SJVAPCD Regulation VIII (Fugitive PM₁₀ Prohibitions) is designed to reduce PM₁₀ emissions generated by human activity. The SJVAPCD adopted the 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards in November 2018 to address the USEPA 1997 annual PM_{2.5} standard of 15 µg/m³ and 24-hour PM_{2.5} standard of 65 µg/m³, the 2006 24-hour PM_{2.5} standard of 35 µg/m³, and the 2012 annual PM_{2.5} standard of 12 µg/m³.

The proposed Specific Plan was assessed to determine if the impacts from implementation of the proposed Specific Plan would conflict with or obstruct the implementation of the applicable attainment plan. The SJVAPCD Guidelines identify two tests to determine if a proposed project conflicts or obstructs the applicable air quality plans. First, if development exceeds the growth projections used in the applicable attainment plan, it would produce a potentially significant impact. Second, if the proposed project includes goals, policies, and development standards that are in conflict with the development related control measures in the attainment plans, the proposed project would be potentially significant. As described below, under these tests, the proposed Specific Plan would not have a significant impact.

Buildout of the proposed Specific Plan is predicted to occur at growth rates consistent with those used by the SJVAPCD to develop plans for all nonattainment pollutants in the SJVAB. Implementation of the proposed Specific Plan would result in buildout by the year 2049.

The land use designations in the City's General Plan, in part, the foundation for the emissions inventory for the SJVAB in the SJVAPCD's attainment plans. The SJVAPCD's attainment plans are based on projections in population, employment, and VMT in the SJVAB. The population and growth associated with the proposed Specific Plan is consistent with, and was accounted for, in the City's General Plan. As such, the growth projections used for the proposed Specific Plan assume that growth in population, vehicle use, and other source categories will occur at historically robust rates that are consistent with the rates used to develop the SJVAPCD's attainment plans. In other words, the amount of growth predicted for the proposed Specific Plan is accommodated by the SJVAPCD's attainment plan and would not preclude the air basin from attainment of the 8-hour ozone standard by the 2023 attainment date. In addition, reductions anticipated from existing regulations and adopted control measures will result in emissions continuing to decline even though development and population will increase. Furthermore, implementation of the proposed Specific Plan would allow for implementation of sustainability efforts that reduce motor vehicle use and energy consumption. This is accomplished with more compact development achieved by increasing development density and by providing a land use pattern and transportation infrastructure more supportive of public transportation, walking, and bicycling. Therefore, implementation of the proposed Specific Plan would support the implementation of SJVAPCD's attainment plans and would meet this criterion.

In addition, review of the strategies contained in the proposed Specific Plan found them to be consistent with applicable control measures of the SJVAPCD attainment plans. The proposed Specific Plan includes numerous strategies that would reduce operational air pollutant emissions and increase energy efficiency. Specifically, the proposed Specific Plan encourages future development to exceed Title 24 standards and encourages the following energy efficiency strategies:

- Provide natural lighting, where feasible, to reduce reliance on artificial lighting.
- Use Low-E or EnergyStar windows.
- Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.
- Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
- Implement some of the strategies of the EnergyStar program.
- For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.
- In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel-efficient vehicles.

These measures are consistent with the applicable control measures of the SJVAPCD attainment plan and would reduce operational air pollutant emissions and increase energy efficiency.

The SJVAPCD has adopted rules and regulations specifically designed to reduce the impacts of growth on the applicable air quality plans. For example, Rule 9510, Indirect Source Review, was adopted to provide emission reductions needed by the SJVAPCD to demonstrate attainment of the federal PM₁₀ standard and contribute to reductions that assist in attaining federal ozone standards. Rule 9510 also contributes toward attainment of State standards for these pollutants. The SJVAPCD's Regulation VIII, Fugitive PM₁₀ Prohibitions, requires controls for sources of particulate matter necessary for attaining the federal PM₁₀ standards and achieving progress toward attaining the State PM₁₀ standards. Rule 2201, New and Modified Stationary Source Review, requires new and modified stationary/industrial sources to provide emission controls and offsets that ensure that stationary sources decline over time and do not impact the applicable air quality plans. Development associated with the proposed Specific Plan would comply with these rules and regulations providing additional support for the conclusion that it would not interfere or obstruct with the application of the attainment plans.

Therefore, the proposed Specific Plan would be consistent with the air quality attainment plans and would result in a less than significant impact.

Level of Significance Without Mitigation: Less than Significant Impact. No mitigation is required.

Threshold 4.3.2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project is nonattainment under an applicable federal or state ambient air quality standard?

The SJVAB is designated as non-attainment for O₃ and PM_{2.5} for federal standards and non-attainment for O₃, PM₁₀, and PM_{2.5} for State standards. The SJVAPCD's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SJVAPCD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. The following analysis assesses the potential project-level construction- and operation-related air quality impacts.

Short-Term Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by grading, paving, building, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x,

ROG, directly-emitted particulate matter (PM_{2.5} and PM₁₀), and TACs such as diesel exhaust particulate matter.

Construction activities associated with implementation of the proposed Specific Plan would include grading, paving, and building activities. Construction-related effects on air quality from the proposed Specific Plan would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. Construction projects would be required to comply with District Regulation VIII (Fugitive PM₁₀ Prohibition) to control fugitive dust. SJVAPCD Rule 8011, General Requirements, and Rule 8021, Construction, Demolition Excavation, Extraction, and Other Earthmoving Activities, would also be applicable.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, volatile organic compounds (VOCs) and some soot particulate (PM_{2.5} and PM₁₀) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the proposed Specific Plan using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). Table 4.3.G lists the tentative construction schedule for the proposed Specific Plan based on a start date in January 2021. All other construction details are not yet known; therefore, default assumptions (e.g., construction phasing and fleet activities) from CalEEMod were used. Based on CalEEMod default assumptions, this analysis assumes an approximately 28-year construction period with Phase I operational in 2029, Phase II operational in 2039, and Phase III operational in 2049. Table 4.3.H lists the potential construction equipment to be used during construction under each phase of construction. Construction-related emissions are presented in Table 4.3.I. CalEEMod output sheets are included in Appendix E.

Table 4.3.G: Tentative Project Construction Schedule

Phase Name	Phase Start Date	Phase End Date	Number of Days/Week	Number of Days
Phase I				
Site Preparation	1/4/2021	12/31/2021	5	260
Grading	1/4/2021	12/31/2021	5	260
Building Construction	1/3/2022	12/28/2029	5	2,085
Paving	1/3/2022	12/28/2029	5	2,085
Architectural Coating	1/3/2022	12/28/2029	5	2,085
Phase II				
Site Preparation	1/7/2030	1/3/2031	5	260
Grading	1/6/2031	1/2/2032	5	260
Building Construction	1/5/2032	12/30/2039	5	2,085
Paving	1/5/2032	12/30/2039	5	2,085
Architectural Coating	1/5/2032	12/30/2039	5	2,085
Phase III				
Site Preparation	1/2/2040	12/28/2040	5	260
Grading	1/7/2041	12/24/2041	5	255
Building Construction	12/30/2041	12/31/2049	5	2,090
Paving	12/30/2041	12/31/2049	5	2,090
Architectural Coating	12/30/2041	12/31/2049	5	2,090

Source: Compiled by LSA (March 2020).

Table 4.3.H: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	3	8	247	0.40
	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	2	8	158	0.38
	Graders	1	8	187	0.41
	Rubber Tired Dozers	1	8	247	0.40
	Scrapers	2	8	367	0.48
	Tractors/Loaders/Backhoes	2	8	97	0.37
Building Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Paving	Pavers	2	8	130	0.42
	Paving Equipment	2	8	132	0.36
	Rollers	2	8	80	0.38

Source: Compiled by LSA using CalEEMod defaults (March 2020).

Table 4.3.I: Unmitigated Maximum Annual Project Construction Emissions by Phase

Construction Year	Total Regional Pollutant Emissions ¹ (tons/year)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Phase I	11.1	18.6	28.6	0.1	7.8	2.4
Phase II	8.5	9.9	13.2	0.1	6.9	1.7
Phase III	7.7	10.2	12.8	0.1	7.0	1.9
Maximum	11.1	18.6	28.6	0.1	7.8	2.4
SJVAPCD Thresholds	10.0	10.0	100.0	27.0	15.0	15.0
Significant Emissions?	Yes	Yes	No	No	No	No

Source: LSA (April 2020).

¹ All on-site and off-site emissions are presented as construction mitigation in the CalEEMod model output files.

CO = carbon monoxide

SJVAPCD = San Joaquin Valley Air Pollution Control District

NO_x = nitrogen oxides

SO_x = sulfur oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

ROG = reactive organic gases

PM₁₀ = particulate matter less than 10 microns in size

As shown in Table 4.3.I, construction emissions associated with the proposed Specific Plan would not exceed the SJVAPCD’s thresholds for CO, SO_x, PM_{2.5}, or PM₁₀ emissions during all phases. However, construction emissions associated with the project would exceed ROG thresholds during construction of Phase I and would exceed NO_x thresholds during construction of Phase I and Phase III. In addition to the construction period thresholds of significance, the SJVAPCD has implemented Regulation VIII measures for dust control during construction. These control measures are intended to reduce the amount of PM₁₀ emissions during the construction period. Implementation of Mitigation Measure AIR-2.1 would ensure that implementation of the proposed Specific Plan complies with Regulation VIII and further reduces the short-term construction period air quality impacts.

Mitigation Measure AIR-2.1 would be required to reduce construction emissions to the extent feasible. Table 4.3.J shows the proposed Specific Plan’s mitigated construction emissions.

Table 4.3.J: Mitigated Maximum Annual Project Construction Emissions by Phase

Construction Year	Total Regional Pollutant Emissions ¹ (tons/year)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Phase I Maximum	10.8	15.1	27.4	0.1	7.7	2.1
Phase II Maximum	8.1	8.0	11.8	0.1	6.0	1.5
Phase III Maximum	7.5	8.9	11.5	0.1	7.0	1.9
Maximum	10.8	15.1	27.4	0.1	7.7	2.1
SJVAPCD Thresholds	10.0	10.0	100.0	27.0	15.0	15.0
Significant Emissions?	Yes	Yes	No	No	No	No

Source: LSA (April 2020).

¹ All on-site and off-site emissions are presented as construction mitigation in the CalEEMod model output files.

CO = carbon monoxide

SJVAPCD = San Joaquin Valley Air Pollution Control District

NO_x = nitrogen oxides

SO_x = sulfur oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

ROG = reactive organic gases

PM₁₀ = particulate matter less than 10 microns in size

As indicated in Table 4.3.J, with implementation of Mitigation Measure AIR-2.1, the short-term construction emissions associated with implementation of the proposed Specific Plan would be still exceed SJVAPCD established significance thresholds for ROG and NO_x. Therefore, construction of the proposed Specific Plan would result in a significant and unavoidable impact.

Long-Term Operational Emissions. Long-term air pollutant emission impacts are those associated with area sources and mobile sources related to the proposed Specific Plan. In addition to the short-term construction emissions, implementation of the proposed Specific Plan would also generate long-term air pollutant emissions, such as those associated with changes in permanent uses within the Specific Plan Area. These long-term emissions are primarily mobile source emissions that would result from vehicle trips associated with the proposed Specific Plan. Area sources, such as landscape equipment, would also result in pollutant emissions.

PM₁₀ emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM₁₀ occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles.

Energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Major sources of energy demand for the proposed Specific Plan could include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as refrigerators or computers. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources. Construction associated with implementation of the proposed Specific Plan would comply with the 2019 California Building Standards Code (California Code of Regulations, Title 24), which was accounted for in CalEEMod. Area source emissions associated with the proposed Specific Plan would include emissions from the use of architectural coatings, consumer products, and landscaping equipment.

Emission estimates for operation of the proposed Specific Plan were calculated using CalEEMod. Model results are shown in Table 4.3.K. For purposes of evaluating the proposed Specific Plan, the county in CalEEMod was specified as Madera County and the climate zone of 3 was selected. Based on this climate zone, CalEEMod assumed a wind speed of 2.9 meters per second and precipitation frequency of 51 days per year. The operational year was assumed to be 2029 for Phase I, 2040 for Phase II, and 2050 for Phase III. The utility company for the region was selected as Pacific Gas & Electric Company (PG&E) and the CO₂ intensity was determined to be 328.8 pounds per megawatt hour based on a 5-year average estimated by PG&E.

Table 4.3.K: Unmitigated Project Operational Emissions

Source	Pollutant Emissions (tons/year)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Phase I						
Phase I Area Emissions	41.6	3.2	116.3	0.3	14.3	14.3
Phase I Energy Emissions	0.5	4.3	2.0	<0.1	0.3	0.3
Phase I Mobile Emissions	8.8	78.1	99.6	0.6	43.9	12.0
Total Phase I Emissions	50.9	85.7	217.9	0.9	58.6	26.7
Phase II						
Phase II Area Emissions	98.7	8.7	384.7	1.1	54.3	0.5
Phase II Energy Emissions	1.0	8.3	3.9	0.1	0.7	0.7
Phase II Mobile Emissions	9.1	99.5	104.3	0.8	95.5	25.9
Total Phase II Emissions	108.8	116.5	492.3	1.9	96.7	27.1
Phase III						
Phase III Area Emissions	140.5	12.3	528.7	1.5	73.7	73.7
Phase III Energy Emissions	1.4	12.1	5.7	0.1	1.0	1.0
Phase III Mobile Emissions	14.2	159.9	167.6	1.3	111.7	30.2
Total Phase III (Project Buildout) Emissions	156.2	184.2	702.0	2.8	186.4	104.9
SJVAPCD Thresholds	10.0	10.0	100.0	27.0	15.0	15.0
Significant?	Yes	Yes	Yes	No	Yes	Yes
Daily Project Buildout Emissions	0.4	0.5	1.9	<0.1	0.5	0.3

Source: LSA (April 2020).

CO = carbon monoxide

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SJVAPCD = San Joaquin Valley Air Pollution Control District

SO_x = sulfur oxides

ROG = reactive organic gases

Trip generation rates used in CalEEMod for the proposed Specific Plan were based on the project's trip generation estimates,¹³ which assumes that Phase I of the proposed Specific Plan would typically generate approximately 31,250 average daily trips, Phase II of the proposed Specific Plan would typically generate approximately 56,825 average daily trips, and Phase III of the proposed Specific Plan would typically generate approximately 89,650 average daily trips.¹⁴ Where project-specific data were not available, default assumptions from CalEEMod were used to estimate project emissions.

The primary emissions associated with the proposed Specific Plan are regional in nature, meaning that air pollutants are rapidly dispersed on release or, in the case of vehicle emissions associated with the proposed Specific Plan; emissions are released in other areas of the Air Basin. The annual emissions associated with operational trip generation, energy, and area sources are identified in Table 4.3.K for ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}. CalEEMod output sheets are included in Appendix E.

¹³ LSA. 2020. *Traffic Impact Analysis Village D Specific Plan*. May.

¹⁴ Ibid.

The results shown in Table 4.3.K indicate that the proposed Specific Plan would exceed the significance criteria for annual ROG, NO_x, CO, PM₁₀, and PM_{2.5} emissions; therefore, the proposed Specific Plan could have a significant effect on regional air quality. Implementation of Mitigation Measure AIR-2.2 would be required to reduce construction-related impacts to the extent feasible. Table 4.3.L identifies the results of the analysis with implementation of Mitigation Measure AIR-2.2.

Table 4.3.L: Mitigated Project Operational Emissions

Source	Pollutant Emissions (tons/year)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Phase I						
Phase I Area Emissions	32.1	1.8	30.1	<0.1	0.3	0.3
Phase I Energy Emissions	0.4	3.8	1.8	<0.1	0.3	0.3
Phase I Mobile Emissions	7.8	71.7	81.8	0.5	34.6	9.5
Total Phase I Emissions	40.4	77.4	113.7	0.5	35.2	10.1
Phase II						
Phase II Area Emissions	62.1	0.6	54.1	<0.1	0.3	0.3
Phase II Energy Emissions	0.9	7.3	3.4	<0.1	0.6	0.6
Phase II Mobile Emissions	8.2	93.9	89.0	0.6	53.8	14.6
Total Phase II Emissions	71.2	101.8	146.5	0.7	54.7	15.5
Phase III						
Phase III Area Emissions	91.0	2.2	80.4	<0.1	0.6	0.6
Phase III Energy Emissions	1.2	10.7	5.1	0.1	0.9	0.9
Phase III Mobile Emissions	12.7	150.6	141.5	1.1	91.7	24.8
Total Phase III (Project Buildout) Emissions	104.9	163.6	227.0	1.1	93.2	26.2
SJVAPCD Thresholds	10.0	10.0	100.0	27.0	15.0	15.0
Significant?	Yes	Yes	Yes	No	Yes	Yes
Daily Project Buildout Emissions	0.3	0.4	0.6	<0.1	0.3	0.1

Source: LSA (April 2020).

CO = carbon monoxide

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SJVAPCD = San Joaquin Valley Air Pollution Control District

SO_x = sulfur oxides

ROG = reactive organic gases

As shown in Table 4.3.L, SJVAPCD emissions of ROG, NO_x, CO, PM₁₀, and PM_{2.5} would still exceed the SJVAPCD's thresholds even with mitigation. Therefore, operation of the proposed Specific Plan would result in a significant and unavoidable impact.

The State and the SJVAPCD continue to adopt additional regulations on emission sources to be implemented during the proposed Specific Plan buildout period and result in much greater reductions than is predicted with the adopted regulations included in the air quality models as of 2019 or with off-model quantification methods available pending the next model update. Expanded use of renewable fuels, zero emission vehicles, and replacing combustion sources with electrically powered alternatives will also result in reductions in criteria pollutant emissions. In addition, the proposed Specific Plan includes strategies and development patterns that will result in lower vehicle miles traveled and energy use compared to development projects constructed in the recent past that provide the basis for future emission projections.

As discussed in 4.16, Transportation, VMT per capita, VMT per service population, and VMT per employee for the project under horizon year (2042) were compared with corresponding values for the existing (2019) regional VMT per capita, VMT per service population, and VMT per employee respectively. The horizon year (2042) project VMT per capita is 24.6 percent lower than the existing (2019) regional average. Similarly, horizon year VMT per service population for the project is 20.1 percent lower than the existing (2019) regional average. The project's horizon year VMT per employee is 35.6 percent lower than existing (2019) regional average.

In addition, development projects would be required to implement District Rule 9510 (Indirect Source Review [ISR]). Implementation of Rule 9510 would reduce operational emissions of NO_x and PM₁₀ by 33.3 percent and 50 percent respectively. Project Applicants will be required submit an Air Impact Assessment to the SJVAPCD consistent with Rule 9510 prior to obtaining building permits.

However, future development within the Specific Plan Area would result in increases in annual emissions that exceed SJVAPCD significance thresholds for all nonattainment pollutants. Although the growth in emissions is accounted for in SJVAPCD attainment plans, this analysis identifies the impact as significant under the ton per year quantitative threshold criterion as shown in Table 4.3-L.

Level of Significance Without Mitigation: Potentially significant.

Impact AIR-2: Implementation of the Specific Plan would result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable federal or State ambient air quality standards.

- Mitigation Measure AIR-2.1** Consistent with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII (Fugitive PM₁₀ Prohibitions) and in order to reduce construction equipment emissions to the extent feasible, the following controls shall be included as specifications for the proposed Specific Plan and implemented during construction:
- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
 - All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
 - All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emission utilizing sufficient water or chemical stabilizer/suppressant.
- The project contractor shall require all off-road diesel-powered construction equipment of greater than 50 horsepower used for the project meet the California Air Resources Board (CARB) Tier 4 emissions standards or better.
- The project contractor shall require the use of electric air compressors, cranes, excavators, forklifts, generator sets, and welders.

Mitigation Measure AIR-2.2

Prior to issuance of a building permit, the City of Madera Community Development Director or designee shall identify project design details and specifications, where feasible, to document implementation and compliance with the following emission reduction measures. Implementation of the following measures is considered to be applicable, feasible, and effective in reducing criteria pollutant emissions generated by the project:

- All Project Applicants shall provide Class I and Class II bicycle parking/storage facilities on-site. Bicycle parking facilities should be near destination points and easy to find. At least one bicycle parking space for every 20 vehicle parking spaces.
- All employers shall provide shower and locker facilities to encourage employees to bike and/or walk to work, typically one shower and three lockers for every 25 employees.
- All apartment complexes or condominiums without garages shall provide Class I bicycle parking.

- All Project Applicants shall install Class I or II bike lanes on arterial/collector streets, or where a suitable route exists.
- All Project Applicants shall provide building access and paths which are physically separated from street parking lot traffic and that eliminate physical barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, or public transportation vehicles.
- All Project Applicants shall provide continuous sidewalks separated from the roadway by landscaping and on street parking.
- All Project Applicants shall provide on and off-site pedestrian facility improvements such as trails linking them to designated pedestrian commuting routes and/or on-site overpasses and wider sidewalks.
- All Project Applicants shall link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel.
- All Project Applicants shall provide traffic reduction modifications to project roads, such as: narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds and to encourage pedestrian and bicycle travel.
- All Project Applicants shall provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances.
- All Project Applicants shall provide pedestrian access between bus service and major transportation points and to destination points within the project.
- All Project Applicants shall provide a display case or kiosk displaying transportation information in a prominent area accessible to employees, residents, or visitors.
- All Project Applicants shall display bike route maps, bus schedules, and any other transportation information such as carpooling and car sharing.
- All Project Applicants shall design projects using models by the Local Government Commission (LGC) in the “Smart Growth Guidebook,” such as: street block patterns that from an

interconnected grid, short block faces, numerous alleys, and narrow streets.

- All Project Applicants shall develop and implement parking pricing strategies, such as charging parking lot fees to low occupancy (single occupant vehicles) vehicles.
- All Project Applicants shall provide preferential parking spaces near the entrance of buildings for those who carpool/vanpool/rideshare and provide signage.
- All Project Applicants shall install efficient heating, and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units beyond Title 24 requirements.
- All Project Applicants shall use solar or low-emission water heaters and use central water heaters.
- All Project Applicants shall improve the thermal integrity/efficiency of buildings, and reduce the thermal load with automated and timed temperature controls or occupant sensors.
- All Project Applicants shall orient buildings to take advantage of solar heating and natural cooling and use passive solar designs.
- All employers shall implement at least one of the following: provide a guaranteed ride home; provide a carpool support system; provide a car-sharing services support system; provide a ride share program; employ or appoint an Employee Transportation Coordinator; provide incentives to employees to carpool/vanpool, take public transportation, telecommute, walk, and/or bike; participate in an employee "flash-pass" program, which provides free travel on transit buses; or provide transit pass subsidy and/or commute alternative allowance.
- If feasible, employers shall implement alternative work schedules such as compressed workweek schedules where weekly work hours are compressed into fewer than five days.

Level of Significance With Mitigation: Significant and Unavoidable Impact.

Threshold 4.3.3

Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Particulate matter can also lead to a variety of health effects in people. These include premature death of people with heart or lung disease, heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms.

Project Construction. Existing and proposed residents in the vicinity of construction activities would be exposed to TAC emissions generated during construction of projects proposed under the proposed Specific Plan. The closest off-site sensitive receptors to the Specific Plan Area include the single-family residence located along Avenue 15, approximately 370 feet south of the Specific Plan Area boundary, the single-family residences located along Caitlan Drive, located approximately 1,240 feet southeast of the Specific Plan Area boundary, and the single-family residences located along Camino Lane, approximately 2,180 feet east of the Specific Plan Area boundary. Construction of the projects proposed under the proposed Specific Plan may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). Construction of the projects proposed under the proposed Specific Plan would have the potential to exceed the SJVAPCD's health risk thresholds based on the size of the Specific Plan Area and distance to sensitive receptors; however, given the programmatic nature and duration of buildout of the proposed Specific Plan, it is not possible to determine the project-specific risk level based on the current information available and specific location of construction activities. Therefore, mitigation would be required to reduce potential health risks to the extent feasible. Implementation of Mitigation Measure AIR-3.1 would require all construction equipment of 50 horsepower or more be rated by the CARB as having Tier 4 (model year 2008 or newer) emission limits or better which would reduce off-site impacts to nearby residential receptors during the construction period. However, as timing of specific development projects within the Specific Plan Area is unknown, this impact would be considered significant and unavoidable.

Project Operation. Although the emissions from operations resulting from implementation of the proposed Specific Plan are expected to exceed the SJVAPCD's project level thresholds, this does not in itself constitute a significant health impact to the future residents within the Specific Plan Area and the SJVAB.

The SJVAPCD's project level thresholds are based in part on Section 180 (e) of the Clean Air Act. The project level thresholds are intended to provide a means of consistency in significance determination within the environmental review process.

Notwithstanding, simply exceeding the SJVAPCD's project level thresholds does not constitute a particular health impact to an individual nearby. The reason for this is that the project level thresholds are in tons/year emitted into the air, whereas health effects are determined based on the concentration of a pollutant in the air at a particular location (e.g., ppm by volume of air or

$\mu\text{g}/\text{m}^3$ of air). CAAQS and NAAQS were developed to protect the most susceptible population groups from adverse health effects and were established in terms of ppm or $\mu\text{g}/\text{m}^3$ for the applicable emissions.

The total emissions inventory for Madera County is shown in Table 4.3.E. As shown in Table 4.3.L above, the daily increase in emissions associated with the implementation of the proposed Specific Plan would be a small fraction of the County's emissions.

Therefore, the emissions associated with implementation of the proposed Specific Plan would not be expected to exceed the most stringent applicable NAAQS or CAAQS for NO_x , $\text{PM}_{2.5}$, and PM_{10} . It should be noted that the AAQS are developed and represent levels at which the most susceptible persons (children and the elderly) are protected. In other words, the AAQS are purposefully set low to protect children, the elderly, and those with existing respiratory problems.

Furthermore, air quality trends for emissions of NO_x , VOCs, and ozone (which is a byproduct of NO_x and VOCs) have been trending downward within the SJVAB even as development has increased over the last several years. Therefore, continued implementation of the proposed Specific Plan is not expected to result in any Basin-wide increase in health effects.

As noted in the Brief of Amicus Curiae by the SJVAPCD (2015)¹⁵, the SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts. (See page 4 of the SJVAPCD Brief of Amicus Curiae).

Additionally, the SJVAPCD acknowledges that health effects quantification from ozone, as an example, is correlated with the increases in ambient level of ozone in the air (concentration) that an individual person breathes. The SJVAPCD indicates that it would take a large amount of additional emissions to result in a modeled increase in ambient ozone levels over the entire region. As such, it is not currently possible to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects (defined as projects with a regional scope) due to photochemistry and regional model limitations.

Therefore, the proposed Specific Plan's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a Basin-wide level. Further, the SJVAPCD acknowledges the same:

"...the Air District is simply not equipped to analyze and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area...even for projects with relatively high levels of emissions of criteria pollutant precursor emissions." (See page 8 of the SJVAPCD Brief of Amicus Curiae.)

¹⁵ San Joaquin Valley Unified Air Pollution Control District. 2015. *Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District*. April. Available online at: www.courts.ca.gov/documents/7-s219783-ac-san-joaquin-valley-unified-air-pollution-control-dist-041315.pdf (accessed January 2020).

The SJVAPCD Brief of Amicus Curiae is incorporated by reference into this environmental documentation for the proposed Specific Plan.

Current scientific, technological, and modeling limitations prevent the relation of expected adverse air quality impacts to likely health consequences. However, without quantification to guarantee a less than significant finding, this impact is considered to be significant and unavoidable.

Level of Significance Without Mitigation: Potentially Significant Impact.

Impact AIR-3: Implementation of the Specific Plan could expose sensitive receptors to substantial pollutant concentrations.

Mitigation Measure AIR-3.1 Prior to the approval of any construction or building permits for new development proposed under the Specific Plan, the Director of the City of Madera Planning Department or designee shall ensure that when construction occurs within 500 feet of existing residences, the project contractor(s) shall utilize construction equipment rated by the United States Environmental Protection Agency (USEPA) as having Tier 4 (model year 2008 or newer) emission limits. The construction equipment shall be properly serviced and maintained in accordance with manufacturer recommendations.

Level of Significance With Mitigation: Significant and Unavoidable Impact. Mitigation Measure AIR-3.1 would reduce potential impacts resulting from construction-related emissions, but without specific construction information, such as grading and other site preparation information, this impact would remain significant and unavoidable.

Threshold 4.3.4 **Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

Heavy-duty equipment in the Specific Plan Area during construction would emit odors, primarily from the equipment exhaust. However, the construction activity would cease to occur after individual construction is completed. No other sources of objectionable odors have been identified for the proposed Specific Plan land uses, and no mitigation measures are required.

The SJVAPCD addresses odor criteria within the GAMAQI. The district has not established a rule or standard regarding odor emissions, rather, the district has a nuisance rule: "Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact." The proposed uses are not anticipated to emit any objectionable odors. Therefore, the proposed Specific Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Level of Significance Without Mitigation: Less than Significant. No mitigation is required.

4.3.2.3 Cumulative Impacts

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for air quality. The cumulative study area analyzed for potential air quality impacts is the Basin. Each project in the Basin is required to comply with SJVAB rules and regulations and is subject to independent review.

The Basin is currently designated as a nonattainment area for the federal 8-hour ozone standard and PM_{2.5} standard and as a nonattainment area for the State ozone, PM₁₀, and PM_{2.5} standard. Thus, the Basin has not met the federal and State standards for these air pollutants. Future development that may occur with the implementation of the proposed Specific Plan would contribute criteria pollutants to the area during the construction and operation phases of the proposed Specific Plan. However, future development under the proposed Specific Plan would be required to comply with CARB motor vehicle standards, SJVAPCD regulations from stationary sources and architectural coatings, and Title 24 energy efficiency standards. Specific standard conditions for future project developments that implement these policies and regulations are identified as mitigation measures to ensure that the intended environmental protections are achieved. Consequently, emissions generated by development projects in addition to existing sources within that would be considered to cumulatively contribute to the nonattainment designations of the Basin. Implementation of the proposed Specific Plan could contribute to an increase in frequency or severity of air quality violations and delay attainment of the AAQS due to the increase in vehicle trips associated with implementation of the proposed Specific Plan. Therefore, emissions generated from the proposed Specific Plan would result in a significant cumulative air quality impact.

Since the combination, number, and size of projects that could be under construction at any one time are unknown, even with implementation of mitigation measures, implementation of the proposed Specific Plan would result in significant cumulative construction emissions from criteria pollutants. Additionally, even with implementation of mitigation, operational impacts from criteria pollutant emissions would contribute to an ozone exceedance, which could hinder the attainment of air quality standards. Further, cumulative growth within the City could result in potential TAC health risks exceeding applicable standards and cumulatively contributing to elevated health risks in the Basin. Therefore, air quality emissions associated with future development that may occur with implementation of the proposed Specific Plan could result in cumulatively considerable impacts, even with implementation of mitigation.

Level of Significance Without Mitigation: Potentially Significant Impact.

Impact AIR-5: Implementation of the Specific Plan could result in cumulative air quality impacts.

Mitigation Measure AIR-5.1 Implement Mitigation Measures AIR-2.1 and AIR-2.2.

Level of Significance With Mitigation: Significant and Unavoidable Impact.

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4.4 BIOLOGICAL RESOURCES

This section describes the existing biological resources of the Specific Plan Area and evaluates the potential impacts associated with the proposed Specific Plan, both at the individual and cumulative levels. The analysis in this section is based in part on the City's General Plan¹ and the Biological Resource Evaluation (BRE) prepared by LSA (2018) included in Appendix F of this EIR.

4.4.1 Environmental Setting

4.4.1.1 Specific Plan Area

The Specific Plan Area is located west of and adjacent to the City within Madera County. It is located in Sections 8, 16, 17, and 21 of Township 11 South, Range 17 East on the Bonita Ranch and Madera United States Geological Survey (USGS) 7.5-minute quadrangle maps.

The Biological Study Area (BSA), as identified in the BRE, totals approximately 1,935 acres, and is predominately composed of almond orchards, though there is a section near the center (between Avenues 15½ and 16 and Roads 22½ and 23) which has been cleared of orchard trees leaving approximately 132 acres of disked/plowed fallow field (characterized as barren). There is also approximately 30 acres of vineyard in this section of the BSA. The Fresno River abuts the southern portion of the BSA and multiple Merced Irrigation District canals traverse through the BSA.

Historic aerial photos (the earliest of which is from 1946) indicate that the land use in the BSA has remained largely unchanged over the last 70 years, with the hydrology of the area controlled to facilitate various agricultural operations. Subsequent photos from 1958, 1962, and 1998, show continued agricultural land uses throughout the BSA, with the only recent change being in 2019 with the construction of the four retention basins in the southeast and northwest subareas totaling approximately 2.2 acres.

4.4.1.2 Plant Communities and Land Uses

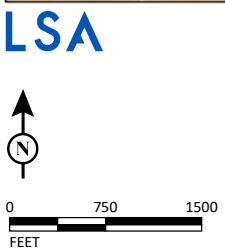
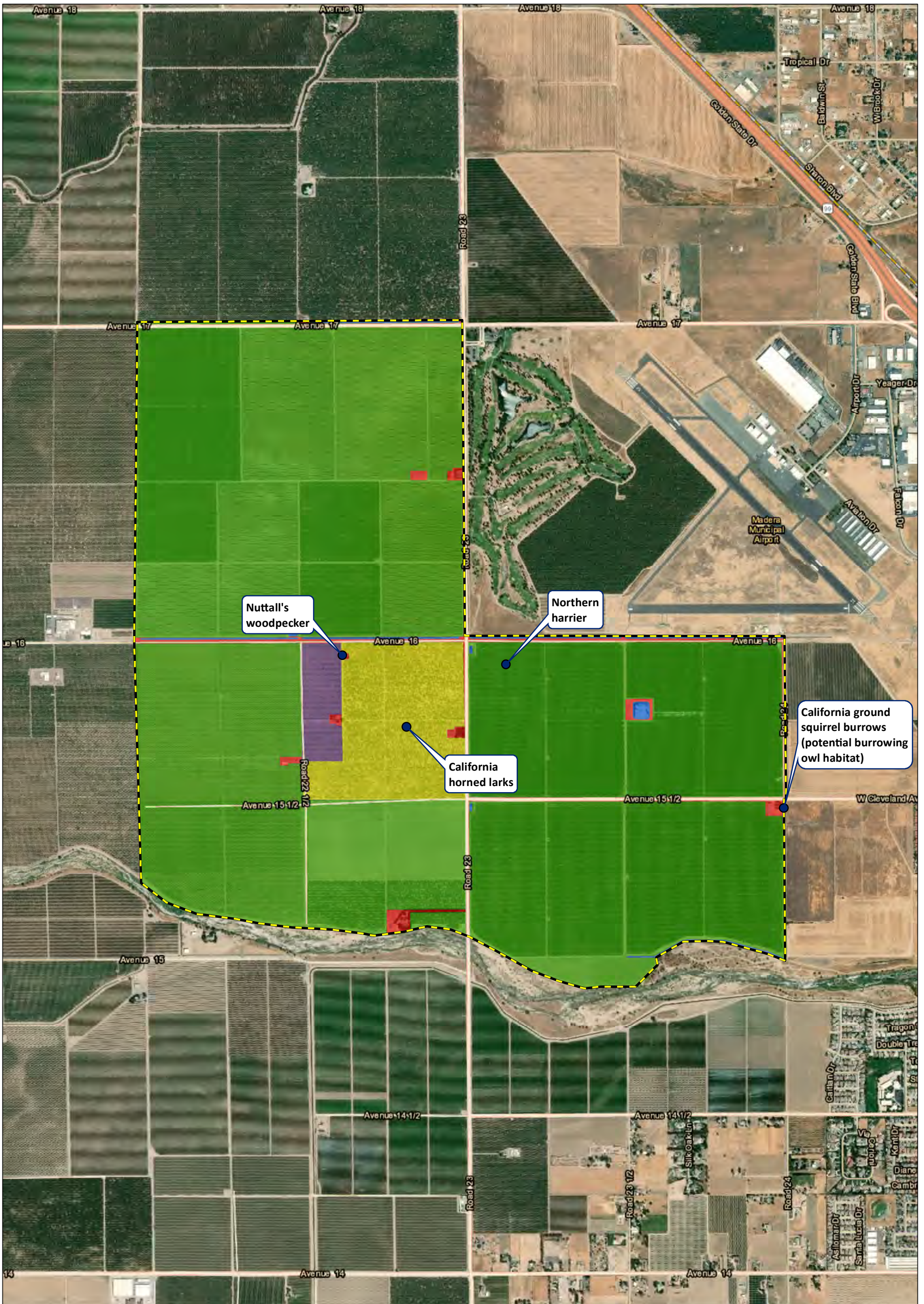
There are no natural habitats in the BSA. The overwhelming majority of the BSA (approximately 1,900 acres) is comprised of agricultural land, with approximately 1,700 acres of almond orchard, approximately 130 acres of disked/plowed fallow field (barren), approximately 30 acres of vineyard, and the basin and ditch aquatic features of the irrigation system making up approximately 10 acres. The remaining acres are developed lands such as the farmhouses and other built structures and roadways. Figure 4.4-1 shows the plant communities and existing land uses.

4.4.1.3 Wildlife Use

Wildlife use of the BSA is relatively low due to the lack of natural habitats and the dominance of monotypic orchard trees across most of the landscape. However, varieties of species are known to occur in agricultural areas. Based on the BRE conducted for the proposed Specific Plan, common wildlife species observed or that could occur in the BSA include, but are not limited to, California ground squirrels (*Otospermophilus beecheyi*), coyote (*Canis latrans*), American crow (*Corvus*

¹ City of Madera General Plan. October 7, 2009.

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LEGEND

- Biological Study Area - (1,934.74 ac)
- Special-Status Species or Potential Habitat Observed
- Plant Communities / Land Uses - (1,934.74 ac)**
- + Basins and Ditches - (9.89 ac)
- Barren - (132.04 ac)
- Orchard - (1,703.84 ac)
- Vineyard - (29.94 ac)
- Developed - (59.03 ac)

FIGURE 4.4-1

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brachyrhynchos), western meadowlark (*Sturnella neglecta*), Brewers blackbird (*Euphagus cyanocephalus*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), and red-tailed hawk (*Buteo jamaicensis*).

A comprehensive list of plant and wildlife species observed during the survey is provided in Appendix B of the BRE.

4.4.1.4 Wildlife Movements

Wildlife movement corridors are linear habitats that function to connect two or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between regionally significant habitats (e.g., deer movement corridors). Wildlife corridors typically include vegetation and topography that facilitate the movements of wild animals from one area of suitable habitat to another in order to fulfill foraging, breeding, and territorial needs. These corridors often provide cover and protection from predators that may be lacking in surrounding habitats. Wildlife corridors generally include riparian zones and similar linear expanses of contiguous habitat.

There are no significant migration corridors that exist within the BSA. The Fresno River, which flows along the southern boundary of the BSA, is the best example of a migration corridor in the vicinity of the Specific Plan Area.

4.4.1.5 Aquatic Resources

Aquatic features within the BSA consist exclusively of those associated with the agricultural water conveyance systems and are comprised of several irrigation ditches and retention basins scattered across the BSA, totaling approximately 10 acres. Aquatic resources are shown in Figure 4.4-2. A formal delineation of the Specific Plan Area has not been conducted and, therefore, the acreages are preliminary.

Irrigation Ditches. There are three irrigation ditches located within the BSA, which are part of the water conveyance system for the agricultural operations in the area. All three of these irrigation ditches have earthen banks with weedy vegetation growing throughout and measure approximately 15 feet wide at the top of the bank.

Retention Basins. There are four man-made retention basins associated with on-going agricultural uses located within the BSA. The retention basins appear to be isolated aquatic features that are likely not connected to other waters within or adjacent to the BSA. As shown in Figure 4.4-2, three of the retention basins are located along roads at the far corner of orchards, are rectangular in shape, and measure approximately 50 feet by 125 feet. The other retention basin in the BSA is square shaped, located in the middle of one of the orchard properties, and is approximately two acres in size.



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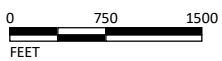


FIGURE 4.4-2

LSA

LEGEND

-  Biological Study Area - (1,934.74 ac)
-  Aquatic Features - (9.89 ac)



SOURCE: Basemap - ESRI World Imagery (07/2017); Mapping - LSA (11/2018)

P:\CMD1801 Madera Village D\PRODUCTS\Admin\Figures\Figure 4.4-2.ai (10/8/2020)

The Villages at Almond Grove Specific Plan EIR
Aquatic Features within the Biological Study Area

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4.4.1.6 Invasive Species

Many non-native plant species have been part of the California landscape for the past 150 years and are considered naturalized in the wild. Some examples of these introduced species observed during the survey include tumbleweed (*Amaranthus albus*), Shepherd's purse (*Capsella bursa-pastoris*), spotted spurge (*Euphorbia maculata*), cheeseweed mallow (*Malva parviflora*), annual blue grass (*Poa annua*), and common groundsel (*Senecio vulgaris*), among others. These species are primarily annual or biennial and are not considered invasive. Non-native plant species considered invasive by the California Invasive Plant Council are those which threaten to dominate California's natural areas. Five invasive plant species of concern were observed in the BSA during surveys: black mustard (*Brassica nigra*), Bermuda grass (*Cynodon dactylon*), red-stemmed filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), and Russian thistle (*Salsola tragus*). These species have an invasive rating of 'Limited' or 'Moderate' per the California Invasive Plant Council Invasive Plant Inventory Online Database² (www.cal-ipc.org/plants/inventory/).

4.4.1.7 Regulatory Context

Federal Regulations

Section 404 of the Clean Water Act. Under Section 404 of the Clean Water Act (CWA), the Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the United States (U.S.). Waters of the U.S. are those waters that have a connection to interstate commerce, either directly via a tributary system or indirectly through a nexus identified in the ACOE regulations. In non-tidal waters, the lateral limit of jurisdiction under Section 404 extends to the ordinary high water mark (OHWM) of a waterbody or, where adjacent wetlands are present, beyond the OHWM to the limit of the wetlands. The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). In tidal waters, the lateral limit of jurisdiction extends to the high tide line or, where adjacent wetlands are present, to the limit of the wetlands.

Wetlands. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for a life in saturated soil conditions".

Non-Wetland Waters. Non-wetland waters essentially include any body of water, not otherwise exempted, that displays an OHWM.

² California Invasive Plant Council Invasive Plant Inventory Online Database. Website: www.cal-ipc.org/plants/inventory/ (accessed January 2021).

State Regulations

Regional Water Quality Control Board. Under Section 401 of the CWA, the State Water Resources Control Board must certify all activities requiring a 404 permit. The Regional Water Quality Control Board (RWQCB) regulates these activities and issues water quality certifications for those activities requiring a 404 permit. In addition, the RWQCB has authority to regulate the discharge of “waste” into waters of the State pursuant to the Porter-Cologne Water Quality Control Act.

California Department of Fish and Wildlife. The California Department of Fish and Wildlife (CDFW), through provisions of Section 1602 of the California Fish and Game Code, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be substantially adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an ephemeral or intermittent flow of water. CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFW.

CDFW generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, cottonwoods, and other vegetation typically associated with the banks of a stream or lake shoreline. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat would automatically include any wetland areas. Riparian communities may not fall under ACOE jurisdiction unless they are below the OHWM or classified as wetlands.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) prohibits actions that would result in “take” of migratory birds, their eggs, feathers, or nests. “Take” is defined in the MBTA as any means or any manner to hunt, pursue, wound, kill, possess, or transport, any migratory bird, nest, egg, or part thereof.

Migratory birds are also protected, as defined in the MBTA, under Section 3513 of the California Fish and Game Code (CFGC).

California Fish and Game Code (Breeding Birds). Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by the California Fish and Game Code or other regulation.

Local Policies

Following annexation of the Specific Plan Area by the City of Madera, implementation of the Specific Plan would not be subject to regulatory requirements of Madera County related to Biological Resources.

City of Madera Zoning Ordinance. Goals and policies listed in the General Plan are implemented in the City of Madera Zoning Ordinance. Zoning districts are established under the zoning law to guide development and land use in Madera by setting allowable land uses within each district. City zoning ordinances regulate allowable land use, parking, signage and other ordinance

enacted under zoning law. The Zoning Ordinance must be consistent with adopted General Plans. When the City of Madera adopts a General Plan, the City must update the Zoning Ordinance accordingly.

Municipal Code Title IV, Chapter 6: Street Trees provides guidelines for replacing and protecting trees located within public places.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. Through its 10 elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera's quality of life and implement the community's shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City's operations and decisions. Table 4.4.A lists the General Plan policies related to biological resources.

Table 4.4.A: General Plan Policies Related to Biological Resources

Policy/Action Item Number	Policy/Action Item
Policy CON-23	The City shall seek to conserve and improve native wildlife and plant habitat in cooperation with governmental agencies, private associations and individuals in Madera.
Policy CON-24	Residential, commercial, industrial and recreational projects shall avoid impacts to native wildlife and plant habitat to the extent feasible.
Policy CON-25	The City encourages the preservation of habitat areas needed for the ongoing viability of native species, and habitat connectivity through the use of conservation easements or other methods.
Policy CON-26	<p>To offset possible additional losses of native wildlife and plant habitat due to development projects, developers shall be responsible for mitigation. Such mitigation measures may include providing and permanently maintaining similar quality and quantity of replacement habitat, enhancing existing habitat areas or paying in-lieu funds to an approved wildlife habitat improvement and acquisition fund. Replacement habitat may occur either on site or at approved offsite locations, but preference shall be given to on-site replacement.</p> <p>Action Item CON-26.1 The City shall require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon the City's biological resource mapping provided in the General Plan EIR or other technical materials. This evaluation shall be conducted prior to the authorization of any ground disturbance.</p> <p>Action Item CON-26.2 For those areas in which special-status species are found or likely to occur, the City shall require feasible mitigation of impacts to those species that ensure that the activity does not contribute to the decline of the affected species such that their decline would impact the viability of the species. Mitigation shall be determined by the City after the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) are provided an opportunity to comment.</p>
Policy CON-27	The City supports the revitalization of the Fresno River as an amenity which can be enjoyed by both visitors and residents of Madera and serve as a source of civic pride, while continuing to provide for plant and wildlife habitat opportunities.

Source: City of Madera General Plan October 2009.

4.4.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to biological resources that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.4.2.1 Significance Criteria

The thresholds for impacts related to biological resources used in this analysis are consistent with Appendix G of the State California Environmental Quality Act (CEQA) Guidelines. Development of the proposed Specific Plan would result in a significant impact related to biological resources if it would:

- | | |
|------------------------|--|
| Threshold 4.4.1 | Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service; |
| Threshold 4.4.2 | Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service; |
| Threshold 4.4.3 | 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; |
| Threshold 4.4.4 | 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; |
| Threshold 4.4.5 | Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; |
| Threshold 4.4.6 | Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. |

4.4.2.2 Project Impacts

The following discussion describes the potential impacts related to biological resources that could result from implementation of the proposed Specific Plan.

Threshold 4.4.1 **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

No State or federally listed or proposed plant species occur in the BSA; therefore, no special-status plants would be affected by implementation of the proposed Specific Plan. However, the proposed Specific Plan has the potential to affect four special-status wildlife species. Potential impacts to these special-status species are described below.

Western Burrowing Owl. Potentially suitable nesting and foraging habitat is present in the barren (disked/plowed fallow fields) and developed areas within the BSA. Several suitable California ground squirrel (*Otospermophilus beecheyi*) burrow complexes were observed at the eastern edge of the BSA along Avenue 15 ½/West Cleveland Avenue, while the barren field in the center of the BSA provides potentially suitable foraging habitat. None of the visually inspected burrows within the BSA exhibited signs of burrowing owl occupancy, however a full coverage survey was not possible during the reconnaissance windshield survey.

Implementation of the proposed Specific Plan would result in potential impacts to suitable western burrowing owl habitat as a result of construction because permanent changes to barren areas (disked/plowed fallow fields), totaling approximately 132 acres, would occur. Though there is a low potential for burrowing owl to occur in the BSA, implementation of the proposed Specific Plan could directly affect burrowing owls if this species is present in the BSA when construction activities begin. Implementation of the proposed Specific Plan would occur in phases that would be conditioned on the approval of tentative tract maps and dependent on a number of factors including market conditions and development demand. Therefore, implementation of Mitigation Measure BIO-1.1 would occur prior to the issuance of any grading permits in order to reduce potential impacts to western burrowing owls during both construction and operation of the proposed Specific Plan. No compensatory mitigation would be required because the approximately 132 acres of barren area is considered to be in continued agricultural use, and the permanent change would not result in a potentially-significant impact. As a result, this area is considered to be in continued agricultural use.

Mitigation Measure BIO-1.1: Prior to the issuance of grading permits, the following measures shall be implemented to reduce potential impacts to western burrowing owls:

- Preconstruction surveys for western burrowing owls shall be conducted by a qualified biologist in accordance with the California Department of Fish and Wildlife (CDFW) 2012 Staff

Report on Burrowing Owl Mitigation, or the most current guidelines.

- If burrowing owls are identified during the preconstruction survey, avoidance of occupied burrows during the breeding season shall be implemented or passive exclusion, per CDFW’s 2012 Staff Report on Burrowing Owl Mitigation, or the most current guidelines (installing one-way doors in burrow openings during the non-breeding season to temporarily exclude burrowing owls, or permanently exclude burrowing owls and close burrows after verifying burrows are empty by site monitoring and scoping) shall be implemented), .
- Following construction activities, all areas temporarily impacted during Project construction and not identified for future development, shall be restored to pre-construction contours and revegetated with native species as specified in Table 4.4.B.

Table 4.4.B: Native Species Mix

Scientific Name	Common Name	Rate (Lbs/Acre)	Minimum Percent Germination
<i>Artemisia douglasiana</i>	Mugwort	2.0	50
<i>Bromus carinatuscarinatus</i>	California brome	5.0	85
<i>Elymus trachycaulus</i>	Slender wheatgrass	2.0	60
<i>Elymus X triticum</i>	Regreen	10.0	80
<i>Eschscholzia californica</i>	California poppy	2.0	70
<i>Hordeum brachyantherum</i>	California barley	2.0	80
<i>Lupinus bicolor</i>	Bicolored lupine	4.0	80

Source: LSA 2018.

Swainson’s Hawk. The almond orchards covering most of the BSA are not suitable nesting or foraging habitat for Swainson’s hawks since this species prefers larger trees for nesting and more open grasslands or row crop agricultural fields for foraging. While several ornamental trees associated with farmhouses in the BSA would normally be considered suitable nesting habitat for Swainson’s hawk, and the barren field in the center of the BSA could provide suitable foraging habitat, the barren field was recently cleared, and the adjacent orchards extend a considerable distance in all directions. Therefore, it is unlikely Swainson’s hawk would utilize areas within the BSA for nesting or foraging. No Swainson’s hawks were observed during the survey, however the survey was conducted in late October when most Swainson’s hawks have left the region to winter in South America. Implementation of the proposed Specific Plan would impact marginally suitable Swainson’s hawk nesting and foraging habitat as a result of construction. Permanent impacts, totaling approximately 132 acres, would occur as a result of implementation of the proposed Specific Plan. Though there is a low potential for Swainson’s hawk to occur in the BSA, implementation of the

proposed Specific Plan could directly affect Swainson's hawk if this species is present in the BSA when construction activities begin. Implementation of the proposed Specific Plan would occur in phases that would be conditioned on the approval of tentative tract maps and dependent on a number of factors including market conditions and development demand. Therefore, implementation of Mitigation Measure BIO-1.2 would occur prior to the issuance of any grading permits in order to reduce potential impacts to Swainson's hawks. No compensatory mitigation would be required because the approximately 132 acres of barren area is considered to be in continued agricultural use, and the permanent change would not result in a potentially-significant impact. Therefore, implementation of Mitigation Measure BIO-1.2 would reduce potential impacts to Swainson's hawks during construction and operation to a less-than-significant level.

Mitigation Measure BIO-1.2: Prior to the issuance of grading permits, the following measures shall be implemented to reduce potential impacts to Swainson's hawks:

- If construction begins during the nesting season (February 1 through August 31), an early season preconstruction survey for nesting Swainson's hawks shall be conducted between January and March in the Biological Study Area (BSA) for the Specific Plan Area and immediate vicinity (an approximately 0.25 mi radius) by a qualified biologist when tree foliage is relatively sparse and nests are easy to identify. A second preconstruction survey for nesting Swainson's hawks shall be conducted in the BSA and immediate vicinity (an approximately 0.25-mile radius) by a qualified biologist no more than 14 days prior to initiation of earthmoving activities.
- If nesting Swainson's hawks are found within the survey area, a qualified biologist shall evaluate the potential for the project to disturb nesting activities. The California Department of Fish and Wildlife (CDFW) shall be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities. CDFW shall also be consulted to establish protection measures such as buffers.
- Disturbance of active nests shall be avoided until it is determined by a qualified biologist that nesting is complete and the young have fledged, or that the nest has failed. If work is allowed to proceed, at a minimum, a qualified biologist shall be on-site during the start of construction activities during the nesting season to monitor nesting activity. The monitor shall have the authority to stop work if it is determined the project is adversely affecting nesting activities.
- Following construction, all fill slopes, temporary impact and/or otherwise disturbed areas not identified for future development

shall be restored to preconstruction contours and revegetated with the native seed mix specified in Table 4.4.C.

Table 4.4.C: Native Species Mix

Scientific Name	Common Name	Rate (Lbs./Acre)	Minimum Percent Germination
<i>Artemisia douglasiana</i>	Mugwort	2.0	50
<i>Bromus carinatuscarinatus</i>	California brome	5.0	85
<i>Elymus trachycaulus</i>	Slender wheatgrass	2.0	60
<i>Elymus X triticum</i>	Regreen	10.0	80
<i>Eschscholzia californica</i>	California poppy	2.0	70
<i>Hordeum brachyantherum</i>	California barley	2.0	80
<i>Lupinus bicolor</i>	Bicolored lupine	4.0	80

Source: LSA 2018.

Northern Harrier, California Horned Lark, and Other Nesting Birds. One northern harrier was observed foraging low over the edge or an almond orchard in the eastern portion of the BSA. Though the BSA is confirmed to provide suitable foraging habitat for northern harriers (i.e., barren area), there is no suitable nesting habitat for the species in the BSA.

California horned larks were observed foraging in the fallow field in the central portion of the BSA. This species may also nest in the barren area within the BSA.

Several other bird species, which are not listed as special-status species but are protected by the MBTA and CFGC, were observed in the BSA during the field effort.

Implementation of the proposed Specific Plan would result in impacts to northern harrier foraging habitat as well as nesting and foraging habitat for California horned lark and other migratory birds.

Permanent impacts to barren areas, totaling approximately 132 acres, would occur as a result of construction. Implementation of the proposed Specific Plan would occur in phases that would be conditioned on the approval of tentative tract maps and dependent on a number of factors including market conditions and development demand. Therefore, implementation of Mitigation Measure BIO-1.3 would occur prior to the issuance of any grading permits in order to reduce potential impacts. No compensatory mitigation would be required because the approximately 132 acres of barren area (land characterized as disked/plowed fallow fields) is considered to be in continued agricultural use, and the permanent change would not result in a potentially-significant impact. Therefore, implementation of Mitigation Measure BIO-1.3 would reduce potential impacts to these species during construction and operation of the proposed Specific Plan to a less-than-significant level.

Mitigation Measure BIO-1.3: Prior to the issuance of grading permits, the following measures shall be implemented to reduce potential impacts to northern harrier, California horned lark, and other nesting birds:

- If construction begins during the nesting season (February 1 through August 31), a qualified biologist shall survey all suitable nesting habitat in the Biological Survey Area (BSA) of the Specific Plan Area for presence of nesting birds. This survey shall occur no more than 10 days prior to the start of construction. If no nesting activity is observed, work may proceed as planned. If an active nest is discovered, a qualified biologist shall evaluate the potential for the proposed project to disturb nesting activities. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest from the BSA, the line of sight between the nest and the BSA, and the feasibility of establishing no-disturbance buffers.
- If work is allowed to proceed, a qualified biologist shall be on-site weekly during construction activities to monitor nesting activity. The biologist shall have the authority to stop work if it is determined the project is adversely affecting nesting activities. Weekly monitoring shall continue until any young have fledged or the nest fails (as determined by the qualified biologist).

Level of Significance With Mitigation: Less than significant.

Threshold 4.4.2 **Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?**

No riparian habitat or other sensitive natural communities occur in the BSA. The BSA consists of orchards, vineyards, agricultural retention basins and ditches, barren lands, and developed areas. Therefore, the implementation of the proposed Specific Plan would have a less-than-significant impact on riparian habitat or any other sensitive natural community.

Level of Significance Without Mitigation: Less than Significant Impact. No mitigation is required.

Threshold 4.4.3 **Would the project have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

Aquatic features within the BSA consist exclusively of irrigation ditches and retention basins associated with agricultural water conveyance systems. Formal delineation of aquatic features should be performed prior to the initiation of construction activities in order to determine if any aquatic features within the Specific Plan Area would be considered wetlands or non-wetland waters of the U.S. under the jurisdiction of the ACOE and/or waters of the State under the jurisdiction of the RWQCB. It is not expected that these aquatic features would be regulated by CDFW because CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by Section 1602 of the CFGC. Implementation of Mitigation Measure BIO-3, which requires jurisdictional delineations to be completed prior to the initiation of ground disturbing activities, would reduce potential impacts during construction of projects under the proposed Specific Plan on riparian habitat or other sensitive natural community to a less-than-significant level.

Mitigation Measure BIO-3: The following measures shall be implemented once specific development plans are submitted and prior to the issuance of grading permits to mitigate potential impacts to aquatic resources:

- A jurisdictional delineation shall be performed to determine if any or all of the aquatic features in the Biological Survey Area (BSA) of the Specific Plan Area should be considered jurisdictional by the Army Corps of Engineers (ACOE). The jurisdictional delineation shall be submitted to the ACOE for verification or concurrence.
- If the results of the jurisdiction delineation determine that any of the aquatic features in the BSA are jurisdictional waters, and the Project would result in permanent or temporary impacts to those waters, the project proponent shall obtain any necessary regulatory permits prior to the commencement of ground disturbing activities.
- If the project would result in the loss of wetlands and/or non-wetland waters, mitigation shall be accomplished by purchasing credits at an approved mitigation bank, payment of in-lieu fees, or a combination of these methods, as determined by the City of Madera. Mitigation ratios shall be at least 1:1.

Level of Significance With Mitigation: Less than significant.

Threshold 4.4.4 **Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Wildlife movement corridors are linear habitats that function to connect two or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between

regionally significant habitats (e.g., deer movement corridors). Wildlife corridors typically include vegetation and topography that facilitate the movements of wild animals from one area of suitable habitat to another, in order to fulfill foraging, breeding, and territorial needs. These corridors often provide cover and protection from predators that may be lacking in surrounding habitats. Wildlife corridors generally include riparian zones and similar linear expanses of contiguous habitat.

There is no evidence that the plant communities present in the BSA support a wildlife movement corridor or wildlife nursery site. The Specific Plan Area is heavily impacted by human activity (ongoing agriculture, vehicular traffic, etc.) so overall use by wildlife is low. Additionally, the Fresno River is located immediately south of the BSA and provides a suitable migration corridor. Therefore, implementation of the proposed Specific Plan would not impact a wildlife corridor or wildlife nursery site. Implementation of the proposed Specific Plan could result in impacts to local wildlife movement but these potential impacts would be minor and insignificant. As a result, a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.4.5 Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Implementation of the proposed Specific Plan would not conflict with any City of Madera policies including General Plan policies. Table 4.4.A identifies the General Plan policies related to biological resources that seek to conserve and improve native wildlife and plant habitat. While habitat could be impacted by implementation of the proposed Specific Plan, the Specific Plan would generally conform to the General Plan policies by including natural open space areas along the southern boundary of the Specific Plan Area to allow for biological resource protection, incorporating native annual grasses and/or other riparian vegetation, and adhering to all federal, State and local laws and regulations for species. In addition, potential impacts to the City's street trees are addressed in Title IV, Chapter 6 of the Municipal Code which requires protection of street trees during construction, and replacement of street trees if avoidance cannot be achieved. There are no street trees within the Specific Plan Area and therefore implementation of the proposed Specific Plan would not conflict with the City's municipal code related to the removal of street trees. As a result, implementation of the proposed Specific Plan would not conflict with any local policies or ordinances, and a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.4.6 Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Specific Plan Area is not located within the coverage area for any adopted or proposed Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). Therefore, implementation of the proposed Specific Plan would not conflict with the provisions of any adopted habitat conservation plans, and a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than Significant. No mitigation is required.

4.4.2.3 Cumulative Impacts

The proposed Specific Plan would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to biological resources. The cumulative impact analysis for biological resources considers the larger-context of future development of the City of Madera as envisioned by the General Plan and relied upon the projections of the General Plan and General Plan EIR. Cumulative impacts on biological resources would be those impacts that result from incremental changes that degrade habitat or affect other biological resources within the City of Madera.

Development within the vicinity of the Specific Plan Area would primarily focus on conversion of agricultural land to developed uses, and continued development within the urban areas of Madera. As result, the availability of suitable habitat for special-status species, including suitable foraging habitat for raptor species, would decrease. As other suitable habitat for special-status species is developed by other projects in the vicinity of the Specific Plan Area, a potentially-significant cumulative impact would occur. Implementation of Mitigation Measures BIO-1.1, BIO-1.2, and BIO-1.3 would result in a less-than-significant cumulative impact to special-status species by requiring pre-construction surveys, on-site monitoring during construction activities, and site restoration and revegetation. Each future discretionary project within Madera would be required to assess its own potential impacts to biological resources and provide mitigation as necessary, reducing potential impacts to a less than cumulatively significant level.

Because no riparian habitat or other sensitive natural communities occur in the BSA, implementation of the proposed Specific Plan would not combine with development in the vicinity of the Specific Plan Area to result in a cumulatively significant impact to riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.

A formal delineation of aquatic features has not been conducted for the proposed Specific Plan Area; and as a result, potential impacts on jurisdictional waters will be addressed prior to issuance of grading permits in order to determine if any aquatic features within the Specific Plan Area would be considered wetlands or non-wetland waters of the U.S. under the jurisdiction of the ACOE and/or waters of the State under the jurisdiction of the RWQCB. Therefore, if development that affects State or federally protected wetlands occurs in the vicinity of the Specific Plan Area, it is possible that a cumulatively-significant impact would occur as a result of the implementation of the proposed Specific Plan. Implementation of Mitigation Measure BIO-3 would result in a less-than-significant cumulative impact related to permanent or temporary impacts to any identified waters of the U.S. by requiring a jurisdictional delineation be performed prior to the issuance of grading permits. Similar requirements for other discretionary projects in Madera would ensure that potential impacts are reduced to a less than cumulatively significant level.

There is no evidence that the plant communities present in the BSA support a wildlife movement corridor or wildlife nursery site, and the Specific Plan Area is heavily impacted by human activity so overall use by wildlife is low. Additionally, the Fresno River is located immediately south of the BSA and provides a suitable migration corridor. Therefore, implementation of the proposed Specific Plan would not impact a wildlife corridor or wildlife nursery site, and potential impacts to local wildlife

movement would be minor and insignificant. Therefore, implementation of the proposed Specific Plan in combination with other development would not impact local wildlife, and a less-than-significant cumulative impact would occur.

Implementation of the proposed Specific Plan would not conflict with policies listed in Table 4.4.A. In addition, the City does not have a tree protection ordinance to protect trees located within private property, as discussed under Threshold 4.4.5. As a result, implementation of the proposed Specific Plan in combination with other development would not conflict with existing policies or ordinances, and a less-than-significant cumulative impact would occur.

The Specific Plan Area is not located within the coverage area for any adopted or proposed HCP or NCCP. Therefore, a less-than-significant cumulative impact would occur related to habitat conservation plans.

Level of Significance With Mitigation: Less than Significant. Refer to Mitigation Measures BIO-1.1 through BIO-1.3, and BIO-3.

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4.5 CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES

This section describes the baseline conditions for cultural resources in the Specific Plan Area and vicinity, identifies potentially-significant impacts to cultural resources that may result from project implementation, and recommends mitigation measures to reduce the severity of potentially significant impacts. Appendix G of the California Environmental Quality Act (CEQA) Guidelines separates the resource topic areas of Cultural Resources and Tribal Cultural Resources. This Environmental Impact Report (EIR) combines these two resource topic areas to provide the reader one condensed location with pertinent information. The analysis in this section, which includes Appendix G checklist questions for both cultural resources and tribal cultural resources, is based in part on the City's General Plan¹ and a Cultural Resources Study prepared for the proposed Specific Plan, included as Appendix G of this Draft EIR.

Cultural resources are sites, buildings, structures, objects, and districts that may have traditional or cultural value for their historical significance. Cultural resources include a broad range of resources, examples of which include archaeological sites, historic roadways, landscapes, and buildings of architectural significance. For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources), it generally must be 50 years or older and: (1) be listed in, or determined eligible for listing in, the California Register of Historical Resources by the State Historical Resources Commission; (2) be included in a local register of historical resources, as defined in section 5020.1(k), or identified as part of a survey meeting the requirements of section 5024.1(g) of the Public Resources Code (PRC); or (3) be determined by the lead agency as historically significant.

4.5.1 Environmental Setting

This setting section is adapted from the results, background information, and summaries provided in the Cultural Resources Study (refer to Appendix G of this EIR).

4.5.1.1 Specific Plan Area

The Specific Plan Area is located within the eastern portion of San Joaquin Valley, the southern half of California's Great Central Valley. The San Joaquin Valley is structurally characterized as an asymmetrical trough bound by the Diablo Range to the west, the Sierra Nevada Range to the east, and the San Emigdio and Tehachapi Mountains to the south. Erosion of surrounding mountains have created thick, Quaternary-aged alluvial deposits which underlie the valley. The Specific Plan Area is located just north of the lower Fresno River which drains the Sierra Nevada and has experienced extreme channelization from various canals installed by the Madera Irrigation District (MID) as part of the Central Valley Project (CVP). The Fresno River, in vicinity of the Specific Plan Area, does not appear to have been heavily disturbed by channelization, but has been modified for agricultural irrigation as well as has experienced accumulation of alluvial sediment. The Specific Plan Area is generally flat with less than 1 percent slope and is located at an elevation of 239 feet above mean sea level.

¹ Madera, City of. 2009. *City of Madera General Plan*. October 7.

Based on historic vegetation data the native vegetation type in this region consisted of California grassland, a dry, grassy plain environment characterized by various perennial bunch grasses. Dominant vegetation would have included California needlegrass (*Stipa pulchra*) and other related species as well as California poppy (*Eschscholtzia californica*), Purple Owl Clover (*Orthocarpus purpurascens*), and various species of lupines (*Lupinus* spp.). Several herbivores are supported by this vegetation type including antelope and elk as well as small mammals such as ground squirrel, gophers, rabbits, and mice. Historic settlement and agricultural activities have significantly altered this native environment.

4.5.1.2 Precontact

The term “precontact” as used here synonymously with the term “prehistory,” meaning the time prior to Euro-American contact with indigenous tribes of California. The term is exchanged to avoid pejorative implications that have previously been the subject of tribal concerns.

The Paleo-Archaic-Emergent cultural sequence is commonly used to interpret the prehistoric occupation of Central California. The recalibrated sequence is broken into three broad periods: the Paleoindian Period (11,550-8550 cal B.C.); the three-staged Archaic Period, consisting of the Lower Archaic (8550-5550 cal B.C.), Middle Archaic (5550-550 cal B.C.), and Upper Archaic (550 cal B.C. - cal A.D. 1100); and the Emergent Period (cal A.D. 1100-Historic).

The Paleo Period began with the first entry of people into California. These people are commonly believed to have subsisted primarily on big game and minimally processed plant foods, and presumably had no trade networks. Current research, however, indicates more sedentism, plant processing, and trading than previously believed.

The Archaic period is characterized by increased use of plant foods, elaboration of burial and grave goods, and increasingly complex trade networks.

The Emergent Period is marked by the introduction of the bow and arrow, the ascendance of wealth-linked social status, and the elaboration and expansion of trade networks, signified in part by the appearance of clam disk bead money. Emergent Period deposits have been documented from most interior valleys and bay shore locations, as well as from upland contexts, where habitation and task-specific sites have been reported. Buried sites dating to the Emergent Period have been found in some of the interior valleys, although most of the recorded sites have surface manifestations. Typically, these sites consist of well-developed midden deposits containing both cremated and intact human burials, and residential features, including house floors. Large mammals appear to have taken a more prominent role in the diet as did small-seeded resources. Marine shellfish and marine fishes were moved inland in much larger quantities during the Emergent Period. Large villages composed of hundreds of people are thought to have been located in the Delta region while small hamlets composed of one or two extended families were located in many of the smaller valleys.

The San Joaquin Valley has had many population movements and waves of cultural influence from neighboring regions. The valley was settled by native Californians at the end of the Pleistocene (approximately 11,500 to 7,500 years ago). Hokan speakers may have been the earliest occupants of

the San Joaquin Valley, eventually becoming displaced by migrating Penutian speakers (ancestral Yokuts) coming from outside of California. The Penutians most likely entered the San Joaquin Valley in several minor waves, slowly replacing the original Hokan speakers, causing the Hokan speakers to migrate to the periphery of the valley. By about A.D. 300-500, the Penutian settlement of the San Joaquin Valley was complete.

4.5.1.3 Ethnography

Ethnolinguistic Territory and Environment. The Specific Plan Area is located in an area ethnographically attributed to the Northern Valley Yokuts. Northern Valley Yokuts territory extended from midway between the Mokelumne River and the Calaveras River south to near where the San Joaquin River makes a big bend toward the north. The western limit has been identified as the eastern side of the Coast Range, while the eastern limit extended to the transition from the San Joaquin Plain to the foothills of the Sierra Nevada. Yokuts settlements were typically on low mounds near the banks of large watercourses like the San Joaquin River. These mounds helped keep the inhabitants, their houses, and possessions above the spring floodwaters. The abundant riverine environment allowed a sedentary lifestyle and influenced succeeding generations to remain at the same locations. This geoenvironment is reflected within the Specific Plan Area and as such, the Chauchila Tribe village site of Ch'ekayu was documented within the southeast portion of the Specific Plan Area along the Fresno River by Kroeber.

By 1776, Spanish expeditions into the interior and the establishment of the Spanish mission system had contributed to the rapid disappearance of the native inhabitants. Studies of mission records indicate that the Northern Valley Yokuts were moved to Mission San José between 1815 and 1825. European diseases (e.g., smallpox, cholera, typhus and measles), particularly the epidemic of 1833, claimed thousands of lives and wiped out entire communities of San Joaquin Valley Indians. By 1834, the Mexican government had disbanded the missions, by which time the language and culture of the Yokuts had been permanently disrupted. Many natives abandoned the missions and returned to their former territories where they survived by hunting and gathering; others worked on ranches as laborers or house servants.

Social Organization and Settlement. According to sparse written records and documentation, Northern Valley Yokuts were organized into miniature tribes on the order of 300 individuals. The names and locations of Yokuts tribes are approximations, with the Chulamni of the delta region from the lower Calaveras River to Tom Paine slough; the Nopchinchí further south along the mouth of the Merced river to the San Joaquin River bend in Mendota; the Lakisamni in the Stanislaus area below the foothills and east of the main river; and a tribe of an unknown name in the lower Merced valley; the Chawchila south of Merced in the plains; the Hewchi on one or both banks of the lower Fresno River; the Hoyima on the north side of the San Joaquin River where it flows across the lowlands; the Pitkachi on the opposite bank to the Hoyima; and the Wakichi upstream. Tribes were guided by a headman, with second office belonging to a messenger or herald. Most tribal members lived in a principal settlement, with some smaller communities or hamlets as small as two or three houses.

Principal settlements were situated on low mounds or along banks of large watercourses where the elevated position kept inhabitants and homes above spring floodwaters. Riverine resources

encouraged an inclination towards a sedentary life, with flooding posing the main threat to a fully stationary existence, as overflowing banks spurred villagers to move to higher ground. Resettlement also occurred when the group broke into smaller units with the elderly remaining behind as others relocated to harvest wild plants, acorns, and seeds.

Warfare. Historic-period accounts recorded in the journals and official reports of travelers, soldiers, and missionaries provide sparse details of the nature of warfare within Northern Valley Yokuts territory, but the general consensus is that of a long-established custom of retreating rather than engaging in open violence and warfare. Primarily living in peace with one another, tribes occasionally experienced petty hostilities and conflict between people living on the San Joaquin River and those on the shores of Tulare Lake. Warriors with painted faces hurled verbal insults at one another before engaging in warfare with bow and stone-tipped arrows. When Spanish missionaries and soldiers drew near, Northern Valley Yokuts often dismantled their homes and fled with their possessions into the swamps, woods, and inaccessible areas.

Mortuary Practices. Little is known about San Joaquin Valley Native American religious beliefs and practices. Tribes bordering the Northern Valley Yokuts provide some statements that suggest the two ritual systems of Datura and Kuksu; additionally, a Monache Indian informant claimed the Northern Valley Yokuts held a ceremony that centered on drinking a Datura plant root concoction which produced stupor and visions. The Kuksu cult, known as a vivid expression of religious life located in north-central California, was a god-impersonating cult practice that included the construction of large earth-covered structures for ceremonies. Little to no information regarding the treatment of the deceased is known beyond the cremation or flexed burial for Northern Valley Yokuts.

Contact. In similar fashion to the experience of tribes throughout the state, the devastating results of European contact eroded traditional Northern Valley Yokuts culture and decimated populations. Within the first decade of the 19th century, Spanish explorations in this tribal region generally had little effect on the Yokuts due to their small exploration parties that were met in varying degrees of warmth, wariness, and hostility. The breakdown of culture came with the Spanish mission system and removal of Yokuts to the missions for work. The Yokuts region of the San Joaquin Valley and delta region remained relatively pristine due to the defensive boldness of deserters and local natives who banded together, the lack of support by Spanish civil authorities to establish missions inland, and lack of development in the interior of the state in favor of cattle grazing and horse pasture. It was the secularization of the mission system during the Mexican period that released many missionized natives back to their native lands in population numbers insufficient to return their former villages and localities to their previous states. With the United States' acquisition of California in 1850, the Northern Valley Yokuts were pushed aside by incoming American prospectors spurred by the Gold Rush. Eventually, the rich soils of the Delta and Central Valley, ideal for farming, resulted in the driving of the Yokuts from their traditional hunting and gathering lands. Three Northern Valley Yokuts tribes signed treaties ceding all owned or claimed lands to U.S. government in return for reservation lands, but the state of California prevented the treaties from being ratified. The Northern Valley Yokuts were left to disperse and make what living they could as poorly paid ranch laborers. Without the promised reservations, conditions became such that the federal government recognized the situation and set aside leased land along the Fresno and Tule River

Reserve. Such early decimation of Northern Valley Yokuts has resulted in relatively little that is known about them ethnographically. Likewise, the archaeological record for the Northern Valley Yokuts is also less established compared to other more developed regions of the state.

4.5.1.4 History

Spanish Period. The Central Valley was first introduced to Spanish exploration as early as the 1700s. In 1769, the Spanish began establishing the Franciscan missions and military presidios as vehicles for taking complete control of Alta California. Alta California was the Spanish term used for upper California as opposed to Baja California (lower California) in which the Dominican missions were situated. Beginning in San Diego, the Spanish priests quickly moved north. One of the earliest documented expeditions of the San Joaquin Valley was led by Pedro Fages in 1772. This excursion, as well as several others, were conducted out of an effort to collect Indian neophytes for the Spanish missions. Subsequent expeditions were conducted for exploratory purposes. In 1805, Gabriel Moraga named the San Joaquin River after his father, Jose Joaquin Moraga, a Spanish commander in Baja California and Mexico. In the following year, Gabriel Moraga explored the reaches of the San Joaquin River, stopping to camp in Millerton.

Mexican Period. After Mexico declared its independence from Spain in 1821, the Mexican government gained control of California and began secularizing the missions by 1834, while official expeditions into California's interior changed from exploration and information gathering to a more punitive nature, including raiding Native American villages for runaway mission "converts," capturing military deserters, and recovering stolen livestock. Mission lands were parceled out in the form of ranchos and awarded to California native born Spanish speakers, called Californios, who used the land primarily for farming and raising cattle with vineyards, fruits, and vegetables planted for personal needs. The sudden release of natives from missionary control resulted in a loss of protection and support on which they had come to rely. This left them vulnerable to further exploitation by Mexican rancho owners, who employed natives as marginalized laborers.

One of the last official excursions into the San Joaquin Valley left Monterey on December 27, 1825, led by Sergeant José Pico. Following Pico's expedition, interest in developing and strengthening Mexico's hold on California waned as the Mexican government became increasingly distracted by political developments in central Mexico. This official neglect allowed Californios to enjoy a high level of de facto autonomy in their social, political, and economic affairs. While mission landholdings were broken up into vast land grant ranchos in other parts of California, the San Joaquin Valley was largely ignored due to its relative geographic isolation. This is particularly true for Madera County which remained relatively unaffected by rancho establishment and activities. The Mexican population sharply increased following independence, while the native population steadily declined.

During the Mexican Period, French and American trappers and fur traders were also exploring the San Joaquin Valley. In February 1827, Jedidiah Smith and a group of trappers began working the rivers and streams of the valley, accumulating beaver pelts for delivery to the Hudson Bay Company's outpost at Fort Vancouver. Smith prospered and news spread quickly and soon more than 400 English, French, and American trappers hunted in the San Joaquin Valley between 1827 and 1845. Some trappers and fur traders settled in California – many times marrying Mexican

citizens to become eligible to acquire land grants. Anglo-American settlers brought an influx of deadly diseases that decimated the native population.

Early American Period and Statehood. The discovery of gold at Coloma in 1848 by James Marshall solidified the Anglo-American presence in California. In just a few months, almost four out of five men in California were considered gold miners, each contributing to the state's expansive exploration and settlement. The American River and tributaries of the Sacramento and San Joaquin rivers yielded the highest amounts of gold, and towns were quickly established nearby these sites in order to meet the growing needs of the miners and settlers. The frenzy created by the discovery of gold was short-lived as resources were quickly exhausted. The gold strike created a population surge in California. Between 1848 and 1855, over 300,000 people, mostly single men, came to California to strike it rich. Following the Mexican-American War and as part of the Treaty of Guadalupe Hidalgo, Mexico ceded Upper California and New Mexico to the United States in 1848. The stresses on California commerce and society from the Gold Rush's population flood, coupled with a weak central government, compelled the formation of a state government. In September 1850, California was admitted as the 31st state.

The Gold Rush essentially ended by 1864, but many miners remained in California and began other economic pursuits, such as ranching, agricultural cultivation, and timber harvesting. These industries were able to help sustain California's economy and support the growth of cities and towns that had initially formed because of the Gold Rush. It quickly became apparent that California's moderate climate was the perfect growing environment for a variety of nuts, grains, and produce.

Agriculture. In the late 1860s, much of the San Joaquin Valley was rangeland for large herds of beef cattle, horses, and sheep. Cattlemen prospered during the Gold Rush by supplying beef to miners. In western Fresno County, this enterprise was dominated by the aggressive partnership of Henry Miller and Charles Lux. Following the Gold Rush, farmers began to till the fertile river soils and cultivate crops, signaling a massive shift in land use priorities. Prosperous cattlemen such as Miller and Lux suffered a series of severe financial setbacks beginning with large numbers of cattle drowning in the catastrophic floods of 1861-62, immediately followed by two years of severe drought that killed off many survivors. Cattle prices plunged, and ranches burdened with debt amassed during the boom years folded and sold substantial tracts of land. The disasters undermined the industry's formidable political clout and control over water rights, effectively signaling the emerging preeminence of crops over livestock. Coupled with this political and economic realignment, the passage of "fence laws" requiring ranchers to enclose their lands to prevent crop damage by cattle was the final blow.

Railroads accelerated a boom in wheat farming in California, which increased land values, fueled boosterism, and created optimistic descriptions of the state's fertile agricultural industry. By the early 1860s, wheat was the main cash crop in California. The suitable climate and a high demand for cereal grains due to supply the Union Army in the American Civil War disrupted the normal wheat supply channels from international markets. The productivity of the land compelled many to advocate for irrigation. In 1887, the California Legislature passed the Wright Act, which provided for organizing irrigation districts. These organizations could sell bonds, exercise eminent domain, sue and be sued, and levy property assessments and fees to service existing debt and finance water projects. By 1895, there were 16 irrigation systems in Fresno County

taking water from the Kings, San Joaquin, and Fresno rivers, in addition to other watercourses, to provide water to over 500,000 acres in mostly the eastern and central portions of the county. The length of the principal trunk canals was over 750 miles, with thousands of miles of minor distribution canals. The spread of irrigation made the area more prosperous. By 1903, there was an extensive network of canals delivering water to county farmers.

Central Valley Project. Irrigation districts are largely responsible for the county's rapid agricultural development in the early 20th century. The success of irrigation districts in the San Joaquin Valley, coupled with large scale metropolitan water projects such as San Francisco's Hetch Hetchy Aqueduct and Los Angeles' Owens Valley Aqueduct, spurred government officials to envision a statewide water management plan.

In 1921, the State Legislature directed the State Engineer to come up with such a plan to address conservation, flood control, storage, and distribution. By 1932, 14 official reports detailed water flow rates, drought conditions, flood control, and irrigation issues in California. These reports formed the basis for the California State Water Plan and ultimately the CVP. In 1933, the legislature authorized the Central Valley Project Act, an initiative passed by the voters to finance the construction of numerous dams, canals, pumping stations, and hydroelectric facilities. The initial phase of the plan was to store and convey Sacramento River water along the western edge of the San Joaquin Valley. This ambitious plan was stymied by poor economic conditions during the Great Depression that prevented the State from selling enough bonds to begin work. In 1935, the Roosevelt Administration released federal funds to begin construction, and the project was now administered by the United States Bureau of Reclamation (USBR). The CVP was divided into five core sections or units: Friant Dam, the Friant-Kern Canal, the Contra Costa Canal, Shasta Dam, and the Delta-Mendota Canal. Even with federal monies, legal wrangling over latent water rights issues, acquiring rights of way, subsequent design changes, and ultimately the beginning of World War II delayed construction of the CVP. In the early 1950s, the initial units of the CVP were finished; however, USBR expanded the system immensely in the following decades.

The Madera Canal stems from Millerton Lake (Friant Dam), and although it is considered a minor part of the CVP, provides water for the MID. The MID has CPV repayment contracts providing up to 271,000 acre feet of water from Millerton Lake and approximately 24,000 acre feet of water from Hensley Lake per year.

Railroad Development. The construction rail networks further spawned economic growth in the San Joaquin Valley. In 1876, the completion of the Southern Pacific Railroad through the Valley allowed the shipment of goods to various markets, significantly bolstering economic development, agricultural production, and population growth. The establishment of this rail system was subsequently followed by new town developments including Merced, Modesto, Minturn, Berenda, and Borden, as well as other mining communities in the foothills and mountains such as Buchanan and Grub Gulch.

During the decade of the 1870s, the California Pacific Railroad went from railroad building to railroad operation. Completion of the transcontinental railroad in 1869 brought about a proliferation of small regional rail systems, usually the outgrowth of real estate schemes

predicated on a population expansion that would not come until the boom of the 1880s. To limit competition, the Central Pacific Railroad began absorbing smaller lines. Such was the case with the California Pacific Railroad, the precursor of the Southern Pacific Railroad, acquired by the Central Pacific Railroad in 1898.

Madera County. The town of Madera was established at the terminus of a flume built by the California Lumber Company. The flume was built in 1874 for transporting lumber from the forest to the Central Pacific Railroad, which exported the lumber to other locations in California for use in mining and construction. The railroad laid out the town site of Madera, the Spanish word for “timber”, and began auctioning lots in 1876. By 1890, Madera had become the second largest city in Fresno County, developing quickly as the railroad distribution point for a number of surrounding towns. The town of Madera became the county seat when Madera County was formed in 1893 from a portion of Fresno County. The town was incorporated in 1907, and continued to expand as land was annexed to the original town site over the ensuing years.

Early use of the area was limited to pasturelands due to the scant amount of water provided by the tributaries of the San Joaquin River. During the late 1800s and early 1900s, large landholders such as Miller and Lux, Henry C. Daulton, and W.C. Ralston ranched cattle and sheep on the lands surrounding Madera. Early dry farming of grains in the area was supplemented by water obtained from dams and weirs in rivers and streams.

The Fresno River was the principal source of water for the Madera Canal and Irrigation Company, which supplied water to the farms surrounding the town of Madera and settlements further west. This system, which supplied water to over 10,000 acres in 1912, consisted of more than 100 miles of ditches, and also obtained water diverted from the North Fork of the San Joaquin River for year-round water supply. The expanding interests in agricultural pursuits and land enterprises, and the demands for a more permanent water supply, brought about the organization of irrigation districts, including the MID in 1922, and the eventual construction of the Friant Dam as part of the CVP. The Dam created Millerton Lake which stores surplus water from the San Joaquin River and its tributaries, providing year-round water, electricity, and recreation to Madera.

Early Settlement of the Specific Plan Area. John W. Mitchell held the land patent for the entirety of Section 8 as of May 15, 1869, signed by President Ulysses S. Grant. William S. Chapman held the land patent for the entirety of Section 17 as of July 20, 1869, also signed by President Ulysses S. Grant. The land patent for Section 16 was held by the State of California as early as 1854.

4.5.1.5 Records Search

LSA conducted a cultural resources records search of the Specific Plan Area (SSJVIC File Number 18-462) on November 19, 2018, at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System to identify previous cultural resources studies and site records for the Specific Plan Area and vicinity. The SSJVIC, an affiliate of the Office of Historic Preservation (OHP), is the official State repository of cultural resources records and reports

for Madera County. The search consisted of a review of records for archaeological sites and built-environment resources within the Specific Plan Area and a 0.25-mile radius.

As part of the records search, LSA also reviewed the following State of California inventories for cultural resources in and adjacent to the Specific Plan Area:

- *California Inventory of Historic Resources*;
- *Five Views: An Ethnic Historic Site Survey for California* (OHP 1988);
- *California Points of Historical Interest* (OHP 1992);
- *California Historical Landmarks* (OHP 1996); and
- *Directory of Properties in the Historic Property Data File*. The directory includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

Records Search Results. The SSJVIC records search identified two cultural resource investigations that were previously conducted within the Specific Plan Area and an additional two cultural resource investigations within 0.25 miles of the Specific Plan Area. These investigations and results are summarized in Table 4.5.A.

These investigations resulted in the identification of one cultural resource, P-20-002308/CA-MAD-002649H, within the Specific Plan Area that extends into the surrounding area. This resource includes segments of multiple water conveyance and canal features associated with the Madera Canal and MID. The Madera Canal is listed in the Historic Property Data File with a status code of “7J”, indicating it has been submitted to the OHP for evaluation but has not yet been evaluated for inclusion in the National Register of Historic Places. Features of P-20-002308/CA-MAD-002649H, consisting of various agricultural ditches, lie within the Specific Plan Area along the north side of Avenue 16 and 17 and along the west side of Road 23 north of Avenue 16.

Map Review. A map review included an examination and comparison of historic United States Geological Survey topographical quadrangles, General Land Office Plat maps, land ownership maps, and various historic-period aerial photographs of Sections 8, 16, and 17 within Township 11 South, Range 17 East of the Mount Diablo Base Line and Meridian. The Specific Plan Area has experienced heavy agricultural activity including the establishment of vineyards and orchards, as well as irrigation to accommodate intensive crop cultivation. Several wells and agricultural ditches run throughout the site primarily adjacent to current roadways. Settlements have been directly associated with agricultural expansion of the area. The map and aerial photograph review is summarized in Table 4.5.B.

Table 4.5.A: Cultural Resources Studies Within the SSJVIC Search Area

Author (Year)	Title	Includes Current Specific Plan Area (Y/N)?	Results
Nissley, Claudia A., Fenenga, Gerrit L., and Wilke, Philip J. (1975)	Final Report of Archaeological Reconnaissance of the Fresno River, Ash Slough, and Berenda Slough, San Joaquin Valley, California. (MA-00260)	N	No cultural resources identified.
Kile, Mark C. (2014)	Cultural Resource Inventory for Madera ID Water Conservation 13-MPRO-11 MID Job #27-13-2, Madera County, California. (MA-01203)	N	Resource P-20-002308 was identified within Specific Plan Area extending into 0.25-mile search area.
Arrington, Cindy (2010)	An Archaeological Survey for the Department of Water Resources Geotechnical Levee Investigation of San Joaquin River, Fresno River North 5.25, and Fresno River South 5.25, Madera County, California. (MA-01234)	Y	No cultural resources identified within Specific Plan Area or 0.25-mile search area.
Cox, Beatrice (2016)	Cultural Resources Inventory Report for the Pacific Gas and Electric Company Aerial Transmission Line, Madera Canal Lateral 24.2 Project, Madera County, California. (MA-01254)	Y	Resource P-20-002308 was identified within Specific Plan Area extending into 0.25-mile search area.

Source: LSA, 2020

Table 4.5.B: Historic-Period Topographic Map and Aerial Imagery Review Results

Map Date and Name	Results of Review
1854 Original Survey of Township 11 S, Range 17 East of the Mount Diablo Base Line and Meridian	There are no settlements depicted within the Specific Plan Area. The Fresno River has been depicted in a similar alignment as current and was called the "Frezno River".
1920 1:31,680 topographic map of Bonita Ranch, CA	This map depicts Benchmark (BM) 233 on the west edge of the Specific Plan Area and BM 240 near the intersection of Road 23 (depicted on map) and Avenue 16 (depicted on map). Road 23 extends to the current alignment of West Cleveland Avenue (also shown as Avenue 15 ½ west of Road 24) and extends farther south as an unimproved road, aligned slightly west after modern-day Avenue 15 ½ rather than following the current straight alignment of the road. The unimproved road bends west, parallel with the Fresno River. A structure is depicted southwest of the intersection of these unimproved roads. The Fresno River is depicted in a similar alignment and extent as current. Several narrow contour lines are depicted along the current alignment of Road 23 extending from the Fresno River to the midpoint between modern day Avenue 15 ½ and Avenue 16. A topographic depression is also depicted within the southwest quadrant of Section 17, approximately 500 feet north of the Fresno River.
1921 1:31,680 topographic map of Bonita Ranch, CA	This map depicts the same as the 1920 topographic map.
1922 1:31,680 topographic map of Madera, CA	No development is depicted within the Specific Plan Area. BM 249 is depicted along Avenue 16 (depicted on map).
1946 (1954 ed.) 1:62,500 topographic map of Madera, CA	The Madera Airport is established adjacent to the Specific Plan Area to the northeast by this time. One well is depicted immediately north of a current residence, just west of Road 23 and north of an unimproved, unnamed access road. The northern section of Road 23 is well developed as well as Avenue 17 (to the north), and Avenue 16 (centrally located within the Specific Plan Area). Other roads including Avenue 15 ½ (extension of West Cleveland Avenue), Road 23 south of Avenue 16, Road 22 ½, and several other unnamed dirt access roads are depicted as unimproved roads similar to current. One unimproved road that does not follow current alignment is depicted in the northwest corner of Section 16, where the road curves slightly before merging with Avenue 15 ½. Several structures are depicted within the Specific Plan Area. Four structures are in similar locations to current developments: one structure is located 650 feet east of Road 22 ½ centrally located between Avenue 15 ½ and Avenue 16; another structure is located just south of Avenue 16 approximately 700 feet east of Road 22 ½; the third is located immediately west of Road 22 ½ approximately 200 feet north of Avenue 15 ½; and the fourth is located in the southwest corner of Avenue 15 ½ and Road 24. Seven other structures depicted in this map are no longer observed in current aerial imagery: one of these structures is located in the northwest corner of the Avenue 16 and Road 23; a second structure is located

Table 4.5.B: Historic-Period Topographic Map and Aerial Imagery Review Results

Map Date and Name	Results of Review
	approximately 300 feet south of the Avenue 16 and Road 23 intersection; the third is approximately 1,200 feet southeast of second (off of a curved, unimproved road connecting Avenue 15 ½ to Road 23); a fourth and fifth structure are located on the southwest corner of Road 23 and Avenue 15 ½; a sixth structure is located west of road 22 ½, just north of the Fresno River; and the seventh is centrally located in the northwest quadrant of Section 17 off of an unimproved road.
1946 (1960 ed.) 1:24,000 topographic map of Bonita Ranch, CA	This map depicts the same information as the 1946 (1954 ed.) topographic map of Madera, CA, but only includes the Sections 8 and 17.
1946 aerial imagery of Madera, CA	This image generally depicts large agricultural areas consisting of farm crops with some built structures. The entirety of Sections 16 and 17 as well as the southern half of Section 8 depict farm crops and orchards. Structures are depicted the same as in previous maps, however those that remain appear to have been modified since this imagery was taken. The only existing structure which appears similar to that within this image is located 250 feet south of Avenue 16 and east of Road 22 ½.
1947 (1947 ed.) 1:24,000 topographic map of Bonita Ranch, CA	This map depicts the same as previous maps. One additional structure is depicted on the east side of Section 8 between Avenue 16 and 17.
1958 aerial imagery of Madera, CA	Only Section 8 within the Specific Plan Area is depicted. A settlement is depicted west of Road 23 centrally located between Avenue 16 and 17.
1962 aerial imagery of Madera, CA	This image depicts three structures that appear to be as they are today in comparison to recent aerial imagery. One of these structures is located west of Road 23, between Avenue 16 and 17. A well was depicted here in previous topographic maps. The other is located just south of Avenue 16, near Road 22 ½. The third is located west of Road 23, between Avenue 15 ½ and 16, one structure of the initial settlement is in a similar location and footprint as current. Settlements are depicted in the same locations presented previously in topographic maps. Current structures simply do not correlate to the ones depicted in this map.
1963 (1964 ed.) 1:24,000 topographic map of Bonita Ranch, CA	This map generally depicts agricultural areas and irrigation as well as an increase of improved road infrastructure. Road 22 ½ and Avenue 15 ½ are depicted in their current alignments and extents. Other unimproved, unnamed roads are no longer depicted. A segment of the Madera Canal is depicted as an intermittent stream adjacent north of Avenue 16, in its current alignment. Six wells are scattered throughout the Specific Plan Area. Section 16 and the southern half of Section 17 consists of orchard by this time. The northwest quadrant of the northeast quadrant within Section 17 consists of vineyards, as well as a sliver on the east side of the northeast quadrant of

Table 4.5.B: Historic-Period Topographic Map and Aerial Imagery Review Results

Map Date and Name	Results of Review
	Section 8. Three structures remain from of those depicted on previous maps: one is located east of Road 22 ½ adjacent to vineyards, another east of Road 22 ½ just north of the Fresno River, and a third south of Avenue 16 east of Road 22 ½. Two structures are depicted adjacent west of Road 23, centrally located between Avenue 16 and 17; structures are still present in this location. One additional structure (adjacent to another depicted on previous maps) is depicted off Avenue 16 approximately 700 feet east of Road 22 ½; one structure is currently present in this location. Four additional structures are depicted west of Avenue 23 between Avenue 15 ½ and Avenue 16; only one of these structures is still present.
1963 (1964 ed.) 1:24,000 topographic map of Madera, CA	Section 16 consists entirely of orchard (extending from the 1963 [1964 ed.] map of Bonita Ranch). Two wells are depicted: one located north of Avenue 15 1/2 approximately 500 feet west of Road 24 and another located off of an unimproved road extending centrally between Avenue 16 and Avenue 15 ½ in the northwest corner of Section 16. The latter well is located near a structure previously identified in the 1946 (1954 ed.) map of Madera, however this road has since been modified from previously curved to straight. Structures previously depicted are still presented in this map with no additions.

Source: *Aerial Imagery by Nationwide Environmental Title Research

4.5.1.6 Geoarchaeological Sensitivity

Geoarchaeological research was conducted for this study to determine the archaeological sensitivity of the Specific Plan Area. Soil and geologic formations correlate to landscape stability and can indicate the likelihood of subsurface or surficial archaeological deposits.

The San Joaquin Valley consists of a trough created by the collision of the Pacific and North American plates. The trough has been filled over time with marine sediments, which have been overlain by continental sediments during the Quaternary period. These sediments consist primarily of alluvium deposited by rivers and streams that would inundate portions of the valley floor during flooding events.

The primary stratigraphic sequence observed in the eastern portion of the San Joaquin Valley includes the Modesto Formation, a series of sedimentary deposits that superimposed Tertiary-period marine rocks and raised the ground surface in the valley to above sea level during the Pleistocene epoch. The Modesto Formation is subdivided into lower and upper formations and are correlated to the Late- to Latest- Pleistocene in the eastern San Joaquin Valley. Within the valley floor, Modesto deposits are usually overlain by younger alluvium and underlain by the older Riverbank Formation which correlates to the Late- to Middle- Pleistocene. However, this stratigraphic sequence is topographically reversed near foothills. Particularly near the major rivers of

the valley, such as the location of the Specific Plan Area, the upper Modesto Formation is overlain by Holocene-aged alluvial fan deposits of four ages, designated as post-Modesto I (early to middle Holocene), post-Modesto II (late Holocene), post-Modesto III (late Holocene), and post-Modesto IV (Historic). These post-Modesto deposits are generally thin and unweathered, and based on their distribution pattern appear to have fanned out in an east to west direction.

The Specific Plan Area consists of river wash directly adjacent to the Fresno River as well as various soil series including Alamo, Grangeville, Greenfield, Hanford, Lewis, Madera, Pachappa, San Joaquin, Traver, Tujunga, and Visalia. Using previously known and revised ages of soils resulting from radiocarbon dating, soil series were analyzed for archaeological sensitivity based upon associated geological landform age as well as considering suitable environmental site conditions for settlement including proximity to water and surface slope. This information was then applied to a scoring system as presented in Meyer, Young, and Rosenthal’s Geoarchaeological Overview. Since the Specific Plan Area is located within 100 meters of the Fresno River (+1 point) and is situated on generally flat terrain with less than 10 percent slope (+1 point), the overall site score is +2 before it is applied to geologic landform potential. Overall buried site potential is calculated by adding the slope and water distance score of +2 to the correlating landform age point. Buried archaeological site potential is presented in Table 4.5.C, below.

Table 4.5.C: Buried Archaeological Site Potential

Soil Series	Associated Landform Age (Point)	Overall Buried Site Potential ([+2] + [Landform Point])
Alamo	-	2 – Low (by default)
Grangeville	Holocene – Historic-period (4)	6 – Very High
Greenfield	Early Holocene (1)	3 – Moderate
Hanford	Late Holocene (3)	5 – High
Lewis	Late Pleistocene (-1)	1 – Very Low
Madera	-	2 – Low (by default)
Pachappa	Middle Holocene (2)	4 – Moderately High
San Joaquin	Late – Middle Pleistocene (-1)	1 – Very Low
Traver	Early Holocene (1)	3 – Moderate
Tujunga	Historic-period – Modern (1)	3 – Moderate
Visalia	Late Holocene (3)	5 – High

Based on Table 20. Buried Site Potential Scoring System and Possible Score Combinations presented in Meyer, Young, and Rosenthal (2010).

San Joaquin and Lewis series soils are associated with the Riverbank Formation, dating to the Late-to Middle-Pleistocene. This formation is observed in primarily two regions of the study area: the area north of Avenue 15 ½, south of Avenue 16, and east of Road 23 in the northeast corner as well as the western portion north of Avenue 16 and south of Avenue 17. Since the age of the landform associated with these soils predates the known period of human occupation in this area, these soils are not sensitive for buried archaeological deposits; therefore, soils from this landform have a very low buried site potential score. Additionally, landform age information for Madera and Alamo series soils were lacking and not reviewed for archaeological sensitivity, but the default score to the region was applied based on proximity to water and general age of the landform. Middle to Late-Holocene period deposits as well as into the Historic-period has the highest buried site potential. Based on the

information presented above in Table 4.5.C, the area with highest sensitivity for buried site potential is located in the southern portion of the Specific Plan Area south of Avenue 15 ½ to the Fresno River.

4.5.1.7 Native American Coordination

LSA requested a review of the California Native American Heritage Commission (NAHC) Sacred Lands File on November 8, 2018. The NAHC is the official State repository of Native American sacred site location records in California. In a letter dated November 27, 2018, provided via email, Ms. Sharaya Souza, NAHC Staff Services Analyst, responded that the search was negative for sacred lands. Ms. Souza also provided a list of eight local Native American representatives that would potentially be interested in consulting with the City.

4.5.1.8 Regulatory Context

State Regulations

Senate Bill 18. Senate Bill (SB) 18, signed into law in September 2004, requires local (city and county) governments to consult with California Native American tribes to aid in the protection of traditional tribal cultural places through local land use planning. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting or mitigating impacts to cultural places. The consultation and notice requirements apply to adoption and amendment of both general plans (Government Code Section 65300 et seq.) and specific plans (Government Code Section 65450 et seq.). Specifically, Government Code Section 65352.3 requires local governments, prior to making a decision to adopt or amend a general plan, to consult with California Native American tribes identified by the NAHC for the purpose of protecting or mitigating impacts to cultural places. As previously discussed, the NAHC is the State agency responsible for the protection of Native American burial and sacred sites.

Assembly Bill 52. Assembly Bill (AB) 52, the Native American Historic Resource Protection Act, sets forth a proactive approach intended to reduce the potential for delay and conflicts between Native American and development interests. Projects subject to AB 52 are those that file a notice of preparation for an EIR or notice of intent to adopt a negative or mitigated negative declaration on or after July 1, 2015. AB 52 adds tribal cultural resources (TCR) to the specific cultural resources protected under the California Environmental Quality Act (CEQA). Under AB 52, a TCR is defined as a site, feature, place, cultural landscape (must be geographically defined in terms of size and scope), sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the California Register, or included in a local register of historical resources. A Native American Tribe or the lead agency, supported by substantial evidence, may choose at its discretion to treat a resource as a TCR. AB 52 also mandates lead agencies to consult with tribes, if requested by the tribe, and sets the principles for conducting and concluding consultation.

CEQA Requirements. CEQA applies to all discretionary projects undertaken or subject to approval by public agencies. Under the provisions of CEQA, “a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.”

CEQA Guidelines Section 15064.5(a) defines an “historical resource” as a resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources;
- Listed in a local register of historical resources (as defined at PRC Section 5020.1(k));
- Identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC; or
- Determined to be an historical resource by a project’s lead agency (CCR Title 14(3) Section 15064.5(a)).

A historical resource consists of:

“Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.... Generally, a resource shall be considered by the lead agency to be ‘historically significant’ if the resource meets the criteria for listing on the California Register of Historical Resources” CEQA Guidelines Section 15064.5(a)(3).

In accordance with CEQA Guidelines Section 15064.5(b), a substantial adverse change in the significance of a historical resource is a significant effect on the environment. A substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

Public Resources Code 5024.1: California Register of Historical Resources. Section 5024.1 of the PRC established the California Register. Generally, a resource is considered by the lead agency to be ‘historically significant’ if the resource meets the criteria for listing on the California Register (California Code of Regulations [CCR] Title 14(3) Section 15064.5(a)(3)). For a cultural resource to qualify for listing in the California Register it must be significant under one or more of the following criteria:

- Criterion 1: Associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Criterion 2: Associated with the lives of persons important in our past;

- Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to being significant under one or more of these criteria, a resource must retain enough of its historic character and appearance to be recognizable as a historical resource and be able to convey the reasons for its significance (CCR Title 14 Section 4852(c)). Generally, a cultural resource must be 50 years or older to be eligible for the California Register.

Health and Safety Code 7050.5: Human Remains. Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Public Resources Code 5097.98: Notification of MLD. Section 5097.98 of the California PRC prohibits excavation or removal of any "vertebrate paleontological site...or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

California's Native American Graves Protection and Repatriation Act of 2001. Assembly Bill 978 (AB 978-Steinberg, 2001) established the State of California's Native American Graves Protection and Repatriation Act of 2001, a counterpart to the federal Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. Sec. 3001 *et seq.*). It called for creation of a 10-member Repatriation Oversight Commission appointed by the Governor and a process with penalties and enforcement procedures for repatriation of Native American human and cultural remains originating in California.

Local Policies

City of Madera General Plan. The General Plan Update contains several goals, policies, and action items that are related to cultural resources and tribal cultural resources. Table 4.5.D includes General Plan policies and action items related to cultural resources and tribal cultural resources.

Table 4.5.D: General Plan Policies Related to Cultural Resources and Tribal Cultural Resources

Policy/Action Item Number	Policy
Policy HC-9	The City will endeavor to protect and preserve prehistoric and historic archaeological resources, cultural resources (particularly those of importance to existing tribes), and fossils.
Action Item HC-9.1	Areas identified with a significant potential for containing archaeological artifacts, require completion of a detailed on-site study as part of the environmental review process. Implement all feasible mitigation measures.
Action Item HC-9.2	Impose the following conditions on all discretionary projects which may cause ground disturbance: <ul style="list-style-type: none"> • The Planning Department shall be notified immediately if any prehistoric, archaeological, or fossil artifact or resource is uncovered during construction. All construction must stop and an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action. • All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California’s Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.
Action Item HC-9.3	The City will work with area tribes to develop updated standards for cultural resource surveys, as well as a process for obtaining the input of tribes in the development review process when cultural resources are involved.

4.5.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to cultural resources that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.5.2.1 Significance Criteria

Development of the proposed Specific Plan would result in a significant impact related to cultural resources if it would:

- Thresholds 4.5.1** **Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5;**
- Thresholds 4.5.2** **Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5;**
- Thresholds 4.5.3** **Disturb any human remains, including those interred outside of dedicated cemeteries.**

Thresholds 4.5.4 **Result in 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, and that is:**

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or
- 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.5.2.2 Project Impacts

The following discussion describes the potential impacts related to cultural resources that could result from implementation of the proposed Specific Plan.

Threshold 4.5.1 **Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?**

The Cultural Resource Study consisted of background research, including a records search, NAHC Sacred Lands File search, and a literature and map review. The results of the NWIC records search indicated that one cultural resource, P-20-002308/CA-MAD-002649H, is located within the Specific Plan Area. The cultural resource includes segments of multiple water conveyance and canal features consisting of agricultural ditches associated with the Madera Canal and MID. Features of the cultural resource lie within the Specific Plan Area along the north side of Avenue 16 and along the west side of Road 23 north of Avenue 16.

Historic-period maps and aerial photographs indicate that the Specific Plan Area has experienced heavy agricultural activity including the establishment of vineyards and orchards, as well as irrigation ditches and canals to accommodate crops. Settlements have been directly associated with agricultural expansion of the area as early as 1920. Three buildings appear to have been associated with early settlement of the area: one building in the northwest corner of APN 030-170-009 is depicted on maps as early as 1946. Two additional buildings, one in the southeast corner of APN 030-170-009 and the other in the southeast corner of APN 033-070-004, are depicted as early as 1962. These built environment cultural resources have not yet been evaluated to identify their status under CEQA (i.e., whether or not they qualify as historical resources per PRC Section 21084.1). Several locations of former historic-period once occupied the area; this indicates the potential to encounter historic-period artifacts or features, such as privies or wells that were associated with early agricultural settlements. Such resources may be encountered under the existing ground surface and may not be subject to the same surficial disturbance that likely occurred

due to agricultural activities. As a result a potentially-significant impact would occur. Implementation of Mitigation Measure CUL-1 would reduce potential impacts resulting from discovery of historic resources to a less-than-significant level.

Mitigation Measure CUL-1: Prior to the issuance of grading permits for development occurring within APN 030-170-009 and APN 0303-070-004, formal evaluations of the existing canal segments and buildings shall be completed by a qualified historic resources consultant for eligibility for inclusion in the California Register of Historical Resources (CRHR) to assess whether or not they qualify as historic resources under Public Resources Code Section 21084.1. If the resources are determined to be unique historical resources, measures shall be identified by the qualified historic resources consultant monitor and recommended to the City. Appropriate measures for significant resources could include, but are not limited to, avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds.

Level of Significance With Mitigation: Less than Significant.

Threshold 4.5.2 Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Based on its environmental setting, the Specific Plan Area has a high sensitivity for intact precontact-period archaeological deposits. Additionally, although not included in the record search results, background research indicates the Chauchila Tribe village site of Ch'ekayu was documented within the southeast portion of the Specific Plan Area along the Fresno River. Archaeological sensitivity is slightly diminished by previous agricultural activities associated with historic-period settlement. Agricultural activity will have most likely disturbed surficial archaeological deposits; however, this activity does not preclude the chances of encountering a buried archaeological deposit. Therefore, it is highly likely that an intact precontact-period archaeological deposit may be encountered within the Specific Plan Area. As a result a potentially-significant impact would occur. Implementation of Mitigation Measure CUL-2.1 would reduce potential resulting from discovery of archeological materials to a less-than-significant level.

Additionally, geoarchaeological overviews of the Specific Plan Area have resulted in the identification of various landforms ranging from Middle - Late Pleistocene to Modern. Those landforms consistent with Early Holocene to Modern-period are primarily located in the southern portion of the Specific Plan Area and are considered to have moderate to high sensitivity for containing buried precontact archaeological deposits. As a result a potentially-significant impact would occur. As a result, a potentially-significant impact would occur. Implementation of Mitigation Measure CUL-2.2 would reduce potential resulting from discovery of archeological materials to a less-than-significant level.

Mitigation Measure CUL-2.1: To identify if an archaeological resource is present and if it meets the definition of a historical resource under the California Environmental Quality Act (CEQA), or a unique archaeological resource under Public Resources Code Section 21083.2 located in the southeastern portion of the Specific Plan Area, additional investigation including a field survey and an archaeological sensitivity analysis shall be conducted prior to the initiation of ground-disturbing activities. For projects associated with the Specific Plan that are located in areas with moderate or higher sensitivity for buried archaeological resources as identified by the archaeological sensitivity analysis, subsurface testing shall be conducted to minimize possible disturbance to or inadvertent discoveries of archaeological deposits. A qualified archaeologist shall develop a monitoring plan based on depth of the excavation and data from subsurface testing to be submitted to the City of Madera Community Development Director or designee. The monitoring plan shall include observation of ground disturbing activities (such as grading, trenching and boring) to be focused in areas that are most likely to contain buried resources. The archaeologist shall limit on-site monitoring to only areas where depth of excavation and information from subsurface testing suggests that sensitive resources may be encountered.

Mitigation Measure CUL-2.2: If deposits of precontact or historic-period archaeological materials are encountered during construction activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any archaeological materials. Archaeological materials can include flaked-stone tools (e.g., projectile points, knives, and choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, bones, and other cultural materials); and stone-milling equipment (e.g., mortars, pestles, and handstones). Precontact archaeological sites often contain human remains. Historic-period materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.

If deposits of precontact or historic-period archaeological materials are encountered and cannot be avoided, they shall be evaluated in consultation with the City and a qualified archaeologist. If the discovery is precontact in nature, geographically affiliated tribal

representatives shall be consulted as part of this process. If the deposit meets the definition of a historical resource, unique archaeological resource, or tribal cultural resource under the California Environmental Quality Act (CEQA), significant impacts to the deposit will need to be avoided or appropriate treatment established. If treatment is required, a plan shall be developed in consultation with applicable parties to mitigate, avoid, or minimize significant impacts to these types of resources. Treatment may consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits; recording the resource; preparation of a report of findings; accessioning recovered archaeological materials at an appropriate curation facility; and community outreach. All reports produced as part of the evaluation and treatment of cultural resources identified during the project shall be submitted to the City and the Southern San Joaquin Valley Information Center (SSJVIC).

Level of Significance With Mitigation: Less than Significant.

Threshold 4.5.3 Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

There is a remote possibility that human remains could be present within the Specific Plan Area, and implementation of the proposed Specific Plan has the potential to disturb human remains interred outside of formal cemeteries. This impact is considered unlikely, however, this impact would only occur if such buried deposits are present and ground-disturbing construction activities cut through the deposits. Due to the potential for such a disturbance to occur, this is considered a significant impact. Implementation of Mitigation Measure CUL-3 would reduce potential impacts resulting from discovery of human remains to a less-than-significant level.

Mitigation Measure CUL-3: The following procedures shall be implemented in the event that human remains are identified during project activities:

- If human remains are encountered during project activities, work within 25 feet of the discovery shall be redirected and the Madera County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission (NAHC) will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

- The archaeologist shall prepare a report that provides recommendations for the treatment of the human remains and any associated cultural materials as well as proposed or implemented methods and results from excavation and analysis. Treatment of the remains and associated cultural materials shall be done in coordination with the recommendations of the MLD and City. The final report shall be submitted to the Southern San Joaquin Valley Information Center (SSJVIC).

Level of Significance With Mitigation: Less than Significant.

Threshold 4.5.4 **Would the project result in 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, and that is:**

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or
- 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

The following discussion describes the potential impacts related to tribal cultural resources that could result from implementation of the proposed Specific Plan.

Assembly Bill (AB) 52 provides for consultation between lead agencies and Native American tribal organizations during the CEQA process. Since AB 52 was enacted in July 2015, the City has not been contacted by any California Native American tribes requesting that they be notified when projects are proposed in Madera. As a result, the City is not required to notify any tribes of this project, and no tribes have requested consultation pursuant to PRC Section 21080.3.1.

However, in January 2019, the City requested a list of affected tribes from the NAHC. Based on the list of tribes provided by the NAHC, in February 2019, the City sent letters (provided in Appendix H) to the following eight tribes:

- California Valley Miwok Tribe
- North Valley Yokuts Tribe

- Southern Sierra Miwuk Nation
- Dumna Wo-Wah Tribal Government
- North Fork Mono Tribe
- North Fork Rancheria of Mono Indians
- Sheep Rancheria of Me-Wok Indians
- Wuksache Indian Tribe, Eshom Valley Band

One response was received from the North Fork Rancheria of Mono Indians which requested a field visit to the Specific Plan Area, and continued consultation (included in Appendix H). In addition, the response also indicated the Tribe's position that a tribal monitor be present prior to and during implementation of the proposed Specific Plan. The City attempted to conduct further consultation with the Tribe and conduct a site visit, but further requests were not returned by the Tribe.

As stated above, implementation of the proposed Specific Plan would involve ground-disturbing activities associated development. Although there is a record of a tribal resource within the Specific Plan Area, implementation of Mitigation Measures CUL-2.1 and CUL-2.2 would protect the previously recorded cultural resource as well as any or unknown cultural resources, including Native American artifacts and human remains, should these be encountered during project construction.

Therefore, it is assumed that no Tribal Cultural Resources would be adversely affected by the project. As a result, a less-than-significant impact would occur.

Level of Significance With Mitigation: Less than Significant. Implementation of Mitigation Measures CUL-2.1 and CUL-2.2 would reduce the level of the potential impact through the identification of archaeological deposits during construction; the evaluation of unanticipated discoveries; and the recovery of significant archaeological data from those resources that warrant such investigation (i.e., historical or unique archaeological resources). This process would recover scientifically consequential information from at-risk resources, in consultation with tribal representatives, to offset their potential loss. Therefore, this impact would be reduced to a less-than-significant level.

4.5.2.3 Cumulative Impacts

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to cultural resources. The cumulative impact area for cultural resources is the City of Madera.

There are no other projects in the area that would result in the demolition of historic resources. In addition, each discretionary project within the City would be required to conduct review of potential impacts to cultural resources and implement mitigation as required. Although there is the possibility of encountering buried archaeological deposits and human remains during implementation of the proposed Specific Plan, impacts to those resources would be assessed on a case-by-case basis. Furthermore, mitigation measures CUL-1, CUL-2.1, CUL-2.2, and CUL-3, would serve to reduce

potential impacts to such resources to a less-than-significant level. As a result, the project would not have a cumulatively significant impact to cultural resources.

Level of Significance With Mitigation: Less than Significant. Refer to Mitigation Measures CUL-1, CUL-2.1, CUL-2.2, and CUL-3.

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4.6 ENERGY

This section discusses energy use resulting from implementation of The Villages at Almond Grove Specific Plan (Specific Plan) and evaluates whether the proposed Specific Plan would result in the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with any applicable plans for renewable energy and energy efficiency. The energy use analysis in this section is based on estimates from the California Emissions Estimator Model (CalEEMod) version 2016.3.2 modeling results in Appendix E of this Environmental Impact Report (EIR).

4.6.1 Environmental Setting

4.6.1.1 Specific Plan Area

The Specific Plan Area is located within the Pacific Gas and Electric Company's (PG&E) service area that spans approximately 70,000 square miles from Eureka in the north to Bakersfield in the south and from the Pacific Ocean in the west to the Sierra Nevada in the east.

4.6.1.2 Energy Resources

Electricity. Electricity is a man-made resource. The production of electricity requires the consumption or conversion of energy resources (including water, wind, oil, gas, coal, solar, geothermal, or nuclear resources) into energy. Electricity is used for a variety of purposes (e.g., lighting, heating, cooling, and refrigeration, and for operating appliances, computers, electronics, machinery, and public transportation systems).¹

According to the most recent data available, in 2017, California's electricity was generated primarily by natural gas (33.67 percent), coal (4.13 percent), large hydroelectric (14.72 percent), nuclear (9.08 percent), and renewable sources (29 percent). Total electric generation in California in 2017 was 292,039 gigawatt-hours (GWh), up 0.5 percent from the 2016 total generation of 290,567 GWh. In 2017, California produced approximately 70.7 percent and imported 29.3 percent of the electricity it used.²

The City of Madera receives its electricity from PG&E. According to the California Energy Commission (CEC), total electricity consumption in the PG&E service area in 2018 was 80,368.7 gigawatt hours (GWh) (27,700.2 GWh for the residential sector and 52,668.4 GWh for the nonresidential sector).³ Total electricity consumption in Madera County in 2018 was 1,665.6 GWh (430.2 GWh for the residential sector and 1,235.4 for the nonresidential sector).⁴

Natural Gas. Natural gas is a non-renewable fossil fuel. Fossil fuels are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface

¹ United States Energy Information Administration. 2019a. Electricity Explained. Website: eia.gov/energyexplained/electricity (Accessed February 2020).

² California Energy Commission. 2019a. *Notice of Request for Public Comments on the Draft Scoping Order for the 2019 Integrated Energy Policy Report*. Docket No. 19-IEPR-01.

³ California Energy Commission. 2019b. Electricity Consumption by Entity. Website: ecdms.energy.ca.gov/elecbyutil.aspx (Accessed February 2020).

⁴ California Energy Commission. 2019c. Electricity Consumption by County. Website: ecdms.energy.ca.gov/elecbycounty.aspx (Accessed February 2020).

of the Earth over many years. Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas is found in naturally occurring reservoirs in deep underground rock formations. Natural gas is used for a variety of uses (e.g., heating buildings, generating electricity, and powering appliances such as stoves, washing machines and dryers, gas fireplaces, and gas grills).⁵

Natural gas consumed in California is used for electricity generation (35 percent), residential uses (17 percent), industrial uses (33 percent), commercial uses (12 percent), and transportation uses (3 percent). California continues to depend on out-of-state imports for nearly 90 percent of its natural gas supply.⁶

PG&E is the natural gas service provider for the City of Madera. According to the CEC, total natural gas consumption in the PG&E service area in 2018 was 4,794.4 million therms (1,832.8 million therms for the residential sector and 2,961.6 million therms for the nonresidential sector).⁷ Total natural gas consumption in Madera County in 2018 was 56.7 million therms (7.8 million therms for the residential sector and 48.9 million therms for the nonresidential sector).⁸

Fuel. Petroleum is also a non-renewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a large number of consumer products, primarily fuel oil and gasoline.

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. According to the most recent data available, total gasoline consumption in California was 366,820 thousand barrels (15.4 billion gallons) or 1,853.5 trillion British Thermal Units (BTU) in 2017.⁹ Of the total gasoline consumption, 350,604 thousand barrels (14.7 billion gallons) or 1,771.6 trillion BTU were consumed for transportation.¹⁰ Based on fuel consumption obtained from EMFAC2017, 79.9 million gallons of gasoline and 39.3 million gallons of diesel fuel were consumed from vehicle trips in Madera County in 2019.

⁵ U.S. Energy Information Administration. 2019b. Natural Gas Explained-Use of Natural Gas. Website: eia.gov/energyexplained/index.php?page=natural_gas_use (Accessed February 2020).

⁶ California Energy Commission. 2019d. Supply and Demand of Natural Gas in California. Website: energy.ca.gov/almanac/naturalgas_data/overview.html (Accessed February 2020).

⁷ California Energy Commission. 2019e. Gas Consumption by Entity. Website: ecdms.energy.ca.gov/gasbyutil.aspx (Accessed February 2020).

⁸ California Energy Commission. 2019f. Gas Consumption by County. Website: ecdms.energy.ca.gov/gasbycounty.aspx (Accessed February 2020).

⁹ A British Thermal Unit is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

¹⁰ U.S. Energy Information Administration. 2019c. California State Profile and Energy Estimates. Table F3: Motor gasoline consumption, price, and expenditure estimates, 2017. Website: eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA (Accessed February 2020).

4.6.1.3 Regulatory Context

Federal and State agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation (USDOT), the United States Department of Energy, and the United States Environmental Protection Agency (USEPA) are three federal agencies with substantial influence over energy policies and programs. Generally, federal agencies influence and regulate transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy related research and development projects, and through funding for transportation infrastructure improvements. On the state level, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are two agencies with authority over different aspects of energy.

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies and serves the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy.

The CEC is the state's primary energy policy and planning agency. The CEC forecasts future energy needs, promotes energy efficiency, supports energy research, develops renewable energy resources and plans for/directs state response to energy emergencies. Some of the more relevant federal and state energy-related laws and plans are discussed below.

Federal Policies and Regulations

Corporate Average Fuel Economy. Congress first passed the Corporate Average Fuel Economy (CAFE) law in 1975 to increase the fuel economy of cars and light-duty trucks. CAFE standards are federal regulations that are set to reduce energy consumed by on-road motor vehicles. The National Highway Traffic Safety Administration (NHTSA) regulates the standards and the USEPA measures vehicle fuel efficiency. The standards specify minimum fuel consumption efficiency standards for new automobiles sold in the United States. The law has become more stringent over time. The current standard is 27.5 miles per gallon (mpg) for passenger cars and 20.7 mpg for light-duty trucks.

On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the USEPA and the USDOT's NHTSA announced a joint final rule establishing a national program that would reduce greenhouse gas (GHG) emissions and improve fuel economy for new cars and trucks sold in the United States. The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2012 through 2016. This phase required these vehicles to meet a fuel economy standard of 35.5 mpg. The second phase applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model

years 2017 through 2025. This phase required these vehicles to meet an estimated fuel economy standard of 54.5 mpg.¹¹

On September 15, 2011, the USEPA and USDOT issued a final rule for the first national standards to improve fuel efficiency of medium- and heavy-duty trucks and buses, model years 2014 through 2018. For combination tractors, the agencies proposed engine and vehicle standards that would achieve up to a 20 percent reduction in fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which would achieve up to a 10 percent reduction for gasoline vehicles and a 15 percent reduction for diesel vehicles (12 and 17 percent, respectively, if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption. On October 25, 2016, the USEPA and USDOT issued Phase 2 of the national standards to improve fuel efficiency standards for medium- and heavy-duty trucks and buses for model years 2021 through 2027 to achieve vehicle fuel savings as high as 25 percent, depending on the vehicle category.¹²

Safer Affordable Fuel-Efficient Vehicles Rule. On August 2, 2018, the current Administration released a notice of proposed rulemaking, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule)* to amend the CAFE and GHG emission standards established in 2012 for model years 2021 through 2026. The SAFE Vehicles Rule would decrease fuel economy and would withdraw the California Waiver for the California Advanced Clean Car program, Zero Emissions Vehicle mandate, and GHG emission standards for model years 2021 through 2026. Final rulemaking on the SAFE Vehicles Rule was issued on March 31, 2020.¹³

State Policies and Regulations

Assembly Bill 1575, Warren-Alquist Act. In 1975, largely in response to the oil crisis of the 1970s, the State Legislature adopted Assembly Bill (AB) 1575 (also known as the Warren-Alquist Act), which created the CEC. The statutory mission of the CEC is to forecast future energy needs; license power plants of 50 megawatts (MW) or larger; develop energy technologies and renewable energy resources; plan for and direct State responses to energy emergencies; and, perhaps most importantly, promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code (PRC) Section 21100(b)(3) and *State California Environmental Quality Act (CEQA) Guidelines* Section 15126.4 to require EIRs to include, where relevant, mitigation measures proposed to minimize the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the State Resources Agency created Appendix F to the *State CEQA*

¹¹ National Highway Traffic Safety Administration. 2019a. Corporate Average Fuel Economy. Website: nhtsa.gov/laws-regulations/corporate-average-fuel-economy (Accessed February 2020).

¹² United States Environmental Protection Agency. 2019. Final Rule for Phase 1 Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles. Website: www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-1-greenhouse-gas-emissions-standards-and (Accessed February 2020).

¹³ National Highway Traffic Safety Administration. The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule. Website: nhtsa.gov/corporate-average-fuel-economy/safe (Accessed January 2021).

Guidelines. Appendix F assists EIR preparers in determining whether a project would result in the inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the *State CEQA Guidelines* also states that the goal of conserving energy implies the wise and efficient use of energy and the means of achieving this goal, including: (1) decreasing overall per capita energy consumption; (2) decreasing reliance on fossil fuels such as coal, natural gas, and oil; and (3) increasing reliance on renewable energy sources.

Senate Bill 1389, Energy: Planning and Forecasting. In 2002, the State Legislature passed Senate Bill (SB) 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles (ZEVs) and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

In compliance with the requirements of SB 1389, the CEC adopts an *Integrated Energy Policy Report* every 2 years and an update every other year. The most recently adopted reports include the *2017 Integrated Energy Policy Report*¹⁴ and the *2018 Integrated Energy Policy Report Update*.¹⁵ The *2017 Integrated Energy Policy Report* provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The *2017 Integrated Energy Policy Report* covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas, updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency. The *2018 Integrated Energy Policy Report Update* included a review of the implementation of California's energy policies and updated the 2017 California energy demand forecasts that were adopted as part of the *2017 Integrated Energy Policy Report* proceedings.

The CEC approved the *2019 Integrated Energy Policy Report* in February 2020.¹⁶ The *2019 Integrated Energy Policy Report* also covers a broad range of topics, including decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable

¹⁴ California Energy Commission. 2018a. *2017 Integrated Energy Policy Report*. California Energy Commission. Publication Number: CEC-100-2017-001-CMF. February.

¹⁵ California Energy Commission. 2018b. *2018 Integrated Energy Policy Report Update*. California Energy Commission. Publication Number: CEC-100-2018-001-VI. February.

¹⁶ California Energy Commission. 2019g. Notice of Request for Public Comments on the Draft Scoping Order for the 2019 Integrated Energy Policy Report. Docket No. 19-IEPR-01.

energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.

Renewable Portfolio Standards. SB 1078 established the California Renewable Portfolio Standards program in 2002. SB 1078 initially required that 20 percent of electricity retail sales be served by renewable resources by 2017; however, this standard has become more stringent over time. In 2006, SB 107 accelerated the standard by requiring that the 20 percent mandate be met by 2010. In April 2011, SB 2 required that 33 percent of electricity retail sales be served by renewable resources by 2020. In 2015, SB 350 established tiered increases to the Renewable Portfolio Standards of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. In 2018, SB 100 increased the requirement to 60 percent by 2030 and required that all State's electricity to come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019.¹⁷

California Energy Code (California Building Energy Efficiency Standards). Energy consumption by new buildings in California is regulated by the California Energy Code which is Part 6 under Title 24 of the California Code of Regulations (CCR Title 24). The 12 parts of the CCR Title 24 are known as the California Building Standards Code (CBSC). The California Energy Commission adopted its first energy code, titled the Energy Conservation Standards for New Residential and New Nonresidential Buildings, in 1978 in response to a legislative mandate to reduce energy consumption in the State. The CBSC is updated every 3 years, and the current 2019 California Energy Code went into effect on January 1, 2020. The California Energy Code applies to both new construction and rehabilitation of residential and non-residential buildings, and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The California Energy Code is enforced through the local building permit process. Local government agencies may adopt an enforce energy standard for new buildings, provided these standards meet or exceed those provided in CCR Title 24.

California Green Building Standards Code. In 2008, the California Building Standards Commission adopted Part 11 of CCR Title 24, titled the California Green Building Standards Code (CALGreen Code) which became effective on August 1, 2009 as a voluntary code. The 2010 CALGreen Code was the first mandatory edition, took effect on January 1, 2011, and is now a part of the CBSC 3-year update cycle. The 2019 CALGreen Code standards became effective on January 1, 2020. The CALGreen Code establishes mandatory measures for residential and non-residential building construction and encourages sustainable construction practices in the following five categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) indoor environmental quality. Although the CALGreen Code was adopted as part of the State's efforts to reduce GHG emissions, the CALGreen Code standards have co-benefits of reducing energy consumption from residential and non-residential buildings subject to the standard.

¹⁷ California Public Utilities Commission. 2019. Renewables Portfolio Standard Program. Website: cpuc.ca.gov/rps (Accessed February 2020).

California Energy Efficiency Strategic Plan. On September 18, 2008, the California Public Utilities Commission (CPUC) adopted California’s first Long-Term Energy Efficiency Strategic Plan, presenting a roadmap for energy efficiency in California.¹⁸ The Plan articulates a long-term vision and goals for each economic sector and identifies specific near-term, mid-term, and long-term strategies to assist in achieving those goals. The Plan also reiterates the following four specific programmatic goals known as the “Big Bold Energy Efficiency Strategies” that were established by the CPUC in Decisions D.07-10-032 and D.07-12-051:

- All new residential construction will be zero net energy (ZNE) by 2020.
- All new commercial construction will be ZNE by 2030.
- 50 percent of commercial buildings will be retrofit to ZNE by 2030.
- 50 percent of new major renovations of State buildings will be ZNE by 2025.

Local Regulations

City of Madera General Plan. The City of Madera addresses energy efficiency in the Conservation Element of the General Plan.¹⁹ The Conservation Element provides goals, policies, and action items that work to provide safe and reliable energy to meet Madera’s needs and enable continued economic growth and integrate green building practices in public and private sector planning, design, construction, management, renovation, operations, and demolition of buildings. The policies and action items from the Conservation Element, listed in Table 4.6.A, would be applicable to the proposed Specific Plan.

Specific Plan. As identified in the Villages at Almond Grove Specific Plan future development under the Specific Plan would strive for energy reduction in excess of that required by Title 24 standards. In addition, the proposed Specific Plan encourages the following energy efficiency strategies (and Mitigation Measure EN-1.1, discussed below under Impacts and Mitigation Measures, requires these strategies to be implemented):

- Provide natural lighting, where feasible, to reduce reliance on artificial lighting.
- Use Low-E or EnergyStar windows.
- Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.

¹⁸ California Public Utilities Commission. 2008. *California Long-Term Energy Efficiency Strategic Plan*. September. Website: cpuc.ca.gov/General.aspx?id=4125 (Accessed February 2020).

¹⁹ Madera, City of. 2009. *City of Madera General Plan. Conservation Element*. October 7.

Table 4.6.A: General Plan Policies Related to Energy

Policy/Action Item Number	Policy/Action Item
Policy CON-40	<p>All public and private development—including homes, commercial, and industrial—should be designed to be energy-efficient.</p> <p>Action Item CON-40.1 Work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.</p> <p>Action Item CON-40.2 Promote enhanced energy conservation standards for new construction through informational handouts, outreach to the construction industry, or other methods.</p>
Policy CON-44	<p>The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of all private buildings and projects, including:</p> <ul style="list-style-type: none"> • Land planning and design techniques that preserve the natural environment and minimize disturbance of the land. • Site development to reduce erosion, minimize paved surfaces and runoff and protect vegetation, especially trees. • Water conservation indoors and outdoors. • Energy efficiency in heating/cooling systems, appliances, lighting and the building envelope. • Selection of materials based on recyclability, durability and the amount of energy used to create the material. • Waste reduction, reuse and recycling during construction and throughout the life of the project. • Other new aspects of green design and construction included in LEED or other certification programs. • Control nighttime lighting to lower energy use, reduce glare, and prevent illumination of the night sky.
Policy CON-45	<p>The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of facilities constructed, owned, managed, or financed by the City. All new building projects (projects intended for human occupancy) involving the use of local public funds should incorporate green building practices. Except as dictated by unique circumstances associated with a given project, the typical standard for green building will be the equivalent of the “LEED Silver Standard.”</p>

Source: City of Madera General Plan (October 2009).

- Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
- Implement some of the strategies of the EnergyStar program.
- For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.
- In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel efficient vehicles.

4.6.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to energy that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.6.2.1 Significance Criteria

The thresholds for impacts related to energy used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to energy if it would:

- Threshold 4.6.1** **Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or**
- Threshold 4.6.2** **Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

4.6.2.2 Project Impacts

The following discussion describes the potential impacts related to energy resources that could result from implementation of the proposed Specific Plan.

- Threshold 4.6.1** **Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

Implementation of the Specific Plan would result in approximately 10,800 residential units, approximately 2.1 million square feet of commercial and office space, approximately 165 acres of parks and recreational area, and approximately 55 acres of public facilities including schools. Energy would be consumed throughout the construction and operation of such new development. Energy would also be required during construction for the transportation of building materials, manufacturing of building materials, and the actual construction of buildings and infrastructure. During project operation, energy use would be associated with building heating and cooling, use of consumer products, lighting, and vehicular traffic.

The anticipated construction schedule assumes that the proposed Specific Plan would be built over a 28-year period. The proposed Specific Plan would require grading, site preparation, and building activities during construction. Construction of the proposed Specific Plan would require energy for the manufacture and transportation of building materials, preparation of the site for grading activities, and building construction. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities.

Therefore, the analysis of energy use during construction focuses on fuel consumption. Construction trucks and haul trucks would be anticipated to use diesel fuel, whereas construction workers traveling to and from the project site would be anticipated to use gasoline-powered vehicles. Fuel consumption from transportation use depends on the type and number of trips, VMT, the fuel efficiency of the vehicles, and travel mode.

Based on the proposed Specific Plan's anticipated construction schedule, equipment, trips, and VMT as shown in 4.3, Air Quality, the project would consume approximately 31.0 million gallons of gasoline and approximately 1.9 million gallons of diesel fuel during construction activities.²⁰ Additional calculation details are included in Appendix E. When averaged over the 28-year construction period, buildout of the Specific Plan would consume approximately 1.1 million gallons of gasoline and approximately 0.7 gallons of diesel fuel per year. As identified above, based on fuel consumption obtained from EMFAC2017, 79.9 million gallons of gasoline and 39.3 million gallons of diesel fuel were consumed from vehicle trips in Madera County in 2019. As such, project construction activities would increase the annual gasoline fuel usage in Madera County by approximately 1.4 percent and would increase diesel fuel use in Madera County by approximately 0.2 percent. Therefore, project construction would have a negligible effect on local and regional energy supplies. Furthermore, construction activities are not anticipated to result in an inefficient use of energy, as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project.

Operational energy use consumed by the projects associated with buildout of the Specific plan would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the proposed Specific Plan. LSA estimated energy and natural gas consumption using default energy intensities by land use type in California Emissions Estimator Model version 2016.3.2 (CalEEMod). In addition, the proposed buildings would comply with the latest CALGreen standard building measures and Title 24 standards, which were included in CalEEMod. Electricity and natural gas usage estimates associated with the proposed Specific Plan are shown in Table 4.6.B.

As shown in Table 4.6.B, the estimated potential increase in electricity demand associated with the operation of the proposed Specific Plan is 97,301,371 kWh per year. With a total buildout population of 38,280 residents, this would result in a per capita usage of 2,542 kWh per year. Total electricity demand for Madera County in 2018 was approximately 1,665,572,602 kWh. With a total population in 2018 of 156,882 residents, this resulted in a per capita usage of 10,617 kWh. Although operation of the proposed Specific Plan would increase the annual electricity consumption in Madera County by approximately 5.8 percent, the total per capita electricity usage per capita would be approximately 9,033 kWh, a decrease of approximately 1,584 kWh per year.²¹

²⁰ California Air Resources Board. 2020. *MSEI - Documentation - Off-Road - Diesel Equipment*. Website: ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road (Accessed April 6, 2020).

²¹ This assumes the total annual electricity usage of the proposed Specific Plan (97,301,371 kWh) is added to the total 2018 electrical use of the County (1,665,572,602) for a total of 1,762,873,973 kWh. This total is then divided by the total buildout population of the proposed specific Plan (38,280) and the 2018 population of Madera County (156,882) a total of 195,162 residents, for a per capita usage of 9,033 kWh per year.

This decrease is attributable to in the use of newer energy efficient appliances and new construction methods that result in lower energy use.

Table 4.6.B: Estimated Annual Energy Use of Proposed Specific Plan

Land Use	Size	Electricity Use (kWh per year)	Natural Gas Use (therms per year)
Phase I			
Single Family Housing	2,257 dwelling units	19,236,200	554,805
Condo/Townhouse	1,718 dwelling units	9,151,180	291,591
Elementary School	700 students	402,060	13,748
Village Mixed Use ¹	651,000 square feet	5,208,130	65,745
Phase I Total	-	33,997,570	925,889
Phase II			
Single Family Housing	5,043 dwelling units	42,981,100	1,239,646
Condo/Townhouse	2,278 dwelling units	12,134,100	386,637
Elementary School	1400 students	804,121	27,497
Village Mixed Use ¹	232,610 square feet	6,720,170	84,832
Office Park	840,000 square feet	2,653,940	49,425
Phase II Total	-	65,293,431	1,788,036
Phase III			
Single Family Housing	6,640 dwelling units	1,206,181	1,632,214
Condo/Townhouse	4,161 dwelling units	22,164,200	706,233
Elementary School	2,100 students	1,206,181	41,245
Village Mixed Use ¹	232,610 square feet	14,684,850	15,374
Office Park	1,835,560 square feet	2,653,940	49,425
Phase III Total	-	97,301,371	2,614,489

Source: LSA (April 2020).

¹ For the purpose of providing a conservative estimate of annual energy use, the Village Mixed Use land use does not include residential land uses, and the estimated energy use of Village Mixed Use does not include residential energy usage.

As shown in Table 4.6.B, the estimated potential increase in natural gas demand associated with the proposed Specific Plan is 2,614,489 therms per year. With a total buildout population of 38,280 residents, this would result in a per capita usage of approximately 68 therms per year. Total natural gas in Madera County in 2018 was 56,740,404 therms. With a total population in 2018 of 156,882 residents, this resulted in a per capita usage of approximately 362 therms per year. Although operation of the proposed Specific Plan would increase the annual natural gas consumption in Madera County by approximately 4.6 percent, the total per capita natural gas usage per capita would be approximately 304 therms per year, or a decrease of approximately 58 therms per year.²² This decrease is attributable to in the use of newer energy efficient appliances and new construction methods that result in lower energy use.

²² This assumes the total natural gas usage of the proposed Specific Plan (2,614,489 therms) is added to the total 2018 natural gas usage of Madera County (56,740,404) for a total of 59,354,893 therms per year. This total is then divided by the total buildout population of the proposed specific Plan (38,280) and the 2018 population of Madera County (156,882), a total of 195,162 residents, for a per capita usage of 58 therms per year.

Electrical and natural gas demand associated with project operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. Furthermore, the proposed Specific Plan would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Implementation of the proposed Specific Plan would be required to adhere to all federal, State, and local requirements for energy efficiency. In addition, the proposed Specific Plan would encourage future development to exceed Title 24 standards and the following energy efficiency strategies would be incorporated as required in Mitigation Measure EN-1.1.1:

- Provide natural lighting, where feasible, to reduce reliance on artificial lighting.
- Use Low-E or EnergyStar windows.
- Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.
- Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
- Implement some of the strategies of the EnergyStar program.
- For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.
- In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel-efficient vehicles.

With adherence to State and local plans for renewable energy or energy efficiency and implementation of the energy efficiency strategies as identified in Mitigation Measure EN-1.1, impacts related to electricity and natural gas use would be less than significant.

The increase in population, housing, and jobs generated by new development associated with implementation of the proposed Specific Plan would have the potential to increase the demand on energy resources. The increase in population would lead to an increased demand on energy resources because of additional buildings and infrastructure required to support the growing population's demand for energy-dependent heating, cooling, lighting, electronics, and appliances powered by electricity and natural gas.

The private utility supplying the City with electricity and natural gas services, PG&E, periodically updates its load forecasts to ensure the reliability of its electricity and gas services. As implementation of the proposed Specific Plan would occur over a 28-year period, the projected incremental electric and gas demand would be incorporated into PG&E's forecasts.

The land use designations in the City's General Plan, in part, form the foundation for PG&E's forecasts. The population and growth associated with the proposed Specific Plan was accounted for in the City's General Plan. As such, the growth projections used for the Specific Plan assume that growth in population, housing, and jobs will occur at rates that are consistent with the rates used to develop the projected incremental electric and gas demand would be incorporated into PG&E's forecasts. Furthermore, implementation of the proposed Specific Plan would allow for implementation of sustainability efforts that reduce motor vehicle use and energy consumption. This is accomplished with more compact development achieved by increasing development density and by providing a land use pattern and transportation infrastructure more supportive of public transportation, walking, and bicycling. In addition, as described below and in Section 4.16, Transportation, the proposed Specific Plan would result in lower VMT when compared to the regional average, and would therefore reduce vehicle use and energy consumption. Therefore, implementation of the proposed Specific Plan would not result in the construction of new electric or natural gas infrastructure beyond what has already been assumed and will be included in PG&E's regional forecasts. Additionally, because developments that would be considered under the proposed Specific Plan have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such projects are proposed. In the event that new energy facilities are needed at a later date, such discretionary projects would be required to undergo a separate CEQA review process and their impacts would be assessed at that time. As such, impacts related to the possible need for new electrical or gas generation or transmission facilities as a result of implementation of the proposed Specific Plan would be considered less than significant. No mitigation is required.

In addition to increasing the demand for electricity and natural gas, implementation of the proposed Specific Plan would result in energy usage associated with gasoline to fuel project-related trips (i.e., the use of motor vehicles). When evaluating a long-range planning project, forecasting future travel methods and gasoline use is too speculative and not appropriate or feasible. Rather, the more appropriate measure of estimating energy use is to consider the distance traveled by vehicles associated with the proposed Specific Plan. Therefore, this analysis is centered on the overall VMT associated with the new development allowed by the proposed Specific Plan and its associated transportation energy use.

As discussed in 4.16, Transportation, VMT per capita, VMT per service population, and VMT per employee for the project under horizon year (2042) were compared with corresponding values for the existing (2019) regional VMT per capita, VMT per service population, and VMT per employee respectively. The horizon year (2042) project VMT per capita is 24.6 percent lower than the existing (2019) regional average. Similarly, horizon year VMT per service population for the project is 20.1 percent lower than the existing (2019) regional average. The project's horizon year VMT per employee is 35.6 percent lower than existing (2019) regional average. As the project's horizon year VMT is below that of the regional average and the proposed project would not result in a significant impact on gasoline demand. Moreover, the fuel efficiency of vehicles is expected to continue to increase and improve throughout the life of the project as new fuel economy standards are established.

In addition, implementation of the proposed Specific Plan aims to promote mixed-use development and encourage alternative modes of transportation to reduce vehicle trip lengths and reliance on the automobile, which in turn, would reduce the transportation energy demand in the planning area. Implementation of the proposed Specific Plan also encourages development of housing near employment and transportation, which would lead to a potential decrease in VMT. Implementation of the proposed Specific Plan would also promote land use patterns that would improve walking and bicycling facilities to be more prominent, comfortable, and safe throughout the City, which would serve to reduce the overall transportation energy demand.

Therefore, although implementation of the proposed Specific Plan would result in an increase in transportation-related energy uses, the increase would not result in wasteful, inefficient, or unnecessary consumption of energy resources with the implementation of Mitigation Measure EN-1.1. Mitigation Measure EN-1.1 requires implementation of energy efficiency strategies to reduce potential impacts related to wasteful, inefficient, or unnecessary consumption of energy resources to a less-than-significant level.

Level of Significance Without Mitigation: Potentially significant.

Impact EN-1: The Specific Plan would increase energy consumption during the operational phase.

- Mitigation Measure EN-1.1:** Prior to approval of building permits, the Community Development Director or designee shall ensure that the energy efficiency strategies identified in the Specific Plan are incorporated project construction documents. These energy efficient strategies include, but are not limited to the following:
- Provide natural lighting, where feasible, to reduce reliance on artificial lighting.
 - Use Low-E or EnergyStar windows.
 - Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.
 - Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
 - Implement some of the strategies of the EnergyStar program.
 - For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.

- In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel efficient vehicles.

Level of Significance With Mitigation: Less than significant.

Threshold 4.6.2 Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Future projects facilitated by implementation of the proposed Specific Plan would be required to comply with the CALGreen Code (Title 24, Part 11) and the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6), which includes provisions related to insulation and design aimed at minimizing energy consumption. Future development associated with implementation of the proposed Specific Plan would also be required through implementation of Mitigation Measure EN-1.1 to comply with the energy efficiency strategies as listed above in Section 4.6.13 and include the use of Low-E or EnergyStar window, high-efficiency lighting systems, energy-efficient heat/cooling systems with thermally efficient buildings. Compliance with the energy efficiency strategies would be required for development projects through the implementation of Mitigation Measure EN-1.1, as described above.

In addition, implementation of the proposed Specific Plan aims to promote mixed-use development and encourage alternative modes of transportation to reduce vehicle trip lengths and reliance on the automobile, which in turn, would reduce the transportation energy demand in the planning area. Implementation of the proposed Specific Plan also encourages development of housing near employment and transportation, which would lead to a potential decrease in VMT. Implementation of the proposed Specific Plan would also promote land use patterns that would improve walking and bicycling facilities to be more prominent, comfortable, and safe throughout the Specific Plan Area, which would serve to reduce the overall transportation energy demand.

In addition to complying with federal, State, and local standards regulating energy consumption, implementation of the proposed Specific Plan is also required to comply with Appendix F, Energy Conservation, of the *State CEQA Guidelines*. Specifically, Appendix F requires that EIRs include a discussion of potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Table 4.6.C includes a project-specific consistency analysis with applicable Appendix F considerations.

Table 4.6.C: Proposed Specific Plan Comparison to State CEQA Guidelines Appendix F

Appendix F Items for Consideration	Proposed Specific Plan
<p>1. The project’s energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.</p>	<p>Consistent. Energy use during construction of future development facilitated by the proposed Specific Plan would primarily involve gasoline and diesel fuel and would represent a short-term use of readily available resources. Potential construction impacts would be less than significant, and no mitigation is required.</p> <p>Operational energy demand includes natural gas and electricity. As shown in Table 4.6.B, buildout associated with the proposed Specific Plan would result in approximately 97,301,371 kWh of electricity per year, which would increase the annual electricity consumption in Madera County by approximately 5.8 percent. In addition, buildout associated with the proposed Specific Plan would result in approximately 2,614,489 therms of natural gas per year, which would increase the annual natural gas consumption in Madera County by approximately 4.6 percent. This would represent a decrease in per capita energy usage.</p> <p>As discussed above, the proposed Specific Plan encourages future development to exceed Title 24 standards and encourages the following energy efficiency strategies (which would be required to be implemented as part of Mitigation Measure EN-1.1):</p> <ul style="list-style-type: none"> • Provide natural lighting, where feasible, to reduce reliance on artificial lighting. • Use Low-E or EnergyStar windows. • Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels. • Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation. • Implement some of the strategies of the EnergyStar program. • For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs. • In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel-efficient vehicles. • Future development under the proposed Specific Plan would be required to meet the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11) for the year in which development is constructed. Additionally, because developments that would be considered under the proposed Specific Plan have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such projects are proposed. Therefore, with adherence to Title 24 regulations and the strategies included in the proposed Specific Plan, implementation of the proposed Specific Plan is considered consistent with this item.

Table 4.6.C: Proposed Specific Plan Comparison to State CEQA Guidelines Appendix F

Appendix F Items for Consideration	Proposed Specific Plan
<p>2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.</p>	<p>Consistent. Future development facilitated by implementation of the proposed Specific Plan would be required to meet the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11) and would be required to comply with the strategies included in the proposed Specific Plan that are aimed at reducing energy consumption. The demand for energy supplies associated with implementation of the Specific Plan would be greater than existing conditions, but would remain within the forecasted demands for each utility. In the event that new energy facilities are needed at a later date, such discretionary projects would be required to undergo a separate CEQA review process and their impacts would be assessed at that time. The proposed Specific Plan is considered consistent with this item.</p>
<p>3. The effects of the project on peak and base period demands for electricity and other forms of energy.</p>	<p>Consistent. Future projects developed under the plan would implement a variety of energy conservation measures that would be consistent with strategies included in the proposed Specific Plan that are aimed at reducing energy consumption and would also be required to meet the California Energy Code Building Energy Efficiency Standards contained in Title 24 (Part 6). Additionally, because developments that would be considered under the proposed Specific Plan have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such discretionary projects are proposed and under review. Future discretionary projects would be required to undergo a separate CEQA review process and their impacts on peak and base period demands would be assessed at that time. Therefore, the proposed Specific Plan is considered consistent with this item.</p>
<p>4. The degree to which the project complies with existing energy standards.</p>	<p>Consistent. Future development under the proposed Specific Plan would be required to be consistent with strategies included in the proposed Specific Plan that are aimed at reducing energy consumption and would also be required to meet the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11). For example, new projects associated with the implementation of the proposed Specific Plan would be required to comply with the Building Energy Efficiency Standards for Residential and Non-Residential Buildings that are in place at the time new development is proposed. These standards are updated, with the latest update (2019) that went into effect on January 1, 2020. Future discretionary projects would be required to undergo a separate CEQA review process and their compliance to existing energy standards would be assessed at that time. Therefore, the proposed Specific Plan is considered consistent with this item.</p>

Table 4.6.C: Proposed Specific Plan Comparison to State CEQA Guidelines Appendix F

Appendix F Items for Consideration	Proposed Specific Plan
<p>5. The effects of the project on energy resources.</p>	<p>Consistent. Energy use during construction of future development facilitated by the proposed Specific Plan would primarily involve gasoline and diesel fuel and would represent a short-term use of readily available resources. As discussed above, potential construction would have a negligible effect on local and regional energy supplies, and no mitigation is required.</p> <p>Operational energy demand includes natural gas and electricity. As shown in Table 4.6.B, buildout associated with the proposed Specific Plan would result in approximately 97,301,371 kWh of electricity per year, which would increase the annual electricity consumption in Madera County by approximately 5.8 percent. In addition, buildout associated with the proposed Specific Plan would result in approximately 2,614,489 therms of natural gas per year, which would increase the annual natural gas consumption in Madera County by approximately 4.6 percent. As discussed above, the proposed Specific Plan encourages future development to exceed Title 24 standards and encourages the following energy efficiency strategies:</p> <ul style="list-style-type: none"> • Provide natural lighting, where feasible, to reduce reliance on artificial lighting. • Use Low-E or EnergyStar windows. • Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels. • Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation. • Implement some of the strategies of the EnergyStar program. • For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs. • In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel-efficient vehicles. <p>Future development under the proposed Specific Plan would be required to meet the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11). Additionally, because developments that would be considered under the proposed Specific Plan have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such projects are proposed. Therefore, with adherence to Title 24 regulations and the strategies included in the proposed Specific Plan, implementation of the proposed Specific Plan is considered consistent with this item.</p>

Table 4.6.C: Proposed Specific Plan Comparison to State CEQA Guidelines Appendix F

Appendix F Items for Consideration	Proposed Specific Plan
6. The project’s anticipated transportation energy use requirements and its overall use of efficient transportation alternatives.	Implementation of the Specific Plan would create a transportation network that would fulfill the policies of the Madera General Plan’s Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit. In addition, the Specific Plan encourages the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel efficient vehicles in retail, commercial, and office development.

Source: LSA (March 2020).

Future projects facilitated by implementation of the proposed Specific Plan would be required to comply with federal, State, and local regulations aimed at reducing energy consumption. In addition, the proposed Specific Plan encourages future development to exceed Title 24 standards and encourages the following energy efficiency strategies (which would be required through implementation of Mitigation Measure EN-1.1):

- Provide natural lighting, where feasible, to reduce reliance on artificial lighting.
- Use Low-E or EnergyStar windows.
- Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.
- Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
- Implement some of the strategies of the EnergyStar program.
- For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.
- In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel-efficient vehicles.

These strategies have been developed in accordance with federal and State energy regulations, such as the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6), the CALGreen Code (Title 24, Part 11), and SB 743, which are also aimed at reducing energy consumption. Therefore, the proposed Specific Plan would be consistent with applicable plans related to renewable energy and energy efficiency, and no mitigation would be required.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.6.2.3 Cumulative Impacts

The proposed Specific Plan would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to energy.

Development of cumulative projects within the PG&E service area which encompasses 70,000 square miles would result in a substantial increase in electricity and natural gas demand as well as an increase in the consumption of fuel for vehicles. Although the proposed project would result in a net increase in demand for electricity, implementation of the proposed Specific Plan would not result in the construction of new electric or natural gas infrastructure beyond what has already been assumed and will be included in PG&E's regional forecasts. Additionally, because developments that would be considered under the proposed Specific Plan have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such projects are proposed. In the event that new energy facilities are needed at a later date, such discretionary projects would be required to undergo a separate CEQA review process and their impacts would be assessed at that time.

As discussed previously, the total annual electricity consumption in the PG&E service area in 2018 was 80,368.7 GWh (80,368,674,613 kWh). As shown in Table 4.6.B, the estimated potential increase in electricity demand associated with the operation of the proposed Specific Plan is 97,301,371 kWh per year. Therefore, operation of the proposed Specific Plan would increase the annual electricity consumption in the PG&E service area by approximately 0.1 percent. As such, the proposed project's share of cumulative electricity consumption would be negligible but would result in a total decrease in per capita energy consumption. Total natural gas consumption in the PG&E service area in 2018 was 4,794.4 million therms (4,794,354,461 therms). As shown in Table 4.6.B, the estimated potential increase in natural gas demand associated with the proposed Specific Plan is 2,614,489 therms per year. Therefore, operation of the proposed Specific Plan would increase the annual natural gas consumption in the PG&E service area by approximately 0.1 percent. The proposed project's share of cumulative consumption of natural gas in the PG&E service area would be negligible.

In addition, as identified above, PG&E demand forecasts include the growth contemplated by the proposed project and the related projects. The jurisdictions throughout the PG&E service area are working with the State to reduce the consumption of energy. The proposed Specific Plan encourages future development projects within the Specific Plan to exceed Title 24 standards and encourages the energy efficiency strategies as listed above.

Given that development within the Specific Plan Area would be required to adhere to these strategies, future development in the Specific Plan Area would not contribute to potential cumulative impacts associated with the potential inefficient, wasteful and unnecessary consumption of energy within other parts of the PG&E service area. Furthermore, utility companies are required to increase their renewable energy sources to meet the Renewable Portfolio Standards mandate of 60 percent renewable supplies by 2030. PG&E plans to continue to provide reliable service to their customers and upgrade their distribution systems as necessary to meet future demand.

Transportation energy use would also increase; however, as described above, horizon year VMT per service population for the project is 20.1 percent lower than the existing (2019) regional average. The project's horizon year VMT per employee is 35.6 percent lower than existing (2019) regional average. As the project's horizon year VMT is below that of the regional average and the proposed project would not result in a significant impact on gasoline demand. Moreover, the fuel efficiency of vehicles is expected to continue to increase and improve throughout the life of the project as new fuel economy standards are established.

Furthermore, implementation of the Specific Plan would create a transportation network that would fulfill the policies of the Madera General Plan's Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit. Therefore, implementation of the proposed Specific Plan would result in a less-than-significant cumulative impact related to the inefficient, wasteful and unnecessary consumption of energy.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

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4.7 GEOLOGY AND SOILS

This section describes the regulatory framework and existing conditions in the Specific Plan Area related to geology and soils, and the potential impacts resulting from implementation of the proposed Specific Plan.

Information in this Section is based in part on the following documents:

- City of Madera General Plan Update/Environmental Impact Report, May 2009
- City of Madera General Plan, October 7, 2009
- Madera Regional Groundwater Management Plan, December 2014
- Madera Subbasin Sustainable Groundwater Management Act (SGMA) Joint Groundwater Sustainability Plan, January 2020
- Madera County Local Hazard Mitigation Plan Update, October 2017

4.7.1 Environmental Setting

This setting section is adapted from the results, background information, and summaries provided in previously cited technical report(s) and the City's General Plan.¹

4.7.1.1 Specific Plan Area

The Specific Plan Area is located within the Great Valley Geomorphic Province, an asymmetrical structural trough containing Mesozoic and Cenozoic sediments to an approximate depth of 30,000 feet.² The Great Valley is comprised of two large valleys: the southern San Joaquin Valley and the northern Sacramento Valley. The site is in the San Joaquin Valley which represents the lower two-thirds of the Great Valley Province and is surrounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Tehachapi and San Emigdio Mountains to the south, and the Sacramento Valley and Sacramento-San Joaquin Delta to the north.

The San Joaquin Valley is approximately 200 miles long and up to 70 miles wide.³ The valley is filled with thick sequences of alluvial sediment deposits derived from weathering of the adjacent mountain ranges combined with surface water flows and flooding resulting in a stratigraphic section of continental deposits.^{4,5} Accumulated deposits were formed from alluvial (river), lacustrine (lake), and former marine (ocean) environments throughout the San Joaquin Valley⁶ and accumulated at

¹ Madera, City of. 2009. *City of Madera General Plan*. October 7.

² Provost & Pritchard. 2014. *Madera Regional Groundwater Management Plan*. December.

³ Ibid.

⁴ Ibid.

⁵ Davids Engineering, Inc., et al. 2020. *Madera Subbasin Sustainable Groundwater Management Act, Joint Groundwater Sustainability Plan*. Prepared for the Madera Subbasin Coordination Committee. January.

⁶ Madera, City of. 2009. *City of Madera General Plan Update/Draft Environmental Impact Report*. May.

depths of thousands of feet. Alluvial deposits are recognized as Younger Alluvium deposited in the Quaternary, and Older Alluvium deposited between Late Tertiary to the Quaternary.⁷

Younger Alluvium is relatively shallow (<50 feet thickness estimated) and most prevalent along the Fresno and San Joaquin Rivers as well as an area immediately south and west of the City of Madera. Deposits consist of poorly sorted to well sorted clay and silt varieties, fine to coarse grained sand, contain no hard-pan, and are typically unsaturated except near streams and channels.^{8,9} Older Alluvium consists of interbedded clay, silt, sand and gravel that grades finer with depth with an approximate thickness of 1,000 feet. The Older Alluvium is considered mostly oxidized, contains hardpan throughout the area, and is considered the primary water bearing unit.^{10,11}

Madera and the Specific Plan Area are approximately in the middle of California, on the eastside of the San Joaquin Valley. There is an average of 500 feet of alluvium deposits beneath the City of Madera, with depths increasing from east to west.¹² The Madera Metropolitan area is set on gently southwest-sloping alluvial fans and plains formed by the San Joaquin River and Kings River.

4.7.1.2 Faulting

No active faults are mapped within the City of Madera. Active faults are those showing evidence of surface displacement within the last 11,000 years.¹³ The nearest fault is the Clovis Fault,¹⁴ approximately 21 miles southeast which has been mapped as pre-Quaternary in age, or older than 1.6 million years, and is not considered an active fault. There are five major active faults that surround the Specific Plan Area mapped by the California Geological Survey. The San Andreas Fault, San Joaquin Fault, and Ortigalita Fault are all located approximately 79, 40, and 47 miles west of the Specific Plan Area, respectively. The Owens Valley Fault is located approximately 105 miles east of the Specific Plan Area, and the Melones fault is located approximately 165 miles north. The nearest Alquist-Priolo Earthquake Fault Zone to the Specific Plan Area is along the Ortigalita Fault, approximately 50 miles to the west of the Specific Plan Area.¹⁵

4.7.1.3 Specific Plan Area Geology

The Specific Plan Area has a southwest slope of 0-3 percent grade with some undulating slopes. Elevations on-site range from about 230 feet above mean sea level (amsl) at the western Specific Plan Area boundary to 260 feet amsl at the south-eastern corner of the Specific Plan Area. The Specific Plan Area is primarily underlain by Holocene flood-basin deposits.

⁷ Provost & Pritchard. 2014, op. cit.

⁸ Davids Engineering, Inc., et al. 2020, op. cit.

⁹ Mitten, H.T., G.L. Bertoldi, and R.A. LeBlanc. 1970. *Geology, Hydrology and Quality of Water in the Madera Area, San Joaquin Valley, California, USGS Open File Report 70-228.*

¹⁰ Davids Engineering, Inc., et al. 2020, op. cit.

¹¹ Mitten, H.T., G.L. Bertoldi, and R.A. LeBlanc. 1970, op. cit.

¹² Madera, City of. 2009 op. cit.

¹³ California Department of Conservation. Alquist-Priolo Earthquake Fault Zones. Website: www.conservation.ca.gov/cgs/alquist-priolo (accessed April 1, 2020).

¹⁴ California Department of Conservation. Fault Activity Map of California (2010). Website: maps.conservation.ca.gov/cgs/fam (accessed April 1, 2020).

¹⁵ California Department of Conservation, Earthquake Zones of Required Investigation. Website: maps.conservation.ca.gov/cgs/EQZApp/app (accessed April 1, 2020).

Quaternary aged¹⁶ (within the last approximate 2.59 million years) river deposits of granitic sand and silt from the Modesto Formation (Great Valley Sequence) were transported by rivers and streams emerging from the Sierra Nevada.¹⁷

Non-marine sedimentary deposits of granitic sand, silt, and clay from the Riverbank Formation (Great Valley Sequence) transported to the San Joaquin Valley.¹⁸ Deposits are from the Pleistocene Epoch, approximately 11,700 to 2.59 million years before present (ybp).¹⁹

4.7.1.4 Subsurface Soils in the Madera Region

Based on the Madera General Plan, and in conjunction with the USDA National Resources Conservation Service Soil Survey, there are 20 different soil types located within the Specific Plan Area. The four most common types of soil in the Specific Plan Area are Grangeville, Madera, Pachappa, and the San Joaquin. These four soil types comprise approximately 51 percent of the Specific Plan Area and are described below. Other soil types include Greenfield, Hanford, and Lewis, but the uppermost three feet of soils in the entire Specific Plan Area are very fine sandy loam²⁰ that is friable when moist, with a stratified portion consisting of fine sandy loam and loamy sands. Soils are generally weak and very fine with granular structure and are easily compressible. An iron-silica hardpan layer can be found between 9 to 19 inches below surface up to 10 inches thick. Gritty sandy loam can be found beneath the hardpan layer. Grangeville fine sandy loam covers nearly 13 percent of the Specific Plan Area and covers mostly the southern portion of the site, next to the Fresno River. The soil has poor drainage but permeates moderately rapid and has low shrink/swell potential.

Madera Loam covers nearly 16 percent of the Specific Plan Area and dominantly covers the northern portion next to the Madera Municipal Golf Course. The soil has moderate to good drainage but permeates very slowly due to the soil's high shrink/swell potential.

Pachappa fine sandy loam covers approximately 15 percent of the Specific Plan Area and is dispersed between the central portion of the Plan Area and the southeast portion of the site next to the Fresno River. The Pachappa soil has good drainage, moderate permeability and shrink/swell potential.

San Joaquin sandy loam covers approximately 7 percent of the Specific Plan Area and is dispersed throughout the entire Specific Plan Area. Drainage in the San Joaquin is moderate to good, while permeability is very slow as due to the high shrink/swell potential the San Joaquin has.

¹⁶ U.S. Geological Survey. 2013. Divisions of Geologic Time--Major Chronostratigraphic and Geochronologic Units. Website: pubs.usgs.gov/fs/2007/3015 (accessed April 1, 2020). January 9.

¹⁷ California Geological Survey. 1958. Monterey Sheet, Geologic Map of California. Website: www.conservation.ca.gov/cgs/maps-data/rgm (accessed April 1, 2020).

¹⁸ Ibid.

¹⁹ U.S. Geological Survey. 2013, op. cit.

²⁰ United States Department of Agriculture. 1962. Natural Resources Conservation Service. *Soil Survey Madera Area California*. Available online at: www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/maderaareaCA1962/maderaareaCA1962.pdf (accessed April 1, 2020).

4.7.1.5 Geologic Hazards

The following description of geologic hazards is based partly on the geological hazards included in the 2025 General Plan for the City of Madera, the Madera County Local Hazard Mitigation Plan Update prepared for Madera County by Foster Morrison in 2017, and the 2011 Madera County Local Hazard Mitigation Plan prepared by URS. Information presented in the following subsections is a region-wide summary, and not site-specific, of conditions within the Specific Plan Area. Site-specific geotechnical investigations would be required for each development project considered for approval under the proposed Specific Plan.

4.7.1.6 Ground Shaking

Ground shaking is the product of a fault suddenly slipping, or an earthquake. What we feel on the surface of the Earth is the energy released when the fault slips. Earthquakes produce various degrees of damage; ground shaking is among the most serious seismic hazards. Ground shaking is caused by seismic waves travelling in Earth's interior, or along the surface and can be measured by the severity or intensity of the earthquake.²¹

The Modified Mercalli Intensity (MMI) Scale is a 12-point scale that ranges from imperceptible with an intensity of I, to catastrophic destruction with an intensity of XII. The MMI is calculated using the amount of energy released from the earthquake which is proportional to the size of the earthquake, and the distance from the releasing fault.²²

The Specific Plan Area is located within the valley portion of Madera County, which is susceptible to greater ground shaking intensities. Because the valley is located on alluvium deposits, structures would suffer greater damage from grounds shaking than structures located in the foothills and mountainous areas.²³

The City of Madera has a relatively low probability of shaking²⁴ and has historically been subject to low to moderate ground shaking. The City of Madera experienced the effects of ground shaking for several earthquakes with a magnitude of 6.0 or greater. The most recent (July 6, 2019) Ridgecrest^{25,26} earthquake had a magnitude of 7.1 and generated a weak (III) ground shaking intensity in the region.²⁷ No earthquake with a magnitude of 5.5 or greater has ever been recorded

²¹ Foster Morrison. 2017. *Madera County Local Hazard Mitigation Plan Update*. October 2017.

²² Ibid.

²³ Ibid.

²⁴ California Emergency Management Agency and Earthquake Country Alliance. 2010. Central Valley (South) ShakeOut Area, Probability of Shaking. Southern California Earthquake Center, USC. Website: www.shakeout.org/california/ (accessed April 1, 2020). June 7.

²⁵ Earthquake Track. Recent Earthquakes Near Madera, California, United States. Website: www.earthquaketrack.com/us-ca-madera/recent?mag_filter=6 (accessed April 1, 2020).

²⁶ United States Geological Survey (USGS) Ridgecrest EQ Paper July 6, 2019. Available online at: www.usgs.gov/media/images/ridgecrest-eq-pager-6-july-2019 (accessed April 1, 2020).

²⁷ United States Geological Survey. 2019. Earthquake Hazards Program, M 7.1 - 2019 Ridgecrest Earthquake Sequence. Website: www.earthquake.usgs.gov/earthquakes/eventpage/ci38457511/dyfi/intensity (accessed April 1, 2020).

in the Madera area, nor has any damage from earthquakes of magnitude 5.5 or greater ever been recorded in Madera County.²⁸

4.7.1.7 Liquefaction

Liquefaction refers to saturated, unconsolidated soils or sand that behaves as a liquid due to the intense vibration of an earthquake. As the soils are shifted, they lose their load supporting capability of the overlying sediments or structures. A shallow groundwater table less than 30 feet below the surface and relatively uniform sands of loose to medium density are susceptible to liquefaction.

In Madera County, depth to groundwater can be relatively deep, however groundwater has been measured as shallow as 30 feet or less below the surface. Soils in the Madera region range from gravel to clay. Shallow soil within the Madera County valley are highly compactable while deeper soils may encounter a strong hardpan layer and are typically moderately strong and slightly compressible.²⁹ The native soil type in Madera County has a low potential for liquefaction.

4.7.1.8 Seismic Ground Settlement

Ground shaking caused by earthquakes can cause unconsolidated sediments to settle, or differential settlement. Differential settlement is a less stable alignment of the individual minerals which can cause significant structural damage. This can occur with rapidly deposited soils or improper structure foundations. Due to the history of ground shaking in the Madera County area and the native soils underlying the city, differential settlement is not considered a significant hazard in the region.

Additionally, the City of Madera has adopted the Uniform Building Code and the California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code or California Building Code (CBC). These adoptions ensure structures are engineered to resist soil movement and contain adequate drainage for surface and seasonal fluctuations in soil moisture.³⁰

4.7.1.9 Landslides – Lateral Spreading

Landslide is a general term used to describe the downslope movement of a rock, soil, or earth mass. Landslides can occur when gravitational forces and other shear stresses exceed the earth's resistance to shearing. Landslides typically occur in areas that experience ground shaking, are typically wet and/or have steep slopes.³¹

Lateral spreading is a type of landslide that commonly forms on gentle slopes and would have rapid fluid-like movement, similar to water. Lateral spreading is triggered by liquefaction in the subsurface layer.

²⁸ Madera, City of. 2009, op. cit.

²⁹ United States Department of Agriculture. 1962, op. cit.

³⁰ Madera, City of, and PMC. 2009. *City of Madera General Plan Update/Draft Environmental Impact Report*. May.

³¹ United States Geological Survey. Natural Hazards, "What is a landslide and what causes one?" Website: www.usgs.gov/faqs/what-a-landslide-and-what-causes-one?qt-news_science_products=0#qt-news_science_products (accessed April 1, 2020).

The Specific Plan Area and surroundings are not subject to landslides. The site slopes to the southwest with an average grade of about 0.2 percent.

4.7.1.10 Erosion

Erosion is the process in which earth materials are worn away and transported. Erosion naturally occurs by wind and flowing water and can be accelerated by humans and ground disturbance when effective erosion control measures are not in use. Soil carried off construction sites or bare land by wind and water is a common example of erosion. When sediments are carried by water, the water can become cloudy, or turbid and can cause biological harm such as clogged fish gills, reduced spawning habitats, lower survival rates of young aquatic organisms, smother bottom-dwelling organisms, and suppress aquatic vegetation growth.

4.7.1.11 Ground Subsidence

Subsidence is the gradual settling or sudden sinking of surface soils due to movement of subsurface earth materials. A major cause of ground subsidence is the excessive withdrawal of groundwater and the withdrawal of petroleum. Soils generally affected by subsidence tend to have high silt or clay content.

The San Joaquin Valley has been subject to subsidence of 20+ feet over the past 50 years.³² There has been approximately three feet of subsidence within the Madera Subbasin since 1920.³³ The risk of subsidence is considerably low in Madera County compared to other parts of the San Joaquin Valley as the water table is relatively deep in majority of the county; however, Madera is not immune to potential subsidence.

4.7.1.12 Collapsible Soils

Collapsible soils are unsaturated soils that undergo a radical rearrangement and greatly decrease in volume when wet.³⁴ Shallow soils within the Specific Plan Area to a depth of at least 3 to 5 feet below grade surface (bgs) would have varying degrees of compressibility that generally increase near the surface.

4.7.1.13 Expansive Soils

Expansive soils contain substantial amounts of clay minerals, such as smectite, that absorbs and swells when wet and shrinks when dried.³⁵ When water is absorbed, the clay swells or increases in volume upwards of 10 percent. When expansive soils are dried, the soil can shift, crack, or remove support from overlying structures.

³² United States Geological Survey. Land Subsidence in the San Joaquin Valley. Website: www.usgs.gov/centers/ca-water-ls/science/land-subsidence-san-joaquin-valley?qt-science_center_objects=0#qt-science_center_objects (accessed April 1, 2020).

³³ Davids Engineering, Inc., et al. 2020, op. cit.

³⁴ United States Department of the Interior Bureau of Reclamation. 1992. Characteristics and Problems of Collapsible Soils. Available online at: www.usbr.gov/tsc/techreferences/rec/R9202.pdf (accessed April 1, 2020). February.

³⁵ Osman K.T. 2018. Expansive Soils. In: Management of Soil Problems. Website: www.doi.org/10.1007/978-3-319-75527-4_6 (accessed April 1, 2020).

Soils underlying the Madera County contain some clay and are considered slightly to moderately expansive. Based on the soil types within the Specific Plan Area, including Grangeville, Madera, Pachappa, and the San Joaquin soil types, there is a moderate expansion potential.

4.7.1.14 Regulatory Context

Federal Regulations

Uniform Building Code (UBC). UBC ensures all buildings maintain the public health and safety by regulating the design, construction, quality of materials, certain equipment, location, grading, use, occupancy, and maintenance of all buildings and structures. UBC standards address foundation design, shear wall strength, and other structurally related conditions.

State Regulations

Alquist-Priolo Earthquake Fault Zoning. The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code Sections 2621 et seq.) requires the California Geologic Survey to compile maps of traces of Active faults and requires a state geologist to delineate earthquake fault zones along faults that are “sufficiently active” and “well defined.” The act requires disclosure in real estate transactions and requires cities and counties to withhold development permits for a site in an earthquake fault zone until geologic investigations demonstrate that the site is not threatened by surface displacements from future faulting. An active fault is one showing expression of surface rupture within the last 11,000 years. Pursuant to this act, structures for human occupancy are not allowed within 50 feet of the trace of an active fault. Single family wood-frame or steel-frame dwellings up to two stories high and not part of a development of four or more dwelling units is the only exemption to this Act.

Seismic Hazard Mapping Act. The Seismic Hazard Mapping Act (SHMA) was adopted by the State in 1990 in response to the Loma Prieta Earthquake in 1989. This Act protects the public from the effects of non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The California Geological Survey has been required under this Act to prepare “seismic hazard zone” maps available to local governments. These maps identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. Buildings designed for human occupancy proposed to be built within a “seismic hazard zone” require a geotechnical investigation and mitigation measures to be implemented. SHMA requires responsible agencies to only approve projects within seismic hazard zones following a site-specific investigation to determine if the hazard is present, and if so, the inclusion of appropriate mitigation(s). Reports must be stamped by a Registered Civil Engineer or Certified Engineering Geologist with a specialty in seismic hazard evaluation. In addition, the SHMA requires real estate sellers and agents provide full disclosure if the property is within a seismic hazard zone at the time of sale. Single family dwellings up to two stories high and part of a development of no more than three units are the only exemption to this Act.

2019 California Building Code (CBC). Current law states that every local agency enforcing building regulations, such as cities and counties, must adopt the provisions of the California

Building Code (CBC) within 180 days of its publication. The publication date of the CBC is established by the California Building Standards Commission, and the code is updated every three years. The CBC is in Title 24, Part 2, of the California Code of Regulations. The most recent building standard adopted by the legislature and used throughout the state is the 2019 CBC, which took effect on January 1, 2020. Local jurisdictions may add amendments based on local geographic, topographic, or climatic conditions. These codes provide minimum standards to protect property and people by regulating the design and construction of excavations, foundations, building frames, retaining walls, and other building elements to mitigate the effects of seismic shaking and adverse soil conditions. The CBC's provisions for earthquake safety are based on factors such as occupancy type, the types of soil and rock on-site, and the strength of ground motion with a specified probability at the site.

California Building Code Section 1803 (CBC; Requirements for Geotechnical Investigations).

Requirements for geotechnical investigations for subdivisions requiring tentative and final maps and for other types of structures are in California Health and Safety Code, Sections 17953 to 17955, and in Section 1803 of the CBC.³⁶ Testing of samples from subsurface investigations is required, such as from borings or test pits. Investigations must be conducted by a registered design professional and involve in situ-testing, laboratory testing, or engineering calculations.³⁷ Studies must be done as needed to evaluate slope stability, soil strength, position, and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness.

Local Regulations

Madera County Municipal Code. Madera County has incorporated and adopted the 2019 CBC with the County's amendments as Madera County Municipal Code Chapter 14.08.³⁸ Within the Municipal Code, Section 17.06.060 requires a preliminary soil report be provided for each subdivision under the responsibility of the engineering department while reviewing, processing and approving land divisions in Madera County. Grading and erosion control requirements are set forth in Chapter 14.50.

Madera County Local Hazard Mitigation Plan Update. Madera County and three participating jurisdictions (cities of Chowchilla and Madera, and the North Fork Rancheria of Mono Indians) developed this Local Hazard Mitigation Plan (LHMP) update to make the County and its residents less vulnerable to future hazard events by reducing or eliminating long-term risk to people and property from hazards such as localized and stormwater flooding, subsidence, agriculture hazards (severe weather/insects), and dam failure.

³⁶ California Building Code. 2016. Chapter 18 Soils and Foundations, Section 1803 Geotechnical Investigations. Website: www.up.codes/viewer/california/ca-building-code-2016-v2/chapter/18/soils-and-foundations#1803 (accessed April 1, 2020).

³⁷ Ibid.

³⁸ Madera County Code of Ordinances. Chapter 14.08 California Building Code. Website: www.library.municode.com/ca/madera_county/codes/code_of_ordinances?nodeId=TIT14BU (accessed April 1, 2020).

City of Madera Code of Ordinances. The City of Madera County has also incorporated and adopted the 2019 CBC with the Code of Ordinances³⁹ that includes amendments to the 2019 CBC under Title IX. § 9-1.02 discusses the sections deleted, amended or added to the Code of Ordinances. In general, this section discusses masonry, various types of permit fees, foundation elevations, exempted work, fill placement, and various types of grading. Section (§) 10-2.402.3 states a “City Engineer may require a preliminary soils report. If the preliminary soils report indicates the presence of critically expansive soils or other soil problems, which, if not corrected, would lead to structural defects, the soils report accompanying the final map shall contain an investigation of each lot within the subdivision.” Appendix J109, § 10-3.4.0104, and § 10-3.4.0113 briefly discusses grading and erosion control. § 10-3.4.0110 emphasizes the need for site plan review process to include environmental review.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. Through its ten elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera's quality of life and implement the community's shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City's operations and decisions. Geology and soil related goals, objectives, and policies specific to the city are included in the General Plan.

Table 4.7.A includes General Plan policies related to geology and soils.

4.7.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to geology and soils that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.7.2.1 Significance Criteria

The thresholds for impacts related to geology and soils used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to geology and soils if it would:

³⁹ Madera, City of. Code of Ordinances, Chapter 1 Building Regulations. Website: codelibrary.amlegal.com/codes/madera/latest/madera_ca/0-0-0-4752 (accessed April 1, 2020).

Table 4.7.A: General Plan Policies Related to Geology and Soils

Policy/Action Item Number	Policy
Policy HS-7	The City supports efforts by federal, state, and other local organizations to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.
Policy HS-8	The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.
Policy CD-8	In order to improve and protect the quality of neighborhoods and commercial districts, the City will enforce established building codes and community standards.
Policy HC-1	The City encourages the preservation and enhancement of existing historical and archaeological resources in the City.
Policy HC-9	<p>The City will endeavor to protect and preserve prehistoric and historic archaeological resources, cultural resources (particularly those of importance to existing tribes), and fossils.</p> <p>Action Item HC-9.2 Impose the following conditions on all discretionary projects which may cause ground disturbance:</p> <ul style="list-style-type: none"> • “The Planning Department shall be notified immediately if any prehistoric, archaeological, or fossil artifact or resource is uncovered during construction. All construction must stop and an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action.” • “All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California’s Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.”

Source: City of Madera General Plan (October 2009).

Threshold 4.7.1 **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

- a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42;**
- b. Strong seismic ground shaking;**
- c. Seismic-related ground failure, including liquefaction; or**
- d. Landslides.**

Threshold 4.7.2 **Result in substantial soil erosion or the loss of topsoil.**

Threshold 4.7.3 **Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.**

- Threshold 4.7.4** Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
- Threshold 4.7.5** Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.
- Threshold 4.7.6** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.7.2.2 Project Impacts

The following discussion describes the potential impacts related to geology and soils that could result from implementation of the proposed Specific Plan.

- Threshold 4.7.1** Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
- a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42;
 - b. Strong seismic ground shaking;
 - c. Seismic-related ground failure, including liquefaction;
 - d. Landslides;

Buildout of the proposed Specific Plan would not subject people or structures to hazards from surface rupture of a known active fault. The nearest fault is the Clovis Fault,⁴⁰ approximately 21 miles southeast which has been mapped as pre-Quaternary in age, and not considered active. The nearest Alquist-Priolo Earthquake Fault Zone to the Specific Plan Area is along the Ortigalita Fault,⁴¹ approximately 47 miles west of the Specific Plan Area. A less-than-significant impact would occur due to the distance of the Specific Plan Area from the nearest known active fault.

It is likely seismically induced ground shaking would occur within the design lifetime for buildings constructed for the Specific Plan Area. While the Specific Plan Area is not located within an Alquist-Priolo Earthquake hazard zone, some ground shaking may occur within the Specific Plan Area depending on the amount of energy released from the fault, or the magnitude of the earthquake. The Specific Plan Area is considered to have low ground shaking potential⁴² and can experience a low severity of ground motion if an earthquake were to occur. There is a 10 percent chance in the

⁴⁰ California Department of Conservation. Fault Activity Map of California. 2010, op. cit.

⁴¹ California Department of Conservation, Earthquake Zones of Required Investigation, op cit.

⁴² Madera, City of. 2009, op. cit.

next 50 years that grounds shaking will be felt in the City of Madera.⁴³ Additionally, new development within the Specific Plan Area would require buildings to conform to CBC seismic safety standards, which take multiple factors into account, such as occupancy type, soil type, and ground motion with a specified probability at the site. Every three years the CBC is updated; the most current version of the code became effective January 1, 2020.

Neither liquefaction nor lateral spreading have been observed in Madera from any historic earthquake. Liquefaction and lateral spreading potential in the City of Madera is considered very low as due to the nature of the underlying soils, relatively deep-water table, and history of low ground shaking potential.

Landslides are not expected to affect the Specific Plan Area as the City of Madera is not located near an area with steep slopes and has a relatively dry climate. The area is nearly level with a southwest slope of about 0.2 percent grade, which is not subject to landslides.

A geotechnical investigation is required by Mitigation Measure GEO-1.1 for subdivisions requiring tentative and final maps pursuant to California Health and Safety Code, Sections 17953 to 17955, and in Section 1803 of the CBC to adequately assess potential ground shaking, liquefaction, lateral spreading, and other earthwork specific to the Specific Plan Area.

Compliance with the UBC and CBC which requires the preparation of geotechnical investigations would ensure that significant damage from an active fault, seismic ground shaking, liquefaction, and landslides is addressed during project design. In addition, the following General Plan policies address potential seismic hazards and associated hazards:

- Policy HS-7 The City supports efforts by federal, state, and other local organizations to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.
- Policy HS-8 The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.

In order to ensure compliance with the UBC and CBC, Mitigation Measure GEO-1.1 would be required prior to approval of a tentative subdivision map. Implementation of this Mitigation Measure and the General Plan policies listed above would reduce potential hazards to the public and environment. As a result, a less-than-significant impact would occur.

Mitigation Measure GEO-1.1: Consistent with Section 1803 of the California Building Code and Section 10-2.402.3 of the City of Madera Municipal Code, prior to approval of a tentative subdivision map and for other types of structures, a preliminary soils report shall be reviewed and approved by the City of Madera Community Development Director and City Engineer or their designees. As a part of the geotechnical investigations, testing of samples from subsurface investigations is

⁴³ Ibid.

required, such as from borings or test pits. Investigations shall be conducted by a registered design professional and involve in situ-testing, laboratory testing, or engineering calculations. Studies shall be done as needed to evaluate slope stability, soil strength, position, and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness. The geotechnical investigation shall provide recommendations to be incorporated into final plans and/or improvement plans, if required, to ensure compliance with the UBC and CBC.

Level of Significance With Mitigation: Less than significant.

Threshold 4.7.2 Would the project result in substantial soil erosion or the loss of topsoil?

The potential for soil erosion within the Specific Plan Area would greatly increase as soil on-site would be disturbed and expose large amounts of soil with grading and site preparation activities. Additionally, water is generally used with construction activities and may further erode the topsoil as water moves through the Specific Plan Area.

Development within the Specific Plan Area that is larger than one acre would be required to comply with the State Water Resources Control Board (SWRCB) 2012 General Construction Permit, Order No. 2012-0006-DWQ which requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).⁴⁴ Implementation of a SWPPP would estimate sediment risk from construction activities and receiving waters and would specify to be used by a project to minimize pollution of stormwater. There are several categories of construction best management practices (BMPs). The following four categories of construction BMPs are relevant to erosion control:

- Erosion Controls: Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind. Examples include mulch, geotextiles, mats, hydroseeding, earth dikes, and swales
- Sediment Controls: Filter out soil particles that have been detached and transported in water. Examples include barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; and cleaning measures such as street sweeping.
- Tracking Controls: Minimize the tracking of soil off-site by vehicles. Examples include stabilized construction roadways and construction entrances/exits, and entrance/outlet tire wash.
- Waste Management and Controls (housekeeping): Management of materials and wastes to avoid contamination of stormwater. Examples include spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

⁴⁴ State Water Resources Control Board. 2009. *Stormwater Pollution Prevention Plan*. Available online at: www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo2009_0009_dwq.pdf (accessed April 1, 2020).

The following General Plan policies address soil erosion hazards:

Policy CON-8 The City encourages Low Impact Development practices in all residential, commercial, office, and mixed-use discretionary projects and land division projects to reduce, treat, infiltrate, and manage runoff flows caused by storms, urban runoff, and impervious surfaces. Low impact development practices may include:

- Use of small-scale stormwater controls such as bioretention, grass swales and channels, vegetated rooftops, rain barrels and cisterns.
- Reduction of impervious surfaces through site design and use of pervious paving materials.
- Retention of natural features such as trees and ponds on site.
- The use of drought tolerant plant materials and/or water-conserving irrigation systems.”

Policy CON-9 The City will evaluate existing city maintained landscaping, and will, as feasible, install or replace vegetation with drought-tolerant, low-maintenance native species.

Policy CON-10 The City will evaluate existing landscaping and options to convert reflective and impervious surfaces to landscaping, and will, as feasible, install or replace vegetation with drought-tolerant, low-maintenance native species that can also provide shade and reduce heat-island effects.

In addition to implementation of the policies listed above, Mitigation Measure GEO-1.1, and compliance with the 2012 General Construction Permit, which requires the implementation of a SWPPP, potential impacts related to soil erosion would be reduced to less-than-significant levels.

Level of Significance With Mitigation: Less than significant. Implementation of General Plan Policies and Mitigation Measure GEO-1.1 would reduce this potential impact.

Threshold 4.7.3 **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

The Madera County LHMP states subsidence has a likely probability of future occurrences in Madera County. According to the LHMP, subsidence in Madera County has a moderate potential of occurring, but impacts but would be negligible (less than 10 percent property damage).⁴⁵ Compliance with the UBC and CBC and implementation of Mitigation Measure GEO-1.1, which requires the preparation of geotechnical investigations would be sufficient to reduce potential subsidence impacts to a less-than-significant level.

⁴⁵ Foster Morrison. 2017, op. cit.

Groundwater pumping the San Joaquin Valley has destabilized soils, however, conservative efforts have been made state-wide with the Sustainable Groundwater Management Act. As groundwater pumping decreases the likelihood of subsidence decreases.

Geotechnical investigations for projects developed under the proposed Specific Plan would be required and would determine the effects of subsidence within the Specific Plan Area while providing recommendations to minimize risks associated with subsidence.

Other factors associated with active faulting that would destabilize soils were discussed under Threshold 4.7.1, above, and would result in less-than-significant impacts.

The following General Plan policies address soil erosion and potential subsidence hazards:

Policy HS-7 The City supports efforts by federal, state, and other local organizations to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.

Policy HS-8 The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.

Implementation of site-specific geotechnical analyses prior to approval of discretionary project, as required by the UBC and CBC, and implementation of the General Plan policies listed above would reduce impacts related to unstable soil to less-than-significant levels.

Level of Significance With Mitigation: Less than significant. Implementation of General Plan Policies and Mitigation Measure GEO-1.1 would reduce this potential impact.

Threshold 4.7.4 Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Soils underlying Madera County contain some clay and are considered slightly to moderately expansive. Based on the soil types within the Specific Plan Area, expansion potential is considered slightly moderate. The City of Madera has adopted the UBC and CBC which requires geotechnical analyses to be completed prior to approval of future projects and includes special design requirements and construction methods to reduce or eliminate potential expansive soil related impacts. In addition, and implementation of Mitigation Measure GEO-1.1, which requires the preparation of geotechnical investigations would address expansive soil. Design and construction of future projects within the Specific Plan Area would be required to be consistent with the CBC. Additionally, the CBC requires adequate drainage to help mitigate surface drainage and seasonal soil moisture.

The following General Plan policies address expansive soil hazards:

- Policy HS-7 The City supports efforts by federal, state, and other local organizations to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.
- Policy HS-8 The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.
- Policy CD-8 In order to improve and protect the quality of neighborhoods and commercial districts, the City will enforce established building codes and community standards.
- Policy HS-26 The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.

Compliance with the UBC and CBC which requires site-specific geotechnical analyses to address potential geotechnical impacts, and implementation of the General Plan policies listed above, would reduce potential impacts related to expansive soil to less-than-significant levels.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.7.5 Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The proposed Specific Plan includes several proposed sewer improvements and installations. Developers are required to design and construct sewers sufficient to convey wastewater generated within the Specific Plan Area, and future projects would connect to the public sewer system. As a result, septic tanks would not be used, and no impact would occur.

Level of Significance Without Mitigation: No impact. No mitigation is required.

Threshold 4.7.6 Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Paleontological resources, if existent within the Specific Plan Area can potentially be damaged by ground-disturbing activities such as excavation, grading, and access road construction. The University of California, Berkeley Museum of Paleontology has one of the largest paleontological collections and has not identified paleontological resources within the Specific Plan Area.⁴⁶ Sensitivity of the area has not been assessed, nor has a formal paleontological investigation of the immediate area been conducted.

In compliance with Action Item HC-9.2, listed below, the City of Madera requires that the Planning Department be notified and construction cease if any prehistoric, archaeological, or fossil artifacts or

⁴⁶ Madera, City of. 2009, op. cit.

resources are uncovered during construction. If these artifacts are found, an archaeologist that meets the Secretary of the Interior's Professional Qualification Standards would be retained and would evaluate the finds and recommend appropriate actions.

The following General Plan policies address paleontological resources:

Policy HC-1 The City encourages the preservation and enhancement of existing historical and archaeological resources in the City.

Policy HC-9 The City will endeavor to protect and preserve prehistoric and historic archaeological resources, cultural resources (particularly those of importance to existing tribes), and fossils.

Action Item HC-9.2:

Impose the following conditions on all discretionary projects which may cause ground disturbance:

- "The Planning Department shall be notified immediately if any prehistoric, archaeological, or fossil artifact or resource is uncovered during construction. All construction must stop and an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action."
- "All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed."

Compliance with General Plan policies and implementation of Mitigation Measure GEO-6.1, which is consistent and further implements General Plan Policy HC-9, would reduce potential impacts to paleontological resources to less-than-significant levels.

Mitigation Measure GEO-6.1 The following measures shall be implemented to reduce potential impacts to paleontological resources:

- In the event that unique paleontological/geological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified paleontologist shall be consulted to determine whether the resource requires further study. The qualified paleontologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to, excavation of the finds and evaluation of the finds. If the resources are determined to be significant, mitigation measures shall be identified by the

monitor and recommended to the City. Appropriate mitigation measures for significant resources could include avoidance or capping or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the City approves the measures to protect the identified resources.

- If unique paleontological/geological resources are found during the field survey, the resources shall be inventoried and evaluated for significance. If the resources are found to be significant, mitigation measures shall be identified by the qualified paleontologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include a paleontological monitor. The monitoring period shall be determined by the qualified paleontologist. If additional paleontological/geological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed.

Level of Significance With Mitigation: Less than significant.

4.7.2.3 Cumulative Impacts

The proposed Specific Plan would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to geology and soils. For geology and soils, the cumulative study area consists of the area that could be affected by proposed project activities and the areas affected by other projects whose activities could directly or indirectly affect the geology and soils of the project site. Seismic hazards affecting the Specific Plan Area are expected to be moderate due to the low to moderate historic ground shaking in the region, and the distance to known active faults. Implementation of the proposed Specific Plan would comply with CBC seismic safety requirements and would have project-specific geotechnical investigations conducted and would comply with recommendations in the reports of such investigations. The City of Madera is relatively immune to some seismic hazards: to surface rupture of a known active fault due to the lack of such faults in the region; and to seismic ground settlement and lateral spreading due to the nature of the soils underlying the city and the history of low to moderate ground shaking.

Preparation of geotechnical investigation reports and compliance with recommendations in such reports would also minimize other geologic hazards, such as ground subsidence, and expansive soils within the Specific Plan Area. Soils adequate for sewer improvements and installations can be confirmed with a geotechnical investigation. Compliance with a SWPPP would minimize topsoil

erosion by ensuring BMPs are followed. The proposed project, as with all foreseeable projects, would be required to comply with the applicable state and local requirements, including the City of Madera Building Code. Therefore, the project's contribution to cumulative geotechnical and soil impacts is considered less than significant.

Lastly, there are no known paleontological resources within the area. If a paleontological resource is found, construction would cease and an evaluation would occur, consistent with Mitigation Measure GEO-6.1 In addition, all foreseeable projects would also be required to address and mitigate potential impacts to paleontological resources. Therefore, the project's contribution to cumulative paleontological impacts is considered less than significant.

Buildout of the proposed Specific Plan would result in a less-than-significant cumulative impact related to geology and soils.

Level of Significance With Mitigation: Less than significant. Refer to Mitigation Measure GEO-6.1.

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4.8 GREENHOUSE GAS EMISSIONS

This section summarizes existing greenhouse gas (GHG) emissions and discusses global climate change, its causes, and the contribution of human activities. This section also estimates the likely GHG emissions that would result from construction and operational activities associated with implementation of the proposed Specific Plan, including vehicular traffic, energy consumption and other emission sources. Mitigation measures are recommended where appropriate to reduce impacts to a less-than-significant level. The analysis performed for this section is based on the anticipated buildout as described in Chapter 3, Project Description, and as included in Table 3.A, and the San Joaquin Valley Air Pollution Control District (SJVAPCD) *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI).¹

4.8.1 Environmental Setting

The following discussion describes existing GHG emissions in the City of Madera (City) and the Central Valley, beginning with a discussion of typical GHG types and sources, impacts of global climate changes, the regulatory framework surrounding these issues, and current emission levels.

4.8.1.1 Specific Plan Area

The City of Madera is located in the County of Madera in the San Joaquin Valley Air Basin (SJVAB). The SJVAB consists of Kings, Madera, San Joaquin, Merced, Stanislaus, and Fresno counties, as well as a portion of Kern County. The local agency with jurisdiction over air quality in the SJVAB is the SJVAPCD.

The study area for project impacts regarding GHG emissions is the City of Madera because potential development under the proposed Specific Plan is limited to areas within the Specific Plan Area where the emissions are generated. However, it should be noted that GHG impacts are inherently cumulative impacts. The study area for the analysis of cumulative GHG impacts is the State of California. This analysis is based on a summary of projections approach as provided in Section 15130(b)(1)(B) of the California Environmental Quality Act (CEQA) Guidelines. The applicable projections include those provided by the State pursuant to Assembly Bill (AB) 32 and the California Air Resources Board (CARB) Scoping Plan prepared to address AB 32 requirements.

4.8.1.2 Background

The following discussion describes existing GHG emissions in the City of Madera and the SJVAB, beginning with a discussion of typical GHG types and sources, impacts of global climate changes, the regulatory framework surrounding these issues, and current emission levels.

Global Climate Change. Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose $0.6 \pm 0.2^\circ$ Celsius ($^\circ\text{C}$) or $1.1 \pm 0.4^\circ$ Fahrenheit ($^\circ\text{F}$) in the 20th century. The prevailing scientific consensus on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide (CO_2) and

¹ San Joaquin Valley Air Pollution Control District. 2015. *Guidance for Assessing and Mitigating Air Quality Impacts*. Website: www.valleyair.org/transportation/ceqa_idx.htm (accessed February 2020). March 19.

other GHGs are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.²

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are the following:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally-occurring GHGs such as CO₂, methane, and N₂O, some gases, like HFCs, PFCs, and SF₆ are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this air quality analysis, the term “GHGs” will refer collectively to the six gases listed above only.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to carbon dioxide, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e). Table

² The temperature on Earth is regulated by a system commonly known as the “greenhouse effect.” Just as the glass in a greenhouse lets heat from sunlight in and reduces the heat escaping, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of greenhouse gas results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

4.8.A shows the GWP for each type of GHG. For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than carbon dioxide.

Table 4.8.A: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide	50-200	1
Methane	12	25
Nitrous Oxide	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF ₄)	50,000	7,390
PFC: Hexafluoromethane (C ₂ F ₆)	10,000	12,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

Source: Intergovernmental Panel on Climate Change (2007). *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.

The following discussion summarizes the characteristics of the six GHGs and black carbon.

Carbon Dioxide. In the atmosphere, carbon generally exists in its oxidized form, as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals and plants, volcanic out gassing, decomposition of organic matter and evaporation from the oceans. Human caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Natural sources release approximately 150 billion tons of CO₂ each year, far outweighing the 7 billion tons of man-made emissions of CO₂ each year. Nevertheless, natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO₂, and consequently, the gas is building up in the atmosphere.

In 2017, total annual CO₂ emissions in California were approximately 351 million tons, accounting for approximately 83 percent of California’s overall GHG emissions.³ Transportation is the single largest source of CO₂ in California, approximately 47 percent, which is primarily comprised of on-road travel. Electricity production, industrial and residential sources also make important contributions to CO₂ emissions in California.

Methane. Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH₄ emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH₄ in California. Total

³ California Air Resources Board. 2020. *GHG Descriptions and Sources in California*. Website: ww2.arb.ca.gov/ghg-descriptions-sources (accessed February 2020).

annual emissions of methane in California are approximately 39.9 million tons, accounting for approximately 9.0 percent of GHG emissions in California in 2017.⁴

Nitrous Oxide. Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N₂O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O emissions in California. Nitrous oxide emissions accounted for approximately 3 percent of GHG emissions in California in 2017.⁵

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. HFCs are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol.⁶ PFCs and SF₆ are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry has resulted in greater use of PFCs. HFCs, PFCs, and SF₆ accounted for about 5 percent of GHG emissions in California in 2017.⁷

Black Carbon. Black carbon is the most strongly light-absorbing component of particulate matter (PM) formed by burning fossil fuels such as coal, diesel, and biomass. Black carbon is emitted directly into the atmosphere in the form of particulate matter less than 2.5 microns in size (PM_{2.5}) and is the most effective form of PM, by mass, at absorbing solar energy. Per unit of mass in the atmosphere, black carbon can absorb one million times more energy than CO₂.⁸ Black carbon contributes to climate change both directly, such as absorbing sunlight, and indirectly, such as affecting cloud formation. However, because black carbon is short-lived in the atmosphere, it can be difficult to quantify its effect on global-warming.

Most U.S. emissions of black carbon come from mobile sources (52 percent), particularly from diesel fueled vehicles.⁹ The other major source of black carbon is open biomass burning, including wildfires, although residential heating and industry also contribute. Black carbon

⁴ Ibid.

⁵ Ibid.

⁶ The Montreal Protocol is an international treaty that was approved on January 1, 1989 and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.

⁷ Ibid.

⁸ U.S. Environmental Protection Agency. 2017. Black Carbon, Basic Information. Website: https://19january2017snapshot.epa.gov/air-research/black-carbon-research_.html (accessed April 28, 2020). February 14.

⁹ Ibid.

emissions in the U.S. are projected to decline substantially by 2030, largely due to controls on new mobile diesel emissions.¹⁰

Effects of Global Climate Change. Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global climate change may also contribute to air quality problems from increased frequency of smog and particulate air pollution.¹¹

Additionally, according to the 2006 California Climate Action Team (CAT) Report,¹² the following climate change effects, which are based on trends established by the United Nations Intergovernmental Panel on Climate Change (IPCC), can be expected in California over the course of the next century:

- The loss of sea ice and mountain snow pack, resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;¹³
- Rise in global average sea level, primarily due to thermal expansion and melting of glaciers and ice caps in the Greenland and Antarctic ice sheets;¹⁴
- Changes in weather that include widespread changes in precipitation, ocean salinity, wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;¹⁵
- Decline of the Sierra snowpack, which accounts for approximately one-half of the surface water storage in California by 70 percent to as much as 90 percent over the next 100 years;¹⁶
- Increase in the number of days conducive to ozone (O₃) formation by 25–85 percent (depending on the future temperature scenario) in high O₃ areas of Los Angeles and the San Joaquin Valley by the end of the 21st century;¹⁷ and

¹⁰ Ibid.

¹¹ U.S. Environmental Protection Agency. 2016. Climate Impacts on Human Health. Website: [19january 2017snapshot.epa.gov/climate-impacts/climate-impacts-human-health_.html](https://www.epa.gov/climate-impacts/climate-impacts-human-health_.html) (accessed April 28, 2020).

¹² California Environmental Protection Agency. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. March.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Intergovernmental Panel on Climate Change. 2007. *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*. February.

¹⁶ California Environmental Protection Agency. 2006, op. cit.

- High potential for erosion of California’s coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level.¹⁸

A summary of these potential effects are identified in Table 4.8.B.

Table 4.8.B: Potential Impacts of Global Warming and Expected Consequences for California

Potential Water Resource Impacts	Anticipated Consequences Statewide
Reduction of the State’s average annual snowpack	<ul style="list-style-type: none"> • Specifically, the decline of the Sierra snowpack, would lead to a loss in half of the surface water storage in California by 70% to 90% over the next 100 years • Potential loss of 5 million acre-feet or more of average annual water storage in the State’s snowpack • Increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply • Higher surface evaporation rates with a corresponding increase in tropospheric water vapor
Rise in average sea level	<ul style="list-style-type: none"> • Potential economic impacts related to coastal tourism, commercial fisheries, coastal agriculture, and ports • Increased risk of flooding, coastal erosion along the State’s coastline, seawater intrusion into the Delta and levee systems
Changes in weather	<ul style="list-style-type: none"> • Changes in precipitation, ocean salinity, and wind patterns • Increased likelihood for extreme weather events, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones
Changes in the timing, intensity, location, amount, and variability of precipitation	<ul style="list-style-type: none"> • Potential increased storm intensity and increased potential for flooding • Possible increased potential for droughts • Long-term changes in vegetation and increased incidence of wildfires • Changes in the intensity and timing of runoff • Possible increased incidence of flooding and increased sedimentation • Sea level rise and inundation of coastal marshes and estuaries • Increased salinity intrusion into the Sacramento-San Joaquin River Delta (Delta) • Increased potential for Delta levee failure • Increased potential for salinity intrusion into coastal aquifers (groundwater) • Increased potential for flooding near the mouths of rivers due to backwater effects
Increased water temperatures	<ul style="list-style-type: none"> • Increased environmental water demand for temperature control • Possible increased problems with foreign invasive species in aquatic ecosystems • Potential adverse changes in water quality, including the reduction of dissolved oxygen levels • Possible critical effects on listed and endangered aquatic species
Changes in urban and agricultural water demand	<ul style="list-style-type: none"> • Changes in demand patterns and evapotranspiration
Increase in the number of days conducive to O ₃ formation	<ul style="list-style-type: none"> • Increased temperatures • Potential health effects, including adverse impacts to respiratory systems

Source: U.S. Department of the Interior, *Environmental Water Account Draft Supplemental EIS/EIR to the Environmental Water Account Final EIS/EIR, Bureau of Reclamation Mid-Pacific Region, Sacramento, California* (October 2007).

EIR = Environmental Impact Report

EIS = Environmental Impact Statement

O₃ = ozone

¹⁷ California Environmental Protection Agency. 2006, op. cit.

¹⁸ Ibid.

Emissions Inventories. An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, United States, and California GHG emission inventories.

Global Emissions. Worldwide emissions of GHGs in 2016 totaled approximately 26 billion metric tons of CO₂e.¹⁹ Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

United States Emissions. In 2018, the United States emitted about 6,677.8 million metric tons of CO₂e. The total 2018 CO₂e emissions represent a 3.7 percent increase from 1990 to 2018, down from a high of 15.2 percent above 1990 levels in 2007. Overall, net emissions in 2018 increased 3.2 percent since 2017 and decreased 10.2 percent from 2005 levels. Of the six major sectors – residential, commercial, agricultural, industry, transportation, and electricity generation – transportation accounted for the highest amount of GHG emissions in 2018 (approximately 27.9 percent), with electricity generation second at 26.9 percent and emissions from industry third at 22.2 percent.²⁰

State of California Emissions. According to CARB emission inventory estimates, the State emitted approximately 424.1 million metric tons of CO₂e (million metric tons CO₂e) emissions in 2017. This is a decrease of 4.9 million metric tons CO₂e since 2016.²¹

The CARB estimates that transportation was the source of approximately 41 percent of the State's GHG emissions in 2017, followed by industrial sources at 24 percent and electricity generation at 15 percent. The remaining sources of GHG emissions were agriculture at 8 percent, residential activities at 7 percent and commercial activities at 5 percent.²²

City of Madera Emissions. The City of Madera prepared a community-wide GHG emissions inventory as part of the Climate Action Plan to identify the major sources and quantities of GHG emissions produced within the City of Madera's jurisdictional boundaries in 2007 and forecast how emissions may change over time. The community-wide inventory provides information on the scale of emissions from various sources and where the opportunities to reduce emissions lie. It also provides a baseline against which the City can measure its progress in reducing GHG emissions

¹⁹ United Nations Climate Change. 2016. GHG data from UNFCCC. Website: unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/ghg-data-unfccc (accessed April 28, 2020).

²⁰ U.S. Environmental Protection Agency. 2020. Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018. Available online at: www.epa.gov/sites/production/files/2020-02/documents/us-ghg-inventory-2020-main-text.pdf (accessed April 28, 2020).

²¹ California Air Resources Board. 2019. GHG Current California Emission Inventory Data. Website: ww2.arb.ca.gov/ghg-inventory-data (accessed April 28, 2020).

²² Ibid.

As shown in Table 4.8.C, the City as a whole emitted approximately 324,690 metric tons of CO₂e from the residential energy, commercial/industrial energy, transportation and mobile sources, solid waste, water, and wastewater sectors. As shown in Table 4.8.C, the largest contributors of GHG emissions were the transportation and mobile sources (58 percent), residential energy (20 percent), and commercial/industrial energy (17 percent) sectors. The remainder of emissions resulted from the solid waste (4 percent), water (1 percent) and wastewater (less than 1 percent) sectors.

Table 4.8.C: 2007 Community-Wide GHG Emissions by Sector

Sector	Description	GHG Emissions (Metric Tons CO ₂ e)	Percent of Total
Residential Energy	Electricity and natural gas consumption in residential buildings.	65,210	20
Commercial/Industrial Energy	Electricity and natural gas consumption in non-residential buildings.	54,387	17
Transportation and Mobile Sources	Vehicle miles traveled (VMT) ¹ and fuel consumption in on-road vehicles and off-road equipment.	188,585	58
Solid Waste	Solid waste generated and sent to landfills.	12,973	4
Water	Electricity and natural gas used to convey and treat potable water.	2,840	1
Wastewater	Electricity used to convey and treat wastewater and wastewater treatment process emissions	695	<1
Total		324,690	100

Source: City of Madera (2015).

4.8.1.3 Regulatory Context

This section describes regulations related to GHG emissions at the federal, State, and local level.

Federal Regulations. The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the United States Environmental Protection Agency (USEPA) has the authority to regulate CO₂ emissions under the federal Clean Air Act. While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the USEPA commenced several actions in 2009 to implement a regulatory approach to global climate change.

This includes the 2009 USEPA final rule for mandatory reporting of GHGs from large GHG emission sources in the United States. Additionally, the USEPA Administrator signed an endangerment finding action in 2009 under the Clean Air Act, finding that six GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to global climate change, leading to national GHG emission standards.

State Regulations. The CARB is the lead agency for implementing climate change regulations in the State. Since its formation, the CARB has worked with the public, the business sector, and local governments to find solutions to California’s air pollution problems. Key efforts by the State are described below.

Assembly Bill 1493 (2002). In a response to the transportation sector's significant contribution to California CO₂ emissions, Assembly Bill 1493 (AB 1493) was enacted on July 22, 2002. AB 1493 requires the CARB to set GHG emission standards for passenger vehicles and light duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. These standards (starting in model years 2009 to 2016) were approved by the CARB in 2004, but the needed waiver of CAA Preemption was not granted by the USEPA until June 30, 2009. The CARB responded by amending its original regulation, now referred to as Low Emission Vehicle III, to take effect for model years starting in 2017 to 2025.

Executive Order S-3-05 (2005). Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which proclaimed that California is vulnerable to the impacts of climate change. To combat those concerns, the executive order established California GHG emissions reduction targets, which established the following goals:

- GHG emissions should be reduced to 2000 levels by 2010;
- GHG emissions should be reduced to 1990 levels by 2020; and
- GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate efforts of various State agencies in order to collectively and efficiently reduce GHGs. A biannual progress report must be submitted to the Governor and State legislature disclosing the progress made toward greenhouse emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and report possible mitigation and adaptation plans to address these impacts.

The Secretary of CalEPA leads the Climate Action Team (CAT) comprised of representatives from State agencies as well as numerous other boards and departments. CAT members work to coordinate Statewide efforts to implement global warming emission reduction programs and the State Climate Adaptation Strategy. The CAT is also responsible for reporting on the progress made toward meeting the Statewide GHG targets that were established in the executive order and further defined under AB 32, the "Global Warming Solutions Act of 2006." The first CAT Report to the Governor and State legislature was released in March 2006 and it presented 46 specific emission reduction strategies for reducing GHG emissions and reaching the targets established in the Executive Order. The most recent CAT Report to the Governor and State legislature was released in December 2010.

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing GHG emissions is AB 32, passed by the State legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. The CARB has established the level of GHG emissions in 1990 at 427 million metric tons (MMT) CO₂e. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global

climate change. The Scoping Plan was approved by the CARB on December 11, 2008 and contains the main strategies California will implement to achieve the reduction of approximately 169 MMT of CO₂e, or approximately 30 percent, from the State's projected 2020 emission level of 596 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 42 MMT CO₂e, or almost 10 percent from 2002-2004 average emissions). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of the State's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO₂e);
- The Low-Carbon Fuel Standard (15.0 MMT CO₂e);
- Energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO₂e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO₂e).

The Scoping Plan identifies 18 emission reduction measures that address cap-and-trade programs, vehicle gas standards, energy efficiency, low carbon fuel standards, renewable energy, regional transportation-related GHG targets, vehicle efficiency measures, goods movement, solar roof programs, industrial emissions, high speed rail, green building strategies, recycling, sustainable forests, water, and air. The measures would result in a total reduction of 174 MMT CO₂e by 2020.

On August 24, 2011, the CARB unanimously approved both the new supplemental assessment and reaproved its Scoping Plan, which provides the overall roadmap and rule measures to carry out AB 32. The CARB also approved a more robust CEQA-equivalent document supporting the supplemental analysis of the cap-and-trade program. The cap-and-trade took effect on January 1, 2012, with an enforceable compliance obligation that began January 1, 2013.

CARB has not yet determined what amount of GHG reductions it recommends from local government operations and local land use decisions; however, the Scoping Plan states that land use planning and urban growth decisions will play an important role in the State's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions (meanwhile, CARB is also developing an additional protocol for community emissions). CARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. With regard to land use planning, the Scoping Plan expects an approximately 5.0 MMT CO₂e reduction due to implementation of Senate Bill (SB) 375.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed the CARB and the CAT to identify a list of "discrete early action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger

signed Executive Order S-1-07, further solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. The Executive Order sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs the CARB to consider the Low Carbon Fuel Standard as a discrete early action measure. In 2011, U.S. District Court Judge Lawrence O'Neil issued an injunction preventing implementation of the Low Carbon Fuel Standard, ruling that it is unconstitutional. In 2012, the Ninth Circuit Court of Appeal stayed the District Court's injunction, allowing implementation of the Low Carbon Fuel Standard. The Ninth Circuit decided to uphold the Low Carbon Fuel Standard.

In June 2007, the CARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on GWP Refrigerants, and Landfill CH₄ Capture).²³ Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code Section 38560.5. The CARB adopted additional early action measures in October 2007 that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of PFCs from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF₆ reductions from the non-electricity sector. The combination of early action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT.²⁴

The CARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB climate change priorities until 2020, and also sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals as defined in the initial Scoping Plan, and it also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. The CARB released a second update to the Scoping Plan, the 2017 Scoping Plan,²⁵ to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32.

Senate Bill 97 (2007). Senate Bill 97 (SB 97), signed by the Governor in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the OPR to prepare, develop, and transmit to the California Resources Agency guidelines for mitigating GHG emissions or the effects of GHG emissions, as required by CEQA.

The California Natural Resources Agency adopted the amendments to the CEQA Guidelines in January 2010, which went into effect in March 2010. The amendments do not identify a

²³ California Air Resources Board. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October.

²⁴ California Air Resources Board. 2007. ARB approves tripling of early action measures required under AB 32, News Release 07-46. October 25.

²⁵ California Air Resources Board. 2017. *California's 2017 Climate Change Scoping Plan*. November.

threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs when they perform individual project analyses.

Senate Bill 375 (2008). Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, the CARB approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). The CARB may update the targets every four years and must update them every eight years. MPOs in turn must demonstrate how their plans, policies and transportation investments meet the targets set by the CARB through Sustainable Community Strategies (SCS). The SCS are included with the Regional Transportation Plan (RTP), a report required by State law. However, if an MPO finds that their SCS will not meet the GHG reduction target, they may prepare an Alternative Planning Strategy (APS). The APS identifies the impediments to achieving the targets.

Executive Order B-30-15 (2015). Governor Jerry Brown signed Executive Order B-30-15 on April 29, 2015, which added the immediate target of:

- GHG emissions should be reduced to 40 percent below 1990 levels by 2030.

All State agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the AB 32 Scoping Plan to reflect the 2030 target, and therefore, is moving forward with the update process. The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue reducing emissions.

Senate Bill 350 (2015) Clean Energy and Pollution Reduction Act. Senate Bill 350 (SB 350), signed by Governor Jerry Brown on October 7, 2015, updates and enhances AB 32 by introducing the following set of objectives in clean energy, clean air, and pollution reduction for 2030:

- Raise California's renewable portfolio standard from 33 percent to 50 percent; and
- Increasing energy efficiency in buildings by 50 percent by the year 2030.

The 50 percent renewable energy standard will be implemented by the California Public Utilities Commission for the private utilities and by the California Energy Commission for municipal utilities. Each utility must submit a procurement plan showing it will purchase clean energy to displace other non-renewable resources. The 50 percent increase in energy efficiency in buildings must be achieved through the use of existing energy efficiency retrofit funding and regulatory tools already available to state energy agencies under existing law. The addition

made by this legislation requires state energy agencies to plan for, and implement those programs in a manner that achieves the energy efficiency target.

Senate Bill 32, California Global Warming Solutions Act of 2016, and Assembly Bill 197. In summer 2016 the Legislature passed, and the Governor signed, SB 32, and Assembly Bill 197 (AB 197). SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 Executive Order B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an IPCC analysis of the emissions trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million CO₂e and reduce the likelihood of catastrophic impacts from climate change.

The companion bill to SB 32, AB 197, provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

Senate Bill 100 (SB 100). On September 10, 2018, Governor Brown signed SB 100, which raises California's RPS requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18. Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO₂e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Title 24, Building Standards Code and CALGreen Code. In November 2008, the California Building Standards Commission established the California Green Building Standards (CALGreen) Code, which sets performance standards for residential and nonresidential development to reduce environmental impacts and encourage sustainable construction practices. The CALGreen Code addresses energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. The CALGreen Code was updated in 2016 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2017.

Cap and Trade. The development of a cap-and-trade program was included as a key reduction measure of the CARB AB 32 Climate Change Scoping Plan. The purpose of the cap-and-trade program is to aid California on the path to meet its goal of reducing GHG emissions to 1990 levels by 2020 and ultimately achieving an 80 percent reduction from 1990 levels by 2050. The cap-and-trade emissions trading program developed by CARB took effect on January 1, 2012, with enforceable compliance obligations beginning January 1, 2013. The cap-and-trade program aims to regulate GHG emissions from the largest producers in the State by setting a statewide firm limit, or cap, on allowable annual GHG emissions. The cap was set in 2013 at approximately 2 percent below the emissions forecast for 2020. In 2014, the cap declined approximately 2 percent. Beginning in 2015 and continuing through 2020, the cap has been declining approximately 3 percent annually. CARB administered the first auction on November 14, 2012, with many of the qualified bidders representing corporations or organizations that produce large amounts of GHG emissions, including energy companies, agriculture and food industries, steel mills, cement companies, and universities. On January 1, 2015, compliance obligation began for distributors of transportation fuels, natural gas, and other fuels. California is working closely with British Columbia, Ontario, Quebec, and Manitoba through the Western Climate Initiative to develop harmonized cap-and-trade programs that will deliver cost-effective emission reductions. Two lawsuits have been filed against cap-and-trade, but the cap-and-trade program will be implemented as is until further notice.²⁶

San Joaquin Valley Air Pollution Control District. The City of Madera is located within the SJVAB, which is under the jurisdiction of the SJVAPCD. The SJVAPCD has regulatory authority over certain stationary and industrial GHG emission sources and provides voluntary technical guidance on addressing GHGs for other emission sources in a CEQA context. District initiatives related to GHGs are described below.

Climate Change Action Plan. The District Governing Board approved the San Joaquin Valley Air Pollution Control District Climate Change Action Plan (CCAP) on August 21, 2008. The CCAP began a public process to bring together stakeholders, land use agencies, environmental groups, and business groups, and to conduct public workshops to develop comprehensive policies for CEQA Guidelines, a carbon exchange bank, and voluntary GHG emissions mitigation agreements for the Governing Board's consideration. The CCAP contains the following goals and actions:

Goals:

1. Assist local land-use agencies with CEQA (California Environmental Quality Act) issues relative to projects with GHG emissions increases.
2. Assist Valley businesses in complying with mandates of AB 32 (Global Warming Solutions Act of 2006).
3. Ensure that climate protection measures do not cause increases in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

²⁶ California Air Resources Board. 2014. Cap-and-Trade Program. Website: www.arb.ca.gov/cc/capandtrade/capandtrade.htm (accessed April 28, 2020).

Actions:

1. Develop GHG significance threshold(s) or other mechanisms to address CEQA projects with GHG emissions increases.
2. Develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary GHG reductions created in the Valley.
3. Enhance the District's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB 32 emission reporting requirements to submit simultaneous streamlined reports to the District and the state of California with minimal duplication.
4. Develop and administer voluntary GHG emission reduction agreements to mitigate proposed GHG increases from new projects.

CEQA Greenhouse Gas Guidance. The District developed several resource documents that were used as guidance for developing the GHG Plan. The most important is the Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, which is intended to assist local agencies in complying with CEQA and which contains a GHG threshold approach that has been widely accepted for use in the San Joaquin Valley and in other parts of the State. The District concluded that the existing science is inadequate to support quantification of the impacts that project-specific GHG emissions have on global climatic change. The District found the effects of project-specific emissions to be cumulative, and without mitigation, their incremental contribution to global climatic change could be considered cumulatively considerable. The District found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation. Many San Joaquin Valley local jurisdictions, including Madera, have used the District guidance for CEQA compliance.

The primary features of the District's approach include:

- Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less-than-significant cumulative impact. The GHG Plan is intended to meet the criteria as an approved plan or mitigation program.
- Projects for which there is no applicable approved plan or program, or those projects not complying with an approved plan or program, the lead agency would evaluate the project against a performance-based standards and would require the adoption of design elements, known as a Best Performance Standard, to reduce GHG emissions.
- Projects incorporating Best Performance Standards would not require specific quantification of GHG emissions, and automatically would be determined to have a less-than-significant cumulative impact for GHG emissions.

San Joaquin Valley Carbon Exchange and Rule 2301. The District initiated work on the San Joaquin Valley Carbon Exchange in November 2008. The Exchange was implemented with the adoption of Amendments to Rule 2301 Emission Reduction Credit Banking on January 19, 2012. The purpose of the carbon exchange is to quantify, verify, and track voluntary GHG emissions reductions generated within the San Joaquin Valley.

The District incorporated a method to register voluntary GHG emission reductions with amendments to Rule 2301. The purposes of the amendments to the rule include the following:

- Provide an administrative mechanism for sources to bank voluntary GHG emission reductions for later use.
- Provide an administrative mechanism for sources to transfer banked GHG emission reductions to others for any use.
- Define eligibility standards, quantitative procedures, and administrative practices to ensure that banked GHG emission reductions are real, permanent, quantifiable, surplus, and enforceable.

The District is participating in a new program developed by the California Air Pollution Control Officers Association (CAPCOA) to encourage banking and use of GHG reduction credits referred to as the CAPCOA Greenhouse Gas Reduction Exchange (GHGRx). The GHGRx provides information on GHG credit projects within participating air districts. The District is one of the first to have offsets available for trading on the Exchange.

City of Madera General Plan. The City of Madera addresses greenhouse gas in the Conservation Element of the General Plan.²⁷ The Conservation Element provides goals, policies, and action items that work to meet or exceed all current and future state-mandated targets for reducing emissions of greenhouse gases. The policies and action items from the Conservation Element, listed in Table 4.8.D would be applicable to the proposed Specific Plan.

City of Madera Climate Action Plan. The City of Madera Climate Action Plan (CAP)²⁸ is a long-range plan to reduce GHG emissions from City government (municipal) and community-wide activities within the City of Madera and prepare for the anticipated effects of climate change. Specifically, the CAP is designed to:

- Benchmark Madera's 2007 GHG emissions and 2020 and 2030 projected emissions;
- Establish GHG emissions targets for the years 2020 and 2030 to support California's larger effort to reduce statewide emissions under AB 32 and Executive Orders S-3-05 and B-30-15;

²⁷ Madera, City of. 2009. *City of Madera General Plan. Conservation Element*. October 7.

²⁸ Madera, City of. 2015. *City of Madera Climate Action Plan*. Available online at: www.cityofmadera.ca.gov/wp-content/uploads/2017/08/Final-Madera-CAP_September-2015.pdf (accessed February 2020). Adopted September 2.

Table 4.8.D: General Plan Policies Related to Greenhouse Gas Emissions

Policy/Action Item Number	Policy/Action Item
Conservation Element	
Policy CON-35	The City shall implement and enforce State and Regional regulations pertaining to greenhouse gas emissions and climate change.
Policy CON-36	The City supports local, regional, and statewide efforts to reduce the emission of greenhouse gases linked to climate change.
Action Item CON-36.2	<p>Within six months of the completion of the Greenhouse Gas Inventory if possible (but not later than one year after completion of the Inventory), the City will, in collaboration with stakeholders and the community, prepare a Climate Action Plan (CAP) that incorporates and/or addresses the following criteria:</p> <ul style="list-style-type: none"> • The CAP will identify goals for reducing manmade greenhouse gas (GHG) emissions from the community, municipal and business activities. • The CAP will establish resiliency and adaptation programs to prepare for potential impacts of climate change, and provide a phased implementation plan to achieve these goals. • The CAP will establish a greenhouse gas emissions reduction target of 15% percent below 2007 levels by 2020, consistent with California Assembly Bill 32, the Global Warming Solutions Act of 2006 (AB32) and the guidance provided in the associated California Air Resources Board Climate Change Scoping Plan approved in December 2008. • The CAP will also outline a strategy to achieve 1990 GHG levels by 2020 and an 80% reduction from 1990 GHG levels by 2050 in accordance with California State Executive Order S-3-05.
Policy CON-37	The City shall collaborate and coordinate with regional organizations and local jurisdictions within the City to reduce greenhouse gas emissions.
Policy CON-38	The City shall partner with local agencies and organizations to coordinate outreach and education regarding the effects of greenhouse gas emissions and climate change.
Policy CON-39	The City supports the goals of recently adopted Senate Bill 375 and will review this General Plan for consistency with the Sustainable Community Strategy (SCS) to be adopted by the Madera County Transportation Commission. The City will consider amendments to the General Plan as it deems appropriate to implement the SCS.
Policy CON-40	All public and private development—including homes, commercial, and industrial—should be designed to be energy-efficient.
Action Item CON-40.1	Work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.
Action Item CON-40.2	Promote enhanced energy conservation standards for new construction through informational handouts, outreach to the construction industry, or other methods.
Action Item CON-40.3	City buildings and facilities will be operated in the most energy-efficient manner without endangering public health and safety and without reducing public safety or service levels.
Action Item CON-40.4	To the extent practical, integrate appropriate renewable energy and clean generation technologies into existing City facilities, such as solar, wind, biofuel, cogeneration, and fuel cells to power City facilities.
Policy CON-44	<p>The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of all private buildings and projects, including:</p> <ul style="list-style-type: none"> • Land planning and design techniques that preserve the natural environment and minimize disturbance of the land. • Site development to reduce erosion, minimize paved surfaces and runoff and protect vegetation, especially trees. • Water conservation indoors and outdoors. • Energy efficiency in heating/cooling systems, appliances, lighting and the building envelope. • Selection of materials based on recyclability, durability and the amount of energy used to create the material. • Waste reduction, reuse and recycling during construction and throughout the life of the project. • Other new aspects of green design and construction included in LEED or other certification programs. • Control nighttime lighting to lower energy use, reduce glare, and prevent illumination of the night sky.
Action Item CON-44.1	Develop a voluntary, market-driven Green Building Program that includes performance standards, guidelines, review criteria, incentives, and implementation schedules for private sector development, with criteria tailored to project types (i.e., residential, commercial, retail), size, and location.

Table 4.8.D: General Plan Policies Related to Greenhouse Gas Emissions

Policy/Action Item Number	Policy/Action Item
Action Item CON-44.2	Identify, evaluate, and provide incentives to encourage projects that incorporate green building practices and site design, including the potential for certification through the City’s Building Department.
Action Item CON-44.3	Facilitate the professional development and education of City staff to learn about green building practices and to have the tools to evaluate development proposals.
Action Item CON-44.4	Offer information, technical assistance, and training to promote green building to property owners, building, design, and planning professionals, school districts, and special districts.
Policy CON-45	The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of facilities constructed, owned, managed, or financed by the City. All new building projects (projects intended for human occupancy) involving the use of local public funds should incorporate green building practices. Except as dictated by unique circumstances associated with a given project, the typical standard for green building will be the equivalent of the “LEED Silver Standard.”
Action Item CON-45.1	Evaluate and update the City’s procurement processes to provide incentives to bidders who propose the use of green building practices in the construction of City buildings and facilities.
Action Item CON-45.2	Require that any building constructed in whole or in part with local, public funding incorporate passive solar design features, such as daylighting and passive solar heating, where feasible.
Policy CON-46	The City will identify and remove regulatory or procedural barriers to implementing green building practices within its jurisdiction, such as updating codes, guidelines, and zoning, and will ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques.

Source: City of Madera General Plan (October 2009).

- Provide a roadmap for achieving the City’s GHG emissions reduction targets;
- Fulfill City of Madera General Plan Action Item CON-36.2, which directs the City to prepare the CAP; and
- As a qualified CAP, support the streamlining of the environmental review process for future projects within Madera in accordance with State California Environmental Quality Act (CEQA) Guidelines Sections 15152 and 15183.5.

4.8.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to greenhouse gas emissions that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.8.2.1 Significance Criteria

The thresholds for impacts related to greenhouse gas emissions used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to greenhouse gas emissions if it would:

Threshold 4.8.1 **Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or**

Threshold 4.8.2 **Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

Section 15064.4 of the CEQA Guidelines states that: “A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.” In performing that analysis, the lead agency has discretion to determine whether to use a model or methodology to quantify greenhouse gas emissions, or to rely on a qualitative analysis or performance-based standards. In making a determination as to the significance of potential impacts, the lead agency then considers the extent to which the project may increase or reduce greenhouse gas 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, and 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 greenhouse gas emissions.

According to the SJVAPCD, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy that meets the standards, it can be presumed that the project will not have significant GHG emission impacts. This approach is consistent with the State CEQA Guidelines, Section 15183.5, and will be used in this analysis.

The City of Madera CAP meets the requirements for a Qualified Greenhouse Gas Reduction Strategy. Therefore, the project’s GHG emissions would not be considered a significant impact if the project would be consistent with the City’s CAP.

4.8.2.2 Project Impacts

The following discussion describes the potential impacts related to GHG emissions that could result from implementation of the proposed Specific Plan.

Threshold 4.8.1 **Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

The following section describes potential impacts to GHG emissions associated with implementation of the proposed Specific Plan. Potential impacts discussed below are differentiated between Phase I, Phase II, and Phase III, where applicable.

Construction Impacts. Construction-related GHG emissions associated with each phase of the proposed Specific Plan would occur over a short periods, and would consist primarily of emissions from equipment exhaust. Although the proposed Specific Plan’s anticipated emissions from construction activities are quantified herein, in determining the potential significance from such activities, it is important to note the SJVAPCD has not established quantified construction GHG emissions threshold. The SJVAPCD recommends that GHG emissions are quantified and lead

agencies are encouraged to incorporate best management practices to reduce GHG emissions during construction, as feasible and applicable.

Construction activities associated with the proposed Specific Plan would produce combustion emissions from various sources. During construction, GHG emissions would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Using CalEEMod, it is estimated that implementation of the proposed Specific Plan would generate a total of approximately 173,218 metric tons of CO₂e during construction. When considered over the approximately 30-year life of the proposed Specific Plan, amortized construction emissions would be approximately 5,774.9 metric tons of CO₂e per year. The SJVAPCD does not have an adopted threshold of significance for construction-related GHG emissions. Implementation of Mitigation Measure GHG-1.1 requires that by 2020, construction contractors shall employ five percent of construction vehicles/equipment that utilize new technologies (i.e., repowered engines, electric drive trains), CARB-approved low carbon fuel, or are electrically-powered. By 2030, construction contractors shall employ 10 percent of construction vehicles/equipment that utilize new technologies, CARB-approved low carbon fuel, or are electrically-powered. Implementation of Mitigation Measure GHG-1.1 would reduce construction-related GHG emissions and would ensure project construction impacts associated with GHG emissions would be considered less than significant.

Operational Emission Impacts. Long-term operation of the proposed Specific Plan would generate GHG emissions from mobile, area, waste, and water sources as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions would include Specific Plan-generated vehicle trips. Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses. Energy source emissions are typically generated at off-site utility providers as a result of increased electricity demand generated by a project. Waste source emissions generated by the proposed Specific Plan include energy generated by land filling and other methods of disposal related to transporting and managing waste. In addition, water source emissions associated with the proposed Specific Plan are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

Following guidance from the SJVAPCD, GHG emissions for operation of the project were calculated using CalEEMod. Model results are shown in Table 4.8.E. For purposes of evaluating the proposed Specific Plan, the county in CalEEMod was specified as Madera County and the climate zone of 3 was selected. Based on this climate zone, CalEEMod assumed a wind speed of 2.9 meters per second and precipitation frequency of 51 days per year. The operational year was assumed to be 2029 for Phase I, 2040 for Phase II, and 2050 for Phase III. The utility company for the region was selected as Pacific Gas & Electric Company (PG&E) and the CO₂ intensity was determined to be 328.8 pounds per megawatt hour based on a 5-year average estimated by PG&E.

Table 4.8.E: Unmitigated GHG Emissions (Metric Tons Per Year)

Emissions Source	Operational Emissions			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Phase I Operational Emissions				
Phase I Area Sources	3,652.9	8.9	<0.1	3,884.4
Phase I Energy Sources	10,010.2	0.5	0.2	10,078.3
Phase I Mobile Sources	52,709.2	2.8	0.0	52,778.8
Phase I Waste Sources	598.5	35.3	0.0	1,482.7
Phase I Water Sources	421.7	8.1	0.2	682.3
Total Phase I Operational Emissions				68,906.4
Phase II Operational Emissions				
Phase II Area Sources	10,455.3	33.8	0.1	11,317.1
Phase II Energy Sources	19,277.3	1.0	0.4	19,408.4
Phase II Mobile Sources	69,854.7	3.4	0.0	69,939.7
Phase II Waste Sources	1,157.6	64.4	0.0	2,868.0
Phase II Water Sources	791.2	15.3	0.4	1,283.8
Total Phase II Operational Emissions				104,817.0
Phase III Operational Emissions				
Phase III Area Sources	1,557.1	45.9	0.1	15,749.4
Phase III Energy Sources	28,460.2	1.6	0.5	28,654.0
Phase III Mobile Sources	116,360.7	5.4	0.0	116,494.2
Phase III Waste Sources	1,719.1	101.6	0.0	4,258.9
Phase III Water Sources	1,194.5	23.2	0.6	1,942.0
Total Phase III Operational Emissions				167,098.5
Amortized Construction Emissions				5,773.9
Total Project Annual Emissions				172,872.4

Source: LSA (March 2020).

Trip generation rates used in CalEEMod for the project were based on the proposed Specific Plan's trip generation estimates,²⁹ which assumes that Phase I of the project would typically generate approximately 31,250 average daily trips, completion of Phase I and Phase II of the project would typically generate approximately 56,825 average daily trips, and full build out (completion of Phase I, Phase II, and Phase III) of the project would typically generate approximately 89,650 average daily trips. Where project-specific data were not available, default assumptions from CalEEMod were used to estimate project emissions. Additional calculation details are included in Appendix E.

The SJVAPCD *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* presents a tiered approach to analyzing project significance with respect to GHG emissions.³⁰ Project GHG emissions are considered less than significant if they can meet any of the following conditions, evaluated in the order presented:

²⁹ LSA, 2020. *Traffic Impact Analysis Village D Specific Plan*. May.

³⁰ San Joaquin Valley Air Pollution Control District. 2009. *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17. Available online at: www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf (accessed March 2020).

- Project is exempt from CEQA requirements;
- Project complies with an approved GHG emission reduction plan or GHG mitigation program;
- Project implements Best Performance Standards (BPS); or
- Project demonstrates that specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period.

On November 20, 2015, the California Supreme Court (Court) issued its decision on the Center for Biological Diversity v. California Department of Fish and Wildlife on the Newhall Ranch project case (Newhall Ranch case). Among the findings, the Court supported the use of BAU analyses if it also substantiates the reduction a project must achieve to comply with Statewide goals. If no additional reductions are required from an individual project beyond that achieved by regulations to achieve the AB 32 target for 2020, then the amount needed to reach the AB 32 target is the reduction a project must achieve to comply with Statewide goals.

The proposed Specific Plan is not expected to be exempt from CEQA requirements. The City has an adopted CAP that includes 2020 and 2030 emission forecasts and reduction targets and a 2030 horizon. The reduction target is based on AB 32, Executive Order S-3-05, and Executive Order B-30-15. The State has since adopted updated emission targets for 2030 and additional 2045; therefore, additional reductions would be required.

In order to evaluate a proposed Specific Plan's consistency with the CAP, the City has developed the CAP Consistency Worksheet (Appendix E of the CAP). The worksheet is designed to help the City determine if a project is consistent with the CAP but does not define which measures would need to be implemented for the consistency determination, as requirements may vary by project type. This worksheet should be filled out for each new project, subject to discretionary review of the City of Madera.

Projects that demonstrate consistency with the CAP are considered less than significant in terms of the contribution of GHG emissions. If it is determined that a project is not consistent with the CAP, further CEQA analysis would be required. The proposed Specific Plan's consistency with the CAP Consistency Worksheet is summarized in Table 4.8.F below.

As demonstrated in Table 4.8.F, the proposed Specific Plan's consistency with many of the CAP measures would be determined by design decisions that are currently not evident from the conceptual plans evaluated for the environmental analysis in this Draft EIR. Implementation of Mitigation Measure GHG-1.1 would ensure the proposed Specific Plan incorporates design features consistent with the applicable measures as included in the City's CAP. With implementation of these measures, the proposed Specific Plan would be in compliance with the City's CAP. The mitigated project would implement GHGs reduction strategies in compliance with the CAP and would not be a significant source of GHG emissions. Therefore, the proposed Specific Plan's impacts would be less than significant with mitigation incorporated.

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
E-2 Energy Efficient New Construction	Is the project consistent with applicable policies of the Conservation Element of the General Plan?	Yes	Applicable policies of the Conservation Element of the General Plan state that all development should be designed to be energy-efficient (Policy CON-40) and development should include green building practices in all projects (Policy CON-44). The proposed Specific Plan is consistent with the applicable policies of the Conservation Element of the General Plan as Section 7.15 Sustainability Guidelines of the proposed Specific Plan states that future development under the proposed Specific Plan should strive for energy reduction in excess of that required by Title 24 standards and implement energy efficiency strategies.
	Does the project exceed Title 24 Energy Efficiency Building Standards, meet the State’s Green Building Standards voluntary tier levels, or is LEED Greenpoint, or ENERGY STAR rated?	Yes with Mitigation Measure GHG-1.1	<p>As identified in Section 7.15 Sustainability Guidelines of the proposed Specific Plan, future development under the proposed Specific Plan should strive for energy reduction in excess of that required by Title 24 standards. In addition, the proposed Specific Plan encourages the following energy efficiency strategies, which are required by Mitigation Measure GHG-1.1:</p> <ul style="list-style-type: none"> • Provide natural lighting, where feasible, to reduce reliance on artificial lighting. • Use Low-E or EnergyStar windows. • Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels. • Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation. • Implement some of the strategies of the EnergyStar program. • For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs. • In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel efficient vehicles. <p>However, current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate whether projects would exceed Title 24 Energy Efficiency Building Standards, meet the State’s Green Building Standards voluntary tier levels, or is LEED Greenpoint, or ENERGY STAR rated. Future discretionary project plans would be reviewed by the City of Madera Planning Department for consistency with the applicable Title 24 standards prior to project approval.</p>

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
E-3 On-Site Small-Scale Renewable Energy	Does the project include solar PV systems or solar hot water heaters?	Yes with Mitigation Measure GHG-1.1	With implementation of Mitigation Measure GHG-1.1, the proposed Specific Plan would install solar PV systems or solar hot water heaters.
T-1: Infill and Mixed-Use Development	Is the project consistent with the land use designation(s) shown on the General Plan Land Use Map and with the applicable policies of the Land Use Element of the General Plan policies?	Yes	Section 4.11, Land Use and Planning, discusses the impacts related to land use and planning that could result from implementation of the proposed Specific Plan. The proposed project includes a General Plan Land Use category titled Specific Plan Area. Detailed land use regulations are contained within each adopted Specific Plan document. As such, the proposed Specific Plan includes a mix of Village Reserve (VR), Village Mixed Use (VMU), Neighborhood Mixed Use (NMU), Low Density Residential (LD), Medium Density Residential (MD), High Density Residential (HD), and Open Space (OS). Upon approval of the proposed Specific Plan (including the requested General Plan Amendment), the proposed project would be consistent with the General Land Use Map.
	Is the project consistent with the Madera County Blueprint?	Yes	Section 4.11 Land Use and Planning discusses the impacts related to land use and planning that could result from implementation of the proposed Specific Plan.
	Does the project include mixed-use, higher density (22.5 to 50 units per acre), or infill development?	Yes	Implementation of the proposed Specific Plan would result in a mix of residential, commercial/office, business park industrial uses, public facilities and park/open space uses in the Specific Plan Area. As described in Chapter 3, Project Description, high density residential has a density range of 15.1 to 50 development units per acre, with an anticipated density of 22.5 du/ac.
	Is the project located within ¼ mile of transit stops or in existing community centers/downtown?	Yes	Implementation of the proposed Specific Plan would create a transportation network that would fulfill the policies of the Madera General Plan Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit. Public transportation in the City includes bus and rail service. The study area is serviced by the Madera Area Express System, the JET Express System, and the Madera County Connection System. The City has an Amtrak station on Road 26, and there are plans to move the station south to Avenue 12 and to possibly add a High-Speed Rail stop in the City in the future. Although the Specific Plan Area is not currently within ¼ mile of transit stops, the current population of the Specific Plan Area does not support transit stops. The proposed Specific Plan would encourage the addition of new transit stops to expand service in the Specific Plan Area. As such, the project would include transit stops within the Specific Plan Area.

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
T-2 Bicycle and Pedestrian Environment	Is the project consistent with applicable policies of the Community Design and Circulation Elements of the General Plan?	Yes	Applicable policies of the Community Design Element and the Circulation Element of the General Plan relate to designing new development to be walkable pedestrian- and bicycle- oriented development. Implementation of the proposed Specific Plan would fulfill the policies of the Madera General Plan Circulation Element and the City’s CAP by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.
	Is the project consistent with the Bicycle Master Plan?	NA	The City does not have an adopted Bicycle Master Plan, however, the proposed Specific Plan would include bicycle lanes and off-street in order to create accessibility and mobility within the Specific Plan Area. A multi-purpose pedestrian and bicycle trail would be provided along the Fresno River area. The proposed Specific Plan would also construct trail connections to link the multi-purpose trail along the river with the larger on-street bicycle network for the proposed Specific Plan. These bike paths would encourage linkages to the City’s planned bike path system.
	Does the project meet minimum design criteria for bicycle and pedestrian circulation?	Yes	The proposed Specific Plan would include bicycle lanes and off-street in order to create accessibility and mobility within the Specific Plan Area. A multi-purpose pedestrian and bicycle trail would be provided along the Fresno River area. The proposed Specific Plan would construct trail connections to link the multi-purpose trail along the river with the larger on-street bicycle network for the proposed Specific Plan. These bike paths would provide linkages to the City’s master planned bike path system.
	Does the project provide adequate and secure bicycle parking?	Yes	As identified in the proposed Specific Plan, bicycle parking areas would be located close to building entrances, protected from the weather, and not in conflict with pedestrian traffic.
T-3 Transit Travel	Is the project consistent with applicable policies of the Circulation and Community Development Elements of the General Plan?	Yes	Applicable policies of the Community Design Element and the Circulation Element of the General Plan relate to planning and accommodating for transit travel (Policy CI-28, Policy CI-30, Policy CI-31, Policy CI-41, Policy CI-50, Policy H-5.3, and Policy CD-59). Implementation of the proposed Specific Plan would create a transportation network that would fulfill these policies by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
	Does the project provide safe routes to adjacent transit stops, where applicable?	Yes with Mitigation Measure GHG-1.1	Current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate safe routes to adjacent transit stops. Project plans would be reviewed by the City of Madera Planning Department to determine whether projects provide safe routes to adjacent transit stops prior to project approval. With implementation of Mitigation Measure GHG-1.1, prior to approval of future projects associated with the Specific Plan, applicants shall submit to the City of Madera Planning Department a Greenhouse Gas Reduction Plan referencing construction plans details and specifications to document implementation and compliance with applicable Climate Action Plan (CAP) measures, including providing safe routes to transit stops.
	Does the project finance and/or construct bus turnouts and shelters where transit demand warrants such improvements?	Yes with Mitigation Measure GHG-1.1	Current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate bus turnouts and shelters. To the extent deemed feasible by the City of Madera Planning Department, project plans would be reviewed to determine whether projects provide bus turnouts and shelters prior to project approval.
	Does the project provide public transit vouchers to its employees?	Yes with Mitigation Measure GHG-1.1	With implementation of Mitigation Measure GHG-1.1, the proposed Specific Plan would provide a transit subsidy to employees.
T-4 Commute Trip Reduction	Is the project consistent with applicable policies of the Community Development Element of the General Plan?	Yes	Applicable policies of the Community Design Element and the Circulation Element of the General Plan aim to provide parking for alternative modes of transportation (Policy CD-59), encourage the use of ridesharing (Policy CI-37), facilitate employment opportunities that minimize the need for vehicle trips (Policy CI-42) and promote jobs that reduce the need for residents to commute to work outside the City (Policy SUS-15). Implementation of the proposed Specific Plan would fulfill these policies allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.
	Does the project include and/or promote Traffic Demand Management (TDM) programs?	Yes	Commute trip reduction measures facilitate programs that give commuters and employers resources and incentives to reduce single-occupancy vehicle trips. Implementation of the proposed Specific Plan would create a transportation network that would fulfill the policies of the Madera General Plan Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimizing vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
T-5 Traffic Flow and Vehicle Idling	Does the project include measures to improve traffic flow?	Yes	As identified in the proposed Specific Plan, the proposed Specific Plan includes a circulation plan that would allow for efficient traffic flow throughout the Specific Plan Area to reduce unnecessary vehicle idling. In addition, the proposed Specific Plan includes options for transportation within the Specific Plan Area to reduce vehicle use.
T-6 Low Carbon Fuel Vehicles and Infrastructure	Is the project consistent with applicable policies of the Community Development Element of the General Plan?	Yes with Mitigation Measure GHG-1.1	Applicable policies of the Community Design Element of the General Plan aim to provide parking for alternative modes of transportation (Policy CD-59) and develop alternative fuel fueling stations (Policy CON-33). With implementation of Mitigation Measure GHG-1.1, the project plans would be reviewed by the City of Madera Planning Department to determine whether projects provide plug-in electric vehicle facilities prior to project approval. Therefore, with implementation of Mitigation Measure GHG-1.1, the proposed Specific Plan is consistent with applicable policies of the Community Development Element of the General Plan.
	Is the project consistent with the San Joaquin Valley Plug-in Electric Vehicle (PEV) Readiness Plan?	Yes with Mitigation Measure GHG-1.1	Current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate whether projects provide plug-in electric vehicle facilities. Notwithstanding, project plans would be reviewed by the City of Madera Planning Department to determine whether projects provide plug-in electric vehicle facilities prior to project approval consistent with Mitigation Measure GHG-1.1.
	Does the project include alternative fueling stations or EV charging stations?	Yes with Mitigation Measure GHG-1.1	Current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate whether projects include alternative fueling stations or electric vehicle (EV) charging stations. Project plans would be reviewed by the City of Madera Planning Department, to determine whether projects include alternative fueling stations or EV charging stations prior to project approval consistent with Mitigation Measure GHG-1.1.
T-7 Construction and Off-Road Equipment	Would construction of the project use alternatively fueled construction vehicles/equipment (i.e., repowered engines, electric drive trains, CARB-approved low carbon fuel, electrically-powered)?	Yes with Mitigation Measure GHG-1.1	Current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate whether construction of projects associated with the proposed Specific Plan would use alternatively fueled construction vehicles/equipment. In compliance with Mitigation measure GHG-1.1, project construction plans would be reviewed by the City of Madera Planning Department, to determine whether construction of projects associated with the proposed Specific Plan would use alternatively fueled construction vehicles/equipment prior to project approval.

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
	Would the project include low-maintenance native landscaping or xeriscaping?	Yes with Mitigation Measure GHG-1.1	<p>The Section 7.15 Sustainability Guidelines of proposed Specific Plan encourages the following landscape design strategies:</p> <ul style="list-style-type: none"> • Use low- or medium-water use and native plant materials where appropriate. Turf areas should be minimized in the community to promote water conservation. Limit the use of turf to areas that experience high functional use and are needed to accommodate outdoor activities such as sports, picnicking, etc. Only turf varieties that are suited to the climate should be used. • Promote the use of plant materials that are well suited to the solar orientation and shading of the buildings. • Encourage grouping of plants according to water use, slope aspect and sun/shade requirements. Each hydrozone may be irrigated on a separate valve using high-efficiency irrigation techniques. • Consider the use of organic wood or shredded bark mulch and soil amendments to retain soil moisture. • Encourage the use of colored hardscape materials to reduce glare and/or reflect heat in outdoor plazas and gathering areas. • Encourage the use of low-growing, low- to medium-water use plant material in parkways instead of turf. • Provide shade trees in paved areas and adjacent to buildings, where feasible, to increase natural cooling and conserve energy. <p>However, current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate whether projects would include these water efficiency measures. Notwithstanding, project plans would be reviewed by the City of Madera Planning Department for inclusion of low-maintenance native landscaping or xeriscaping prior to project approval as required by Mitigation Measure GHG-1.1.</p>

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
W-1 Exceed SB X7-7 Water Conservation Target	Does the project incorporate water efficiency and water conservation measures?	Yes	<p>Projects associated with the proposed Specific Plan would comply with the California Green Building Code standards, which requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. Projects would install ultra-low flow fixtures and appliances. Projects would install water meters at all of the service connections. The service provider will assess service charges based on volumetric rates and/or tiered rates. The rate structure will encourage reasonable water uses.</p> <p>In addition, as identified in Section 7.15 Sustainability Guidelines of the proposed Specific Plan, future development under the proposed Specific Plan should strive for water efficiency in excess of that required by Title 24 standards. In addition, the proposed Specific Plan encourages the following water efficiency strategies:</p> <ul style="list-style-type: none"> • Where feasible reduce water consumption by providing low-flush toilets, low-flow shower heads and other water conserving fixtures, where feasible. • Promote the use of recirculating systems for centralized hot water distribution. • Promote the use of tankless water heaters. • Use micro-irrigation (which excludes sprinklers and high-pressure sprayers) to supply water in non-turf areas, where applicable. • Encourage the use of state-of-the-art irrigation controllers and self-closing nozzles on hoses. • Where feasible, use separate valves for planting areas with different water usage levels, so that plants with similar water needs are irrigated by the same valve. <p>However, current plans for projects associated with the proposed Specific Plan do not provide sufficient detail to demonstrate whether projects would include these water efficiency measures. Project plans would be reviewed by the City of Madera Planning Department for incorporation of water efficiency and water conservation measures prior to project approval.</p>
W-2 Recycled Water	Is the project consistent with applicable policies of the Conservation Element of the General Plan?	Yes	<p>Applicable policies of the Conservation Element of the General Plan support the use of reclaimed water (Policy CI-54, Policy CON-5, and Policy CON-6), implement strategies to ensure long-term sustainability of water supply (Policy CON-2), and encourage the use of gray water systems and other water reuse methods (Policy CON-7). The proposed Specific Plan is consistent with these policies as future development under the proposed Specific Plan would strive for water efficiency in excess of that required by Title 24 standards and the proposed Specific Plan encourages various water efficiency strategies.</p>

Table 4.8.F: Project Consistency with the City of Madera Climate Action Plan

Measure Name	Project Actions	Project Compliance (Yes/No/NA)	Description/Details
	Does the project incorporate recycled/reclaimed water?	Yes	As identified in the Infrastructure Master Plan, the proposed Specific Plan includes a Non-Potable Water System Master Plan that requires that reclaimed water would be used for groundwater recharge and irrigation of landscaped areas and open space areas to reduce groundwater demand.
U-1 Trees and Vegetation	Is the project consistent with applicable policies of the Community Design Element of the General Plan?	Yes	Applicable policies of the Community Design Element of the General Plan support the planning of street trees (Policy CD-26, Policy CD-43), encourage landscaping to reduce the urban heat island effect (Policy CON-10, Policy Con-31, Policy CD-4), and establish landscape and façade maintenance programs (Policy CD-7). The proposed Specific Plan is consistent with these policies as the proposed Specific Plan would include the planting of new trees and landscaping throughout the Specific Plan Area consistent with the Landscape Guidelines and the Master Landscape Concept Plan.
	Does the project include the planting of new trees or new acres of vegetated land?	Yes	The proposed Specific Plan would include the planting of new trees and landscaping throughout the Specific Plan Area consistent with the Landscape Guidelines and the Master Landscape Concept Plan.

Source: City of Madera (2015) and LSA (February 2020).

The proposed Specific Plan requires mitigation in order to have consistency with the City's CAP measures as outlined in Table 4.8.F. The CAP itself has aligned its 2020 and 2030 reduction targets and measures to meet the Statewide goals. It is important to note that while the CAP measures were implemented prior to the adoption of SB 32 in 2016, the CAP set its 2030 reduction target in alignment with Executive Order B-30-15, where GHG reduction targets are mandated to 40 percent below 1990 levels by 2030. The 2030 goal in Executive Order B-30-15 matches the Statewide goal in SB 32. Therefore, the City's CAP goal and the State's latest target for 2030 are in alignment and development projects that implement the reduction measures to meet the 2030 reduction target are considered less than significant with mitigation incorporated in regard to GHG impacts. In addition, Mitigation Measure AIR-2.2 as identified in Section 4.3 Air Quality, is required and would further reduce GHG emissions and would ensure consistency with the CAP and State reduction targets.

Level of Significance Without Mitigation: Potentially significant.

Impact GHG-1: The Specific Plan could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Mitigation Measure GHG-1.1 Prior to issuance of grading permits, applicants shall submit to the City of Madera Planning Department a Greenhouse Gas Reduction Plan, or proof of compliance with the City's Climate Action Plan (CAP), referencing construction plans details and specifications to document implementation and compliance with the following applicable CAP measures. Implementation of the following CAP measures is considered to be applicable, feasible, and effective in reducing greenhouse gas emissions generated by the project:

- Exceed Title 24 Energy Efficiency Building Standards, meet State Green Building Standards voluntary tier levels, become Leadership in Energy and Environmental Design (LEED) Greenpoint rated, or ENERGY STAR rated.
- Install solar photovoltaic (PV) systems or solar hot water heaters.
- Provide safe routes to adjacent transit stops.
- Finance and/or construct bus turnouts and shelters where transit demand warrants such improvements.
- Provide public transit vouchers to employees.
- Include alternative fueling stations or electric vehicle (EV) charging stations.

- By 2020, ensure construction contractors employ five percent of construction vehicles/equipment that utilize new technologies (i.e., repowered engines, electric drive trains), California Air Resources Board (CARB)-approved low carbon fuel, or are electrically-powered. By 2030, ensure construction contractors employ 10 percent of construction vehicles/equipment that utilize new technologies, CARB-approved low carbon fuel, or are electrically-powered.
- Include low-maintenance native landscaping or xeriscaping.

Level of Significance With Mitigation: Less than significant.

Threshold 4.8.2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The following discusses the consistency of the proposed Specific Plan to the State GHG reduction goals and the CARB Scoping Plan.

AB 32 is aimed at reducing GHG emissions to 1990 levels by 2020. AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. The AB 32 Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

Executive Order Executive Order B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan,³¹ to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Executive Order B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. The companion bill to SB 32, AB 197, provides additional direction to the CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 intended to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

As identified above, the AB 32 Scoping Plan contains GHG reduction measures that work towards reducing GHG emissions, consistent with the targets set by AB 32, Executive Order B-30-15 and codified by SB 32 and AB 197. The measures applicable to the proposed Specific Plan include energy efficiency measures, water conservation and efficiency measures, and transportation and motor vehicle measures, as discussed below.

³¹ California Air Resources Board. 2017, op. cit.

Energy efficient measures are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and implementation mechanisms, and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. The proposed Specific Plan encourages future development to exceed Title 24 standards. In addition, the proposed Specific Plan encourages the following energy efficiency strategies:

- Provide natural lighting, where feasible, to reduce reliance on artificial lighting.
- Use Low-E or EnergyStar windows.
- Use high-efficiency lighting systems with advanced lighting controls. For nonresidential buildings, consider providing motion sensors tied to dimmable lighting controls. Task lighting may be used to reduce general overhead light levels.
- Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider using light colors for roofing and wall finish materials, and installing high R-value wall and ceiling insulation.
- Implement some of the strategies of the EnergyStar program.
- For retail, commercial and office uses, use light colored roofing with a high solar reflectance to reduce the heat island effect from roofs.
- In retail, commercial and office development, encourage the provision of preferred parking spaces for hybrid, fuel cell, electric and/or other fuel-efficient vehicles.

Therefore, the proposed Specific Plan would not conflict with energy efficient measures.

Water conservation and efficiency measures are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. The proposed Specific Plan would be constructed to the CALGreen Code, which requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. In addition, the proposed Specific Plan would install ultra-low flow fixtures and appliances. Therefore, the proposed Specific Plan would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to develop regional GHG emissions reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the proposed Specific Plan. The proposed Specific Plan would promote initiatives to reduce vehicle trips and vehicle miles traveled and would increase the use of alternate means of transportation. Therefore, the proposed Specific Plan would not conflict with the identified transportation and motor vehicle measures.

The proposed Specific Plan would comply with existing State regulations adopted to achieve the overall GHG emissions reduction goals identified in AB 32, the AB 32 Scoping Plan, Executive Order B-30-15, SB 32, and AB 197 and would be consistent with applicable State plans and programs designed to reduce GHG emissions. With implementation of Mitigation Measure GHG-1.1, the proposed project would be consistent with the City's CAP. As discussed above, the CAP itself has aligned its 2020 and 2030 reduction targets and measures to meet the Statewide goals. It is important to note that while the CAP measures were implemented prior to the adoption of SB 32 in 2016, the CAP set its 2030 reduction target in alignment with Executive Order B-30-15, where GHG reduction targets are mandated to 40 percent below 1990 levels by 2030. The 2030 goal in Executive Order B-30-15 matches the Statewide goal in SB 32. Therefore, the City's CAP goal and the State's latest target for 2030 are in alignment and development projects that implement the reduction measures to meet the 2030 reduction target are considered less than significant with mitigation incorporated in regard to GHG impacts. Therefore, with mitigation to bring the Specific Plan into compliance with the CAP, the proposed Specific Plan would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant with implementation of Mitigation Measure GHG-1.1.

Level of Significance Without Mitigation: Potentially significant.

Impact GHG-2: The Specific Plan would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Mitigation Measure GHG-2.1 Implement Mitigation Measure GHG-1.1.

Level of Significance With Mitigation: Less than significant.

4.8.2.3 Cumulative Impacts

Greenhouse gas impacts are by their nature cumulative impacts. Localized impacts of climate change are the result of the cumulative impact of global emissions. The combined benefits of reductions achieved by all levels of government help to slow or reverse the growth in greenhouse gas emissions. In the absence of comprehensive international agreements on appropriate levels of reductions achieved by each country, another measure of cumulative contribution is required. This serves to define the State's share of the reductions regardless of the activities or lack of activities of other areas of the U.S. or the world. Therefore, a cumulative threshold based on consistency with State targets and actions to reduce GHGs is an appropriate standard of comparison for significance determinations.

AB 32 requires CARB to reduce Statewide GHG emissions to 1990 level by 2020. As part of this legislation, CARB was required to prepare a "Scoping Plan" that demonstrates how the State will achieve this goal. The Scoping Plan was first adopted in 2011 and in it local governments were described as "essential partners" in meeting the Statewide goal, recommending a GHG reduction level of 15 percent below 2005 to 2008 levels, depending on when a full emissions inventory is available, by 2020. As discussed above, the City's CAP has established GHG emissions targets for the years 2020 and 2030 to support California's larger effort to reduce statewide emissions under AB 32 and Executive Orders S-3-05 and B-30-15.

Reductions will be achieved by existing development and new projects. Residents of new development projects will achieve lower per capita rates than residents of existing development. This is because of greater energy efficiency in new structures and lower motor vehicle travel resulting from the project designs and higher development densities anticipated from implementation of the proposed Specific Plan.

The CARB released the First Update to the Climate Change Scoping Plan on February 10, 2014. The draft update emphasized the need for a mid-term target between 2020 and 2050 to provide a continuum of action to reduce cumulative emissions. The EO B-30-15 and SB 32 required CARB to reduce Statewide GHG emissions to 40 percent below 1990 levels by 2030. The EO B-30-15 further stated that the emission reduction target of 40 percent below 1990 levels by 2030 is an interim-year goal to make it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050. The order directs CARB to provide a plan with specific regulations to reduce Statewide sources of GHG emissions. The Executive Order does not include a specific guideline for local governments. The 2017 Scoping Plan recommends local plan level GHG emissions reduction goals.

Buildout of the proposed Specific Plan would occur in 2049. As such, projects associated with implementation of the proposed Specific Plan would be required to help the City do its part in reducing GHG emissions for the short-term (2020) and the long term (2049).

As identified above, the proposed Specific Plan includes various energy-efficiency and water-efficiency measures, which would help reduce GHG emissions and align with State targets. As discussed above, implementation of Mitigation Measure GHG-1.1 would ensure the proposed Specific Plan incorporates design features consistent with the applicable measures as included in the City's CAP. The mitigated project would implement GHGs reduction strategies in compliance with the CAP and would not be a significant source of GHG emissions. Therefore, with implementation of Mitigation Measure GHG-1.1, implementation of the proposed Specific Plan would meet the City's reduction targets, consistent with the State's goals.

Level of Significance Without Mitigation: Potentially significant impact.

Impact GHG-3: The proposed Specific Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to greenhouse gas emissions.

Mitigation Measure GHG-3.1 Implement Mitigation Measure GHG-1.1.

Level of Significance With Mitigation: Less than significant.

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4.9 HAZARDS AND HAZARDOUS MATERIALS

This section describes the environmental setting, including regulatory framework and existing conditions in the Specific Plan Area related to, and potentially significant environmental impacts of the proposed Specific Plan on hazards and hazardous materials. The analysis in this section is based in part on the following databases and reports:

- GeoTracker, 2020. State Water Resources Control Board (SWRCB) database of hazardous materials sites that could affect groundwater quality, searched February 18, 2020
- EnviroStor, 2020. California Department of Toxic Substances Control (DTSC) database of sites with known contamination or sites for which there may be reasons to investigate further, February 18, 2020
- City of Madera General Plan, October 7, 2009
- City of Madera General Plan Update/Environmental Impact Report, May 2009
- Madera County Local Hazard Mitigation Plan Update, October 2017
- Madera County Madera Countywide Airport Land Use Compatibility Plan, Adopted September 25, 2015
- City of Madera Municipal Code

4.9.1 Environmental Setting

4.9.1.1 Specific Plan Area

The Specific Plan Area is approximately 1,900 acres in size and is located along the western edge of the City of Madera. The City is located along California State Route 99 (SR 99) and is 15 miles northwest of Fresno, the largest surrounding city. The Specific Plan Area is bound by Avenue 17 to the north, Road 24 to the east, the Fresno River to the south, and Road 22 to the west. The Specific Plan Area is located within the City's Sphere of Influence (SOI), recently approved in October 2018 by the Madera County Local Agency Formation Commission (LAFCO).

The Specific Plan Area is surrounded by primarily agriculture uses on the north and western boundaries, and the Fresno River and agriculture uses to the south. The Madera Municipal Golf Course, Madera Municipal Airport, and residential uses are directly north of the Specific Plan Area. The existing land use within the Specific Plan Area is predominately characterized by active agriculture operations and a mix of irrigated crops with three active Williamson Act contracts.¹ The Specific Plan Area has existing residential and agricultural support structures, as well as irrigation canals, as outlined in Section 3.13, Existing Land Uses and Infrastructure.

¹ Parcels 033-170-001, 033-170-009, and 033-170-005. These parcels are located south of Avenue 16 and west of Road 23 in the southwest portion of the Specific Plan Area.

Hazardous Materials within the Specific Plan Area. CalEPA is required to compile, maintain, and update lists annually of hazardous material releases under California Government Code Section 65962.5. The DTSC is responsible for maintaining the Hazardous Waste and Substances Site List (Cortese List) along with other state and local government agencies to provide additional hazardous material release information for annual updates.² The DTSC online EnviroStor and SWRCB online GeoTracker databases include hazardous material release sites along with other categories of sites or facilities specific to each agency's jurisdiction.^{3,4}

A review of the Cortese List shows no hazardous materials within the Specific Plan Area.

4.9.1.2 Regulatory Context

Hazardous materials refer to substances or waste products that exhibit potential harm to human health, safety, and/or the environment. Hazardous materials can be potentially corrosive, poisonous, flammable, and/or undergo a chemical reaction that may cause harm. These materials can be used in everyday products (e.g., household cleaners, industrial solvents, pesticides, electronics, plastic products, etc.) and can include toxic chemicals. These products are commonly used in agriculture, commercial, industry, hospitals, and households.

"Hazardous materials" described in this section includes all materials defined in the California Health and Safety Code (HSC) Section 25260 as a:

"substance or waste that, because of its physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of degrading the environment. 'Hazardous material' includes, but is not limited to...A hazardous substance (Section 25281 or 25316); a hazardous waste (Section 25117); A waste (Section 470 or Section 13050 of the Water Code)."⁵

"Hazardous substances" are substances that can adversely affect a person's health, or quality of the environment (e.g., carcinogenic, airborne contaminant, contaminates water, etc.). "Hazardous waste" is any discarded hazardous material and includes hazardous materials purposefully disposed of, or inadvertently released, unless the material has been specifically excluded by regulation. Hazardous wastes are broadly characterized by their ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity. Waste as referenced in HSC Section 470 and Section 13050 of the Water Code is used oil or sewage (radioactive, of human or animal origin, etc.).

Hazardous materials, including certain chemicals are regulated under various state and federal agencies such as the: United States Department of Transportation (USDOT), the United States

² California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed April 23, 2020).

³ California Department of Toxic Substances Control. 2020. EnviroStor. Website: www.envirostor.dtsc.ca.gov/public (accessed April 23, 2020).

⁴ California State Water Resources Control Board. 2020. GeoTracker. Website: geotracker.waterboards.ca.gov (accessed April 23, 2020).

⁵ Find Law. 2020. California Code, Health and Safety Code Section 25260. Website: codes.findlaw.com/ca/health-and-safety-code/hsc-sect-25260.html (accessed April 23, 2020).

Environmental Protection Agency (USEPA), the DTSC, the California Governor’s Office of Emergency Services, and other agencies.

The federal and state levels have defined hazardous waste similarly; however, certain distinctions have separated the two agencies. The federal agency addresses hazardous waste with the Resource Conservation and Recovery Act of 1976 (RCRA), while the state handles non-RCRA hazardous wastes. Federal, state, and local programs have set various regulations in handling (treating, storing, and transportation) and disposing hazardous waste to prevent mishandling and potential impact to public health and environment. Some materials are designated “acutely” or “extremely” hazardous under relevant statues and regulations.

Federal, state and local agencies and programs are briefly summarized below.

Federal Agencies and Regulations

United States Environmental Protection Agency. The USEPA mission is to protect human health and the environment. Laws and regulations under the USEPA are to ensure the safe production, handling, disposal, and transportation of hazardous materials and are enforced by the local and state agencies, as discussed below.

Unites States Department of Transportation. The USDOT is responsible for helping maintain and develop transportation systems and infrastructures of the nation. All transportation, excluding package delivery (regulated by the United States Postal Service) falls under USDOT responsibilities, including the transportation of hazardous materials between states and foreign countries. Additional standards for hazardous waste transportation were imposed by RCRA in 1976.

Occupational Safety and Health Administration. The main purpose of the Occupational Safety and Health Administration (OSHA) is to ensure safe and healthful working conditions for employees by setting and enforcing standards that must be followed by all. Training, outreach, education, and assistance fall under OSHA responsibilities. The OSHA Act of 1970 requires specific training for those handling hazardous wastes, as well as provision of information to employees exposed to hazardous waste/materials, and acquisition of material safety data sheets from material manufactures.

Federal Emergency Management Agency. Under the Department of Homeland Security, the Federal Emergency Management Agency (FEMA) coordinates federal government response to natural and manmade disasters. FEMA ensures emergency plans are established and development of policies and programs for emergencies are available at federal, state, and local levels. Enforcement is delegated to state and local environmental regulatory agencies.

Federal Aviation Administration (14 Code of Federal Regulations [CFR] Part 77). Under USDOT, the Federal Aviation Administration (FAA) is responsible for the regulation and oversight of civil aviation within the US and includes operation and development of the National Airspace System. The FAA reviews developments within a vicinity of an airport and reviews activities that may be potentially hazardous to navigable airspace. Regulations for 14 CFR Part 77 are in place

to ensure no temporary or permanent obstruction exists within the navigable airspace to limit airspace efficiency or can pose as a danger to the public. Structures have a maximum height based on proximity to the airport.

Toxic Substances Control Act (15 United States Code Section 2601-2692). Under the Toxic Substances Control Act (TSCA) of 1976 (amended December 31, 2002), the USEPA has the authority to require reporting, record-keeping, and testing requirements related to chemical substances and/or mixtures. Production, importation, use, and disposal are specifically addressed in the TSCA, and include polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint. Use of chemicals listed under the TSCA require testing, inventory maintenance, and require those importing chemicals under Sections 12(b) and 13 to comply with certification and/or other reporting requirements.

Emergency Planning and Community Right-To-Know Act (Title III of the Federal Superfund Amendments and Reauthorization Act, or "SARA III"; 42 United States Code 11001, et seq.). The purpose of the Emergency Planning and Community Right-To-Know Act of 1986 is to help communities plan for chemical emergencies, provide notification of emergency releases of chemicals, and address a citizen's right to know about hazardous and toxic chemicals at a state and local level. Sara III increases access of chemical hazard information to communities and facilitates the creation and implementation of state/Native American tribe emergency response.

Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code 136, et seq.). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) passed in 1974 has been amended several times with the most recent amendment by the Food Quality Protection Act of 1996. FIFRA was set to regulate pesticides to protect applicators, consumers, and the environment. The USEPA, under this act was given the authority to study the effects of pesticide use, enforce clear instruction use are included in pesticide labels, and require applicators to pass a licensing examination to be a "qualified applicator".

Hazardous Materials Transportation Act – Safe Transport of Hazardous Materials. As stated above, the USDOT regulates the transportation of hazardous materials between states (Title 49, Chapter 1, Part 100-185 of the Code of Federal Regulations). The Hazardous Materials Transportation Act (HMTA) was passed to improve regulations for transporting and to prevent spills and illegal dumping. The California Department of Transportation (Caltrans) and the California Highway Patrol (CHP) enforces these federal laws within California. Driver training requirements, load labeling procedures, and container type specifications are examples of ways Caltrans and the CHP regulate hazardous materials within the State. HMTA governs safe transportation of hazardous materials by all modes, excluding bulk transportation by water.

Resource Conservation and Recovery Act. The RCRA, passed in 1976 and amended in 1984, regulates the treatment, storage, and disposal of hazardous and non-hazardous wastes. Tracking hazardous waste from generation to their ultimate fate in the environment is mandated under RCRA.

Comprehensive Environmental Response, Compensation and Liability Act. Introduced in 1980, the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) provides

a federal “Superfund” to clean up uncontrolled or abandoned hazardous-waste sites, including accidents, spills, and other emergency releases of pollutants and contaminants into the environment. CERCLA helps with hazard prevention and response by providing mechanisms for reacting to emergencies and chronic hazardous material releases. Many of the sites under CERCLA result from action taken before the era of comprehensive regulatory protection.

Federal and State Hazardous Materials-Specific Programs and Regulations

Asbestos-Containing Materials Regulations. Asbestos, a naturally occurring fibrous mineral was once commonly used for construction materials for its useful thermal properties and tensile strength. Asbestos-containing materials (ACMs) are generally defined as either friable or non-friable. Friable ACMs are defined as materials containing more than one percent asbestos and are more likely to produce airborne fibers than non-friable ACMs due to their weaker strength. Friable ACMs can be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable ACMs are defined as materials containing one percent or less of asbestos and cannot be broken up by hand-pressure. When undisturbed, ACMs does not pose a health risk to building occupants, but once ACMs is damaged, airborne asbestos fibers can be inhaled and lead to various health problems, such as lung disease.

State and federal agencies regulate removal, abatement, and transportation procedures for ACMs. Releases of asbestos from industrial, demolition, or construction activities are prohibited by these regulations and medical evaluation and monitoring is required for employees performing activities that could expose them to asbestos. Additionally, the regulations include warnings that must be heeded and practices that must be followed to reduce the risk for asbestos emissions and exposure. Finally, federal, State, and local agencies must be notified prior to the onset of demolition or construction activities with the potential to release asbestos. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the responsible agency at the local level to enforce the National Emission Standards for Hazardous Air Pollutants (NESHAPs).

Lead-Based Paint. Once a commonly used paint, lead-based paint (LBP) was federally banned in 1978 by the Consumer Product Safety Commission. Exposure to LBP by inhalation or consumption can result in lead poisoning, which can cause anemia and damage to the brain and nervous system, particularly in children. Similar to ACMs, LBP does not pose a health risk to occupants when left undisturbed; however, deterioration, damage or disturbance can result in hazardous exposure. Based on the federal ban, it is assumed buildings built before, or shortly after 1978 contain LBP as phase out was gradual.

The California Division of Occupational Safety and Health (Cal-OSHA) addresses lead in construction in Title 8, Section 1532.1 of the California Code of Regulations. Regulations address all of the following areas: permissible exposure limits; exposure assessment; compliance methods; respiratory protection; protective clothing and equipment; housekeeping; medical surveillance; medical removal protection; employee information, training, and certification; signage; record keeping; monitoring; and agency notification.

Polychlorinated Biphenyls. PCBs were commonly used in electrical equipment until USEPA prohibited use in 1979 and initiated the phase-out of existing PCB-containing equipment. TSCA,

15 United States Code Section 2601 et seq. handles regulated provisions and the inclusion of PCBs in electrical equipment. Regulated regulations include labeling and periodic inspection for certain types of PCB-containing equipment and outlines strict specific safety procedures for disposal. The State likewise regulates PCB-laden electrical equipment and materials contaminated above a certain threshold as hazardous waste; these regulations require that such materials be treated, transported, and disposed accordingly. At lower concentrations for non-liquids, regional water quality control boards may exercise discretion over the classification of such wastes.

State Agencies and Regulations

California Health and Safety Code and Code of Regulations. Business emergency plans and chemical inventory reporting is mandated under California Health and Safety Code Chapter 6.95 and California Code of Regulations, Title 19, Section 2729. Businesses are required to provide emergency response plans and procedures, training program information, and a hazardous material chemical inventory disclosing hazardous materials stored, used, or handled on-site. If a business uses hazardous materials (standalone or in use with other product) in certain quantities, an emergency plan must be provided.

California Environmental Protection Agency. The California Environmental Protection Agency (CalEPA) is authorized by the USEPA to enforce and implement certain laws and regulations regarding hazardous materials. Under CalEPA, the California DTSC protects the State and people from hazardous waste exposure under RCRA and the California Health and Safety Code.⁶ The DTSC requirements include written programs and response plans such as preparation of a Hazardous Materials Business Plan (HMBP). Programs under the DTSC includes aftermath clean-up of improper hazardous waste management, evaluation of samples taken from sites, regulation enforcement regarding use, storage, and disposal of hazardous materials, and encouragement of pollution prevention.

California Division of Occupational Safety and Health. Cal-OSHA is the state-level agency responsible for ensuring workplace safety and is responsible for adoption and enforcement of workplace safety standards and safety practices. If a site is contaminated, a Site Safety Plan must be created and implemented for the safety of workers. A Site Safety Plan establishes policies, practices, and procedures for workers and the public to follow to prevent exposure from hazardous materials originating from a contaminated site or building.

California Building Code. The California Building Code (CBC), contained in Part 2 of Title 24 of the California Code of Regulations (CCR) identifies building design standards, and includes standards for fire safety. The CBC is updated every three years, with the most recent version of the code effective January 1, 2020. The CBC is effective statewide; however, local jurisdictions may adopt more restrictive standards based on locality's conditions. A local city and county building official must check plans for commercial and residential buildings to ensure compliance with the CBC. Fire safety compliance with the CBC include fire sprinkler installation in all new

⁶ Hazardous Substance Account, Chapter 6.5 (Section 25100 et seq.) and the Hazardous Waste Control Law, Chapter 6.8 (Section 25300 et seq.) of the Health and Safety Code.

residential, high rise, and hazardous materials buildings; establishment of fire-resistant standards for fire doors, building materials, and certain types of construction; debris and vegetation clearance within a prescribed distance from occupied structures in wildfire hazard areas.

California Emergency Management Agency. The California Emergency Management Agency, established as part of the Governor's Office on January 1, 2009 [Assembly Bill (AB) 38 (Nava)], is responsible for overseeing and coordinating emergency preparedness, response, recovery, and homeland security activities within the State and is supported by local government.

California Department of Forestry and Fire Protection. Public Resources Code 4201-4204 and Government Code 51175-89 requires the California Department of Forestry and Fire Protection (CAL Fire) to evaluate fire threat potential and hazard severity according to areas of responsibility (i.e., state, and local). Evaluations are based on topography, fire history, and climate and include fire threat rankings. In 2012, CAL Fire produced the Strategic Plan for California that contains goals, objectives, and policies to prepare and mitigate for the effects of fire on California's natural and built environments. The Strategic Plan was updated in 2019 to reaffirm, with minor adjustments, the Mission, Vision, and Values of the 2012 Strategic Plan.⁷

California Fire Code. The California Fire Code (CFC) is updated every three years with the most current update effective January 1, 2020.⁸ The CFC contained in Part 9 of CCR Title 24 incorporates by adoption the International Fire Code of the International Code Council with California amendments. Local jurisdictions can also adopt more restrictive standards based on local conditions, as previously mentioned with the CBC. The CFC regulates building standards, fire department access, fire protection systems and devices, fire and explosion hazard safety, hazardous material storage and use, and building inspection standards.

California Department of Transportation and California Highway Patrol. Caltrans and the CHP are responsible for enforcing federal and State regulations, as well as responding to hazardous material transportation emergencies. Caltrans is the first responder for hazardous material spills and releases on highway and freeway lanes, as well as intercity rail services. The CHP enforces proper labeling and packing regulations of hazardous materials in transit by performing regular vehicle and equipment inspections.

The following are descriptions of provisions included in the California Vehicle Code (CVC) and pertain to the transportation of hazardous-related materials.

- The CHP designates routes in California which are to be used for the transportation of explosives. (CVC Section 31616)
- The CVC applies when explosives are transported as a delivery service for hire or in quantities in excess of 1,000 pounds. The transportation of explosives in quantities of 1,000

⁷ California Department of Forestry and Fire Protection. 2019. Strategic Plan. Website: www.fire.ca.gov/media/5504/strategicplan2019-final.pdf (accessed April 23, 2020).

⁸ California Fire Code. 2019. *2019 California Fire Code, Title 24, Part 9*. Available online at: codes.iccsafe.org/content/CAFC2019/title-page (accessed April 23, 2020).

pounds or less, or other than on a public highway, is subject to the California Health and Safety Code. (CVC Section 31601(a))

- It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery of, or the loading of, such materials. (CVC Section 31602(b) and Section 32104(a))
- When transporting explosives through or into a city for which a route has not been designated by the Highway Patrol, drivers must follow routes as may be prescribed or established by local authorities. (CVC Section 31614(a))
- Inhalation hazards and poison gases are subject to additional safeguards. These materials are highly toxic, spread rapidly, and require rapid and widespread evacuation if there is loss of containment or a fire. The CHP designates through routes to be used for the transportation of inhalation hazards. It may also designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant. (CVC Section 32100 and Section 32102(b))

Regional Agencies and Regulations

Central Valley Regional Water Quality Control Board. The SWRCB was established by the Porter-Cologne Water Quality Act in 1969, which divided the state into nine regional basins under the direction of their respective Regional Water Quality Control Board (RWQCB).⁹ The Specific Plan Area is located within the Central Valley Region (Region 5). The Central Valley RWQCB is responsible for preserving, enhancing, and restoring the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses. Investigations can be required by the Central Valley RWQCB to ensure responsibilities are met.

San Joaquin Valley Air Pollution Control District. The SJVAPCD has primary responsibilities for control of air pollution from sources other than motor vehicles and consumer products (which are regulated under CalEPA and the California Air Resources Board). The SJVAPCD is responsible for preparing attainment plans for non-attainment criteria pollutants, control of stationary air pollutant sources, and the issuance of permits for activities involving air emissions, including demolition and renovation activities.

The SJVAPCD has set local asbestos and renovation requirements developed by the USEPA in the NESHAPs regulation, 40 CFR, Part 61, Subpart M5 (San Joaquin Valley Pollution Control District Asbestos Bulletin 2012).

Madera County Environmental Health Division. On a local level, hazardous materials are regulated by the Madera County Environmental Health Division (MCEHD) as the Certified

⁹ California Water Code Sections 13000 et seq.

Unified Program Agency (CUPA) for Madera County.¹⁰ MCEHD must ensure consolidation, permitting, inspection, and enforcement activities of the six-state mandated Unified Programs. The six programs are:

1. Aboveground Petroleum Storage Act Program
2. California Accidental Release Prevention Program
3. Hazardous Material Release Response Plan
4. Hazardous Material Management Plan and Hazardous Materials Inventory Statement
5. Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs
6. Underground Storage Tanks Program

A HMBP must be prepared and filed if a facility stores, uses, or handles more hazardous materials equal to or in excess of the amounts listed below. The HMBP will help determine safe storage and use of the hazardous materials/chemicals and can be used in the event of an emergency by firefighters, health officials, planners, public safety officers, health care providers and others. By implementing the HMBP, potential dangers to human health and safety, and the environment can be reduced or prevented.

A HMBP is inspected at least once every three years by a CUPA inspector to verify compliance with the California Health and Safety Code and California Code of Regulations. Business Plans must include: 1) the type and quantity of hazardous materials; 2) a site map; 3) the risks of using these materials; 4) spill prevention; 5) emergency response; 6) employee training; and 7) emergency contacts.

A HMBP is required of any facility that handles hazardous materials or hazardous waste in amounts equal or greater than:

- 55 gallons for liquids;
- 500 pounds for solids;
- 200 cubic feet for compressed gases;
- The federal Threshold Planning Quantity for Extremely Hazardous Substances; or
- Radioactive materials in quantities for which an Emergency Plan is required as per Parts 30, 40, or 70, Chapter 1 of Title 10 of Code of Federal Regulations.

Madera County Sheriff's Office of Emergency Services. Madera's lead agency for all local emergency response efforts is managed by Madera County's Director of Emergency Services and the Sheriff's Office of Emergency Services (Sheriff's OES).¹¹ The Sheriff's OES is responsible for

¹⁰ Madera, County of. Environmental Health Division. Website: www.maderacounty.com/government/community-economic-development-department/divisions/environmental-health-division (accessed April 23, 2020).

¹¹ Madera, County of. Emergency Info, Madera County Office of Emergency Services. Website: www.maderacounty.com/government/public-health/emergency-info (accessed April 23, 2020).

“day-to-day administration of the County’s disaster preparedness and response program”, “maintaining the County’s Emergency Operations Center (EOC),” and “coordinating EOC activities during a disaster.” The Sheriff’s OES serves as an agent between federal, State, and local agencies involved in emergency response operations.

The Sheriff’s OES currently manages the following County emergency plans:

- Emergency Operations Plan, which outlines how the County will respond to an emergency and sets guidelines to manage a disaster;
- Local Hazard Mitigation Plan, which identifies hazards (man-made and natural) within the County, develops mitigation strategies, and is in line with the Disaster Mitigation Act of 2000;
- Community Wildfire Protection Plan, which helps the community plan how to reduce the risk of wildfire by identifying strategic sites and methods for fuel reduction projects;
- Continuity of Operations Plan (under preparation in December 2021) is an effort within individual executive departments and agencies to ensure that Primary Mission Essential Functions continue to be performed during a wide range of emergencies, including localized acts of nature, accidents and technological or attack-related emergencies;
- Mass Fatalities Response Plan (under preparation in December 2021) will serve as a framework for responders faced with a mass fatality.

Airport Land Use Compatibility Plans. The Airport Land Use Commission (ALUC) (Public Utilities Code Section 21670, et seq.) first established in 1967 was created to promote land use compatibility around airports by evaluating noise levels, ensuring “incompatible development does not occur on lands surrounding the airport”, and “reflecting on development and anticipated activity” in the future. Additionally, an imaginary surface surrounding all public use airports must be defined under the Federal Aviation Regulation, Part 77, previously described.

Each county with public use airports within California has a local jurisdiction. The Madera County ALUC must assist local agencies to ensure there is compatible land uses near the vicinity of airports, coordinate planning on a multi-regulatory level to provide safe and orderly development of air transportation and prepare and adopt land use compatibility plans. Madera County ALUC prepared an Airport Land Use Compatibility Plan that discusses airport zoning requirements and addresses land use and safety regulations within the airport zone and was adopted on September 29, 2015.

Local Regulations

Zoning Ordinance. Goals and policies listed in the General Plan are implemented in the City of Madera Zoning Ordinance. Zoning districts are established under the zoning law to guide development and land use in Madera by setting allowable land uses within each district. City zoning ordinances regulate allowable land use, parking, signage and other ordinance enacted under zoning law. The Zoning Ordinance must be consistent with adopted General Plans. When

the City of Madera adopts or updates a General Plan, the City must update the Zoning Ordinance accordingly.

City of Madera General Plan. The City of Madera General Plan is the City’s primary policy planning document. Through its 10 elements, the General Plan provides the framework for the management and utilization of the City’s physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera’s quality of life and implement the community’s shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City’s operations and decisions. Hazards and hazardous material related goals, objectives, and policies specific to the city are included in the General Plan in the Health and Safety Element, the Land Use Element, and the Circulation and Transportation Element.

The General Plan includes the following policies for hazards and hazardous materials in the proposed Specific Plan are listed in Table 4.9.A.

4.9.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to hazards and hazardous materials that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.9.2.1 Significance Criteria

The thresholds for impacts related to hazards and hazardous material used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to hazards and hazardous materials if it would:

- Threshold 4.9.1** Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Threshold 4.9.2** Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Threshold 4.9.3** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Threshold 4.9.4** Be located on a site that is included on a list of hazardous materials sites compiled by Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;

Table 4.9.A: General Plan Policies Related to Hazards and Hazardous Materials

Policy/Action Item Number	Policy
Health and Safety Element	
Policy HS-8	<p>The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.</p> <p>Action Item HS-8.1 Adopt an All Hazards (natural and manmade) Disaster Plan. The Plan should be sufficiently broad in scope to include the designation of evacuation routes, staging areas, shelters, PODs (points of distribution), and protocols for coordinating all local government and volunteer agencies in assisting local residents in the event of a major earthquake, largescale fire or explosion, or hazardous chemical spill or release of hazardous airborne gas.</p>
Policy HS-9	The City of Madera will work with responsible agencies to identify and prevent potential hazardous waste releases.
Policy HS-10	The City will regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse and may request applicants to have an emergency response plan.
Policy HS-11	The City will work with responsible agencies to ensure that all industrial facilities are constructed and operated in accordance with the most current safety and environmental protection standards.
Policy HS-12	The City will consider the potential impacts of facilities, which propose to store and/or process significant quantities of hazardous or toxic materials on the public and nearby properties. The City shall require such projects to prepare a site-specific hazard and threat assessment when determined necessary by the City's emergency services department(s) or appropriate consulting agencies. The hazard and threat assessment shall consider the likelihood of reasonably foreseeable events and their potential to create physical effects at off-site locations resulting in death, significant injury, or significant property damage.
Policy HS-13	For the purpose of implementing Policy HS-12, the City considers an event to be "reasonably foreseeable" when the probability of the event occurring is greater than of one in one million (1 * 10 ⁻⁶) per year.
Policy HS-14	Industries, which store and process significant quantities of hazardous or toxic materials, shall provide a buffer zone between the installation that houses such substances and the property boundaries of the facility sufficient to protect the public in the event of the release or leak of the materials.
Policy HS-15	The City will coordinate with the California Highway Patrol, the Madera County Department of Environmental Health Services, the Madera County Sheriff's Department, and all other appropriate local, state and federal agencies in hazardous materials route planning, notifications, and incident response to ensure appropriate first response to hazardous material incidents.
Policy HS-16	The City will work with other responsible agencies on efforts to clean up or contain identified soil or water contamination identified in the city limits. This policy will extend to the former Oberti salt ponds and other related facilities at such time as they are annexed to the city.
Policy HS-17	The City shall seek to avoid and minimize exposure of sensitive land uses to potentially hazardous emissions along truck routes and rail lines, which may be used by surface vehicles and rail cars carrying hazardous or toxic substances. These truck routes include Avenue 12 and Highways 99 and 145. Rail corridors include the two primary lines running north-south through Madera, as well as the spur line, which serves the industrial area in the southwest portion of the City.
Policy HS-18	The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation shall specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.

Table 4.9.A: General Plan Policies Related to Hazards and Hazardous Materials

Policy/Action Item Number	Policy
Policy HS-31	The City shall consider the compatibility criteria in the Airport Land Use Compatibility Plan for the Madera Airport and the Madera Municipal Airport Master Plan in the review of potential land uses or projects. Projects shall be approved only where consistency with the compatibility criteria in the Airport Land Use Compatibility Plan can be demonstrated.
Policy HS-32	The City shall ensure that new development near the Madera Airport is designed to protect public safety from airport operations consistent with recommendations and requirements of the Airport Land Use Commission, the Federal Aviation Administration, and other responsible agencies. It shall be the City's intent to comply with all state laws related to airport land use planning.
Policy HS-33	The City shall ensure the safety and protection of Madera and its community members by providing adequate first response capabilities to emergencies and by maintaining sufficient resources to expand protection as the community grows.
Policy HS-34	The City shall continue to maintain and update emergency service plans, including the Madera City Fire Department Emergency Operations Plan and the Hazardous Material Spills Emergency Response Plan.
Policy HS-35	The City shall ensure the safety and protection of Madera and its community members by providing appropriate first response to emergencies and ensure that sufficient resources are available to expand protection as the community grows.
Policy HS-36	The City will maintain and enhance community safety through coordinated regional emergency, law-enforcement and protective services systems.
Land Use Element	
Policy LU-35	<p>Figure LU-3 depicts the Village and District areas as defined by the City of Madera. This map shall be used to implement other policies in this General Plan, which refer to villages and village centers. Although shown as defined lines, the exact boundaries of a village may be adjusted at the City's discretion to reflect conditions on the ground, ownership boundaries, or other conditions. Such a change shall not be considered an amendment to this General Plan.</p> <p>VILLAGE D: SPECIFIC POLICIES*</p> <p>The following policies are intended to identify some of the unique issues for this area, which will need to be addressed, and to guide development, as the area transitions to urban use.</p> <ul style="list-style-type: none"> • All future development in this Village shall conform to the Building Blocks principles as described in this General Plan. • In conjunction with village and neighborhood planning, a mechanism shall be established, which creates a permanent agricultural buffer where the westerly edge of the Village abuts the Growth Boundary. This buffer shall average at least 400' in depth, with a minimum depth of 250', and must run continuously along westerly edge of the Village. No habitable structures are to be located within this buffer, although passive recreational opportunities (such as trails and community gardens) may be allowed. Alternative methods and designs to establish the buffer may be proposed, and including placing the buffer on either side of the Growth Boundary. Physical maintenance of the buffer shall be provided consistent with the design and function of the space. • The Village core area shall provide for an integrated mix of uses, including park and open space uses, along the river. • Future development along the Fresno River should be designed to take advantage of the river frontage, including orienting development to front the river where not otherwise prohibited by site conditions. • Village and neighborhood planning shall provide for the alignment of the designated arterial collector, which runs through the Village east and west (Cleveland Avenue), to bend to the south to provide circulation to the proposed village core located along the Fresno River. • All development proposals within Village D shall comply with the provisions of the Airport Land

Table 4.9.A: General Plan Policies Related to Hazards and Hazardous Materials

Policy/Action Item Number	Policy
	Use Master Plan. The establishment of land use designations at the village and neighborhood levels, as well as the layouts of individual projects, shall reflect the allowable uses and densities in the Airport Land Use Master Plan.
Circulation and Infrastructure Element	
Policy CI-47	All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.

Source: City of Madera General Plan (October 2009).

* Changes to Village D policies proposed by the Project Applicant are shown in strikeout text.

Threshold 4.9.5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;

Threshold 4.9.6 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

Threshold 4.9.7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

4.9.2.2 Project Impacts and Mitigation Measures

The following discussion describes the potential impacts and impact significance related to hazard and hazardous materials that could result from implementation of the proposed Specific Plan. Mitigation measures are provided as necessary to reduce potential impacts.

Threshold 4.9.1 Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Hazardous materials would routinely be used, stored, and transported within the Specific Plan Area and are associated with industrial and commercial/retail businesses, as well as in educational facilities, health care facilities, major roadways, and residential uses.

Within the Specific Plan Area, hazardous waste would be generated by future industrial, business, public and private institutions, and residential use. Comprehensive databases will be maintained by the federal, State, and local agencies identifying facilities using large quantities of hazardous materials, facilities generating hazardous waste, and the class of hazardous materials. The use of certain classes of hazardous materials within the Specific Plan Area would require risk management plans to protect surrounding land uses.

Implementing the proposed Specific Plan would allow the use and storage of hazardous materials, including common cleaning products, building maintenance products, paints and solvents, and other similar items. Such hazardous materials routinely used are not used in sufficient quantities and are not the type of materials to pose a significant hazard to public health and safety or to the environment.

Future facilities within the Specific Plan Area may use certain classes of hazardous materials that require risk management plans to protect the surround land uses. The Specific Plan Area is predominately characterized by active agriculture operations and a mix of irrigated crops with existing residential and agricultural support structures. Demolition of the existing structures to accommodate the new development may potentially expose hazardous building materials (e.g., asbestos containing materials, lead-based paint, etc.), as a result, a significant impact would occur.

Hazardous materials may be transported during future operational, remediation and construction activities. Transport of hazardous materials, however, would be subject to existing federal, State, and local regulations, such as the following:

- DOT Hazardous Materials Transport Act-Code of Federal Regulations, Title 49
- USEPA Resource Conservation and Recovery Act
- USEPA Comprehensive Environmental Response, Compensation and Liability Act
- Toxic Substance Control Act
- California Health and Safety Code (Chapters 6.95 and 19)
- California Code of Regulations (Title 13 and Section 2729)
- California Vehicle Code [Sections 31616; 31601(a); 31602(b); 32104(a); 31614(a); 32100 and 32102(b)]
- Madera County Municipal Code (Chapter 7.24; Chapter 7.30; Chapter 16.12)
- City of Madera Code of Ordinance (Title III: Chapters 3, 6; Title V: Chapters 3-6; Title X: Chapter 5)
- City of Madera General Plan (see below)

Under Title 13 of the California Code of Regulations, transportation of hazardous materials must travel on designated specific roadways and transportation routes. The Specific Plan Area does not contain any of these roadways or routes to access the Specific Plan Area. Transport of hazardous materials would follow the most direct route taken to or from the nearest state-designated transportation route. Provisions from the CVC are listed above and were included in the General Plan Draft EIR. Routine transportation of hazardous materials associated with the proposed Specific Plan may use Avenue 12 and Highways 99 and 145.

The proposed Specific Plan identifies a circulation system that includes Avenue 17, Avenue 16 (Kennedy Street), Avenue 15 ½ (Cleveland Avenue), and Road 23 as the primary access roads. The route is away from existing residential neighborhoods when travelling westbound and is generally away from the public.

The following General Plan policies address the use and handling of hazardous materials and associated land uses involving hazardous materials:

Policy HS-15 The City will coordinate with the California Highway Patrol, the Madera County Department of Environmental Health Services, the Madera County Sheriff's Department, and all other appropriate local, state and federal agencies in hazardous materials route planning, notifications and incident response, to ensure appropriate first response to hazardous material incidents.

Policy HS-17 The City shall seek to avoid and minimize exposure of sensitive land uses to potentially hazardous emissions along truck routes and rail lines, which may be used by surface vehicles and rail cars carrying hazardous or toxic substances. These truck routes include Avenue 12 and Highways 99 and 145. Rail corridors include the two primary lines running north-south through Madera, as well as the spur line, which serves the industrial area in the southwest portion of the City.

Implementation of the proposed Specific Plan would be required to comply with the policies described above, as well as the federal, State, and local regulations pertaining to the transportation, use, and disposal of hazardous materials. As a result, potential impacts associated with the transportation of hazardous materials within the Specific Plan Area roadways would be considered less than significant. However, as discussed above, demolition of the existing structures to accommodate the new development may potentially expose hazardous building materials (e.g., asbestos containing materials, lead-based paint, etc.), resulting in a potentially significant impact.

Level of Significance Without Mitigation: Potentially significant.

Impact HAZ-1: Implementation of the proposed Specific Plan could result in the demolition of existing structures that may potentially expose the public or environment to hazardous building materials.

Mitigation Measure HAZ-1 Prior to the issuance of demolition permits related to new development proposed under the Specific Plan, asbestos and lead based paint (LBP) surveys shall be conducted in order to determine the presence or absence of asbestos-containing materials (ACMs) and/or LBP within existing structures to be removed. Removal by property owners and/or future developers of LBP, friable ACMs, and non-friable ACMs that have the potential to become friable during demolition, shall be outlined in an inspection report to be submitted for approval by the City of Madera Community Development Director or designee, to conform to the standards set forth by the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). The San Joaquin Valley Air Pollution Control District (SJVAPCD) shall be notified by the property owners and/or future developers of properties (or their designee(s)) prior to any demolition and/or renovation activities.

Level of Significance With Mitigation: Less than significant.

Threshold 4.9.2 Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Implementing the proposed Specific Plan would result in the continued use and storage of hazardous materials, including common cleaning products, building maintenance products, paints and solvents, as well as continued generation of regulated hazardous wastes. There are no cases of reported cases of contamination in groundwater or residual soil within the Specific Plan Area; however, development resulting from the proposed Specific Plan may expose nearby residents and local schools to toxic emissions. Demolition of the existing structures, construction of the future development, and operational activities within the Specific Plan Area would involve demolition materials, gasoline fuels, asphalt, lubricants, toxic solvents to the Specific Plan Area and may potentially include heavy metals, residual agricultural associated chemicals (pesticides, herbicides, fertilizers), and PCBs from electrical transformers and industrial products.

An accidental release of hazardous materials can occur even when the highest level of precaution is practiced. Releases have occurred in highway incidents, warehouse fires, train derailments, shipping accidents, and industrial incidents.

The Madera County LHMP and the Madera County Fire Department recognizes the potential for a large chemical release to occur anywhere within the County and could expose thousands of people to hazardous materials via air, soil, or water media. Transportation of a variety of chemicals would continue using the designated circulation system that serves the Specific Plan Area. The proposed Specific Plan identifies a circulation system in compliance with CVC provisions with routes westbound and away from existing residential neighborhoods.

The Madera County Fire Department has taken the role as the Hazardous Materials Response Team and upholds the responsibility of detecting, containing, and removing any release or potential release of hazardous substances to control or stabilize an incident.

The release of hazardous materials would be subject to existing federal, State, and local regulations and is similar to the transport/use/disposal of hazard materials. The following General Plan policies address potential releases of hazardous materials:

Policy HS-10 The City will regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse and may request applicants to have an emergency response plan.

Policy HS-11 The City will work with responsible agencies to ensure that all industrial facilities are constructed and operated in accordance with the most current safety and environmental protection standards.

- Policy HS-14 Industries, which store and process significant quantities of hazardous or toxic materials, shall provide a buffer zone between the installation that houses such substances and the property boundaries of the facility sufficient to protect the public in the event of the release or leak of the materials.
- Policy HS-16 The City will work with other responsible agencies on efforts to clean up or contain identified soil or water contamination in the city limits. This policy will extend to the former Oberti salt ponds and other related facilities at such time as they are annexed to the city.
- Policy HS-18 The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation shall specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.

In addition, implementation of Mitigation Measure AIR-2.1 would require that all disturbed areas shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover. By doing so, fugitive dust that may be contaminated through the use of agricultural-related pesticides herbicides, insecticides, or pesticides would be reduced. Compliance with the applicable mitigation measure, laws and regulations referenced above would result in less-than-significant impacts related to the accidental release of hazardous materials associated with implementation of the proposed Specific Plan.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.9.3 Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Specific Plan Area is located within the Madera Unified School District (MUSD), and the anticipated development of three elementary schools within the Specific Plan Area would be subject to review and approval of the MUSD. The proposed elementary schools would be located in each of the three neighborhoods identified in the proposed Specific Plan. Several existing school properties are located east, south, and west of the Specific Plan Area; however, all sites are located more than one-quarter mile away.

The anticipated elementary schools would be subject to environmental site assessments consistent with the MUSD in accordance with State laws, regulations, and policies prior to construction.¹² In

¹² California Department of Education. 2017. School Site Selection and Approval Guide, Hazardous Air Emissions and Facilities Within A Quarter Mile. Website: www.cde.ca.gov/ls/fa/sf/schoolsiteguide.asp#emissions (accessed April 23, 2020).

addition, there are no open cases for hazardous materials within the Specific Plan Area. As result, a less-than-significant impact would occur.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.9.4 **Would the project be located on a site that is included on a list of hazardous materials sites compiled by Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?**

Under Government Code Section 65962.6, the DTSC is required to compile and update the Cortese List, which provides information about the location of hazardous materials release sites. The Cortese List uses data resources from the DTSC and State Water Board. There are no open cases for hazardous materials listed in the Cortese List within the Specific Plan Area or within a two-mile radius of the Specific Plan Area.

The following General Plan policy addresses potential impacts of nearby hazardous materials:

Policy HS-12 The City will consider the potential impacts of facilities, which propose to store and/or process significant quantities of hazardous or toxic materials on the public and nearby properties. The City shall require such projects to prepare a site-specific hazard and threat assessment when determined necessary by the City's emergency services department(s) or appropriate consulting agencies. The hazard and threat assessment shall consider the likelihood of reasonably foreseeable events and their potential to create physical effects at off-site locations resulting in death, significant injury, or significant property damage.

Compliance with General Plan Policy HS-12, which would require site-specific hazards for development occurring under the proposed Specific Plan, would address potential impacts related hazardous material sites. As a result, a less-than-significant impact would occur.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.9.5 **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?**

Airport-related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate the imaginary surfaces surrounding an airport.

The Specific Plan Area is adjacent to the Madera Municipal Airport and is located within the planning area boundary of the airport. The potential hazards associated with implementation of

future growth in the vicinity of the airport, including within the proposed Specific Plan Area have been addressed in the General Plan and have undergone review by the Madera County ALUC.

The following General Plan policies address development near the Madera Municipal Airport:

- Policy HS-31 The City shall consider the compatibility criteria in the Airport Land Use Compatibility Plan for the Madera Airport and the Madera Municipal Airport Master Plan in the review of potential land uses or projects.
- Policy HS-32 The City shall ensure that new development near the Madera Airport is designed to protect public safety from airport operations consistent with recommendations and requirements of the Airport Land Use Commission, the Federal Aviation Administration, and other responsible agencies.
- Policy LU-35 Abbreviated “VILLAGE D: SPECIFIC POLICIES:
- All development proposals within Village D shall comply with the provisions of the Airport Land Use Master Plan. The establishment of land use designations at the village and neighborhood levels, as well as the layouts of individual projects, shall reflect the allowable uses and densities in the Airport Land Use Master Plan.”

The Specific Plan is consistent with the General Plan and Madera County ALUC. As a result, subsequent development associated with the proposed Specific Plan would likewise be consistent with the General Plan and the Madera County ALUC, and therefore, hazards associated with public airport land use would be considered less than significant.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.9.6 Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Development of the Specific Plan Area includes residential, mixed use, park and recreation, natural open space, industrial, public facilities, and major roadways. It is not anticipated that the proposed Specific Plan would impair implementation nor physically interfere with adopted emergency response plan or evacuation plan based on the nature of land uses within the Specific Plan Area because new roadways constructed as part of implementation of the proposed Specific Plan would be constructed to access existing roadways within the Specific Plan Area, and existing roadways would not be impeded or restrict vehicle movement.

The General Plan sets forth an action plan to adopt an “All Hazards (manmade and natural) Disaster Plan” that provides safety protocols “for coordinating all government and volunteer agencies in assisting local residents in the event” of a disaster. Alongside this, the City will “continue to maintain and update emergency service plans” to improve emergency access to the city.

The following General Plan policies address potential interference of emergency response or evaluation plans:

Policy HS-8 The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.

Action Item HS-8.1

Adopt an All Hazards (natural and manmade) Disaster Plan. The Plan should be sufficiently broad in scope to include the designation of evacuation routes, staging areas, shelters, PODs (points of distribution), and protocols for coordinating all local government and volunteer agencies in assisting local residents in the event of a major earthquake, largescale fire or explosion, or hazardous chemical spill or release of hazardous airborne gas.

Policy HS-34 The City shall continue to maintain and update emergency service plans, including the Madera City Fire Department Emergency Operations Plan and the Hazardous Material Spills Emergency Response Plan.

Based on the required reviews by emergency service providers, as well as the proposed Specific Plan's implementation of General Plan policies, impacts related to physically interfering with adopted emergency response plan or evacuation plan would be considered less than significant.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.9.7 Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

There are no wildlands located within or adjacent to the Specific Plan Area. According to CAL fire,¹³ the area in which the Specific Plan Area is located does not classify as a very high fire hazard severity zones within the Local Responsibility Area.¹⁴

Implementation of the proposed Specific Plan would increase the population and need for fire protection and emergency services within the Specific Plan Area. Complying with the General Plan policies discussed below would ensure that the need for fire protection and emergency services are met.

The following General Plan policies address potential wildland and fire hazards:

Policy CI-47 All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.

¹³ California Department of Forestry and Fire Protection. Fire Hazard Severity Zones Maps. Website: osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps (accessed April 23, 2020).

¹⁴ California Department of Forestry and Fire Protection. 2007. Office of the State Fire Marshal. *FACT SHEET: California's Fire Hazard Severity Zones*. Available online at: www.sccgov.org/sites/dpd/DocsForms/Documents/Fire_Hazard_Zone_Fact_Sheet.pdf (accessed April 23, 2020).

Policy HS-33 The City shall ensure the safety and protection of Madera and its community members by providing adequate first response capabilities to emergencies and by maintaining sufficient resources to expand protection as the community grows.

Implementation of the General Plan policies listed above would reduce potential impacts associated with wildland fires to less-than-significant levels.

Significance Without Mitigation: Less than significant. No mitigation is required.

4.9.2.3 Cumulative Impacts

The proposed Specific Plan would increase hazard-related impacts (hazardous waste/material transport and potential release, public airport use, interference with emergency plan, etc.); however, policies and actions identified above would reduce potential impacts to a less than significant level.

Anticipated development within the Specific Plan Area (e.g., residential, commercial, industrial, park, and recreational land use) would increase public exposure to potential hazards; however, each significant impact is considered significantly low and would likely not affect public or environmental health.

The proposed Specific Plan would not create public or environmental hazards through the routine transport, use, disposal, or accidental release of hazardous materials; emit or handle hazardous materials within proximity of a school; impede emergency response or evacuation; or expose people and structures to wildland fires. There are no hazardous waste materials within the Specific Plan Area as indicated in the Cortese List, nor is the area considered a fire hazard severity zone. The Specific Plan Area is adjacent to the Madera Municipal Airport and would be required to comply with policies listed in the Madera County ALUC and General Plan. Cumulatively, there are no significant impacts associated with the development of the proposed Specific Plan.

Development of the proposed Specific Plan would involve the transportation and use of hazardous materials, such as chemicals and solvents used for construction activities and routine cleaning and maintenance. Similarly, development of the proposed elementary school sites would be required to comply with applicable federal, state, regional, and local standards and requirements that address hazards and hazardous materials impacts in the same manner as the overall proposed Specific Plan. These regulations, procedures, and policies promote and require the proper handling, use, transport, and disposal of hazardous wastes and materials; facilitate implementation of emergency response plans and evacuation routes.

Therefore, the proposed Specific Plan's contribution to cumulative impacts associated with hazards and hazardous materials would be considered less than significant.

Significance Without Mitigation: Less than significant. No mitigation is required.

4.10 HYDROLOGY AND WATER QUALITY

This section describes the regulatory framework and existing conditions within the Specific Plan Area and the potential impacts on hydrology and water quality resulting from implementation of the proposed Specific Plan.

Information in this section is based in part on the following documents:

- City of Madera General Plan Update/Environmental Impact Report, May 2009
- City of Madera General Plan, October 7, 2009
- Madera Regional Groundwater Management Plan, December 2014
- Madera Subbasin Sustainable Groundwater Management Act (SGMA) Joint Groundwater Sustainability Plan, January 2020
- Madera County Local Hazard Mitigation Plan Update (LHMP), October 2017
- Madera County Storm Water Resource Plan (SWRP), December 2017
- Village D Specific Plan Infrastructure Master Plan, January 2020

4.10.1 Environmental Setting

4.10.1.1 Surface Water and Drainage

Regional Drainage. The proposed Specific Plan resides within the San Joaquin River Watershed which covers approximately 15,600 square miles.¹ The San Joaquin River Watershed is between the Sacramento River Watershed to the north, and the Tulare Basin Watershed to the south, and extends from the Sierra Nevada Mountains to the east to the Coast Range Mountains to the west. Water primarily flows west from the Sierra Nevada Mountains from Sierra Nevada into the San Joaquin Valley then diverts north to join the Sacramento River. Several tributary rivers (from south to north: Fresno, Chowchilla, Merced, Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes Rivers) within the watershed travel from the Sierra Nevada Mountains, and ultimately terminate within the San Joaquin River system.² Natural water flow within the tributary rivers has been substantially modified by dams and diversions, or canal structures.

The San Joaquin Watershed is divided into six subbasins;³ the Specific Plan Area is in the Madera Subbasin which spans approximately 543 square miles.⁴ The Madera Subbasin is bounded in the south by the San Joaquin River and the Kings Subbasin, in the west by the Delta-Mendota Subbasin, in the north by the Chowchilla Subbasin, and in the east by the foothills of the Sierra Nevada.⁵ The

¹ United States Environmental Protection Agency. SF-Bay Delta and Associated Watersheds. Website: www.epa.gov/sfbay-delta/about-watershed (accessed February 23, 2020).

² Ibid.

³ State Water Resources Control Board Surface Water Ambient Monitoring Program. Website: www.waterboards.ca.gov/centralvalley/water_issues/swamp/sanjoaquin_river_basin (accessed February 24, 2020).

⁴ Davids Engineering, Inc., et. al. 2020. Madera Subbasin Sustainable Groundwater Management Act, *Joint Groundwater Sustainability Plan*. Available online at: www.maderacountywater.com/wp-content/uploads/2020/02/Madera_GSP_2020_FinalReport.pdf (accessed April 28, 2020).

⁵ Ibid.

Madera Subbasin encompasses the entire City of Madera, and most of Madera County.⁶ Primary surface water bodies within the Madera Subbasin include Berenda Creek, Dry Creek, Fresno River, Cottonwood Creek, San Joaquin River, and Madera Lake.⁷ Major reservoirs within the watersheds upstream of the Madera Subbasin include Hensley Lake, along the Fresno River and Millerton Lake along the San Joaquin River.⁸

Hensley Lake and Millerton Lake are reservoirs impounded behind Hidden Dam and Friant Dam, respectively. Both dams were built to supply irrigation and municipal water and provide flood control.^{9,10} Hidden Dam is approximately 12 miles northeast of the Specific Plan Area, while Friant Dam is approximately 23 miles east-northeast from the Specific Plan Area. Other flood control channels within the Madera Subbasin include the Chowchilla Bypass, Madera Canal Diversions, and Gravelly Ford Canal.¹¹

Local Surface Waters and Drainage. The Fresno River is the major natural drainage channel for the City of Madera and is relatively dry throughout most of the year due to controlled flow of the Hidden Dam and Madera Lake Dam. The City of Madera is relatively flat; thus, the predominant method of runoff disposal is through the use of retention basins which recharge groundwater.¹² Runoff disposal, or stormwater collection begins in the storm drains which convey runoff to storm drain inlets. Runoff from these drains travel to retention basins within the City and recharges groundwater in the Madera Subbasin. The City of Madera's Public Works Department maintains the streets, storm drains, and sidewalks, associated with stormwater discharge.¹³ Stormwater collected into retention basins slowly recharges groundwater. If another storm occurs and the basin is over capacity, the excess water is relieved and discharges into the San Joaquin River along with the tributaries and irrigation canals.

Surface Water Uses

Municipal Use. The City of Madera stores treated effluent water from the Wastewater Treatment Plant (WWTP) in percolation ponds to recharge groundwater. Wastewater collected in sanitary sewers is treated through a primary and secondary process which involves screening, grit removal, sedimentation, activated sludge process, and final clarification. There are approximately 12,800 residential and 1,000 commercial/industrial

⁶ Madera, County of. Water and Natural Resources, SGMA Subbasins. Website: www.maderacountywater.com/subbasins (accessed February 24, 2020).

⁷ Davids Engineering, Inc., et. al. 2020, op. cit.

⁸ Davids Engineering, Inc., et. al. 2020, op. cit.

⁹ United States Bureau of Reclamation. Friant Division Project. Website: www.usbr.gov/projects/index.php?id=341 (accessed February 25, 2020).

¹⁰ United States Army Corps of Engineers, Sacramento Division. 2017. *Hidden Dam–Hensley Lake Project Master Plan Update Fact Sheet*. Available online at: www.spk.usace.army.mil/Portals/12/documents/parks_lakes/Hensley/Hensley_Public_Input_Form.pdf?ver=2017-07-05-183434-983 (accessed April 28, 2020). July.

¹¹ Davids Engineering, Inc., et. al. 2020, op. cit.

¹² Provost and Pritchard Consulting Group. 2017. *Draft Urban Water Management Plan 2015 Update* for the City of Madera. Available online at: www.madera.gov/wp-content/uploads/2017/03/2015-Madera-UWMP-Draft-1.pdf (accessed April 28, 2020). March.

¹³ Madera, City of. Streets, Storm Drainage. Website: www.madera.gov/home/departments/public-works/streets/#tr-storm-drainage-239604 (accessed February 26, 2020).

sewer connections that lead to the WWTP. In 2015, 16,503 million gallons were collected and treated.¹⁴

Agricultural Irrigation. The Madera Irrigation District (MID) encompasses an area of 139,665 acres within Madera County and is centered on the City of Madera, receiving surface water from the Madera Canal, a long aqueduct part of the Central Valley Project (CVP), and managed by the United States Bureau of Reclamation (USBR). The CVP serves farms, homes, and industries within the Central Valley.¹⁵ The Madera Canal receives water from various tributaries, such as the Fresno River and the San Joaquin River. The Madera Subbasin received an average amount of 211,156 acre-feet for surface water received from the CVP, and 214,643 acre-feet from tributaries and riparian deliveries from 1989 to 2014.¹⁶

Surface Water Quality. The State Water Resources Control Board (SWRCB) assesses and lists impaired water bodies within the State of California under the Clean Water Act Section 303(d). The Fresno River is the only surface water body that passes through the City of Madera and the Specific Plan Area. The Fresno River supports aquatic life.¹⁷

Groundwater

Groundwater Supplies and Uses. The City of Madera receives potable water supplies exclusively from groundwater through 18 active wells that pump from the regional groundwater supply to meet demand. In March 2017, the City of Madera adopted the Urban Water Management Plan to address water emergencies, and manage potable water supplies.

The Madera Subbasin has been categorized as a critically over drafted basin as groundwater has been extracted out of the subbasin faster than water can recharge back into the subbasin. Under California's SGMA, the Madera Subbasin and affiliated Groundwater Sustainability Agencies (GSAs) within the subbasin have defined and provided groundwater conditions and have set a standard to maintain/achieve sustainable groundwater management within the subbasin. This information has been submitted as a Groundwater Sustainability Plan (GSP) to the Department of Water Resources (DWR) on January 31, 2020. These standards must be approved by DWR and then achieved within 20 years of adopting the GSP.¹⁸

Groundwater Recharge. Regionally, the subbasin is recharged with stream flow percolation from nearby rivers (San Joaquin River, Chowchilla River, and Fresno River), creeks and sloughs, infiltration and precipitation on the Valley floor, subsurface inflow, and seepage from unlined canals.

The City of Madera recharges groundwater with small quantities of surface water from the MID and by retaining stormwater in stormwater basins without compromising capacity for flood

¹⁴ Provost and Pritchard Consulting Group. 2017, op. cit.

¹⁵ United States Bureau of Reclamation. Central Valley Project. Website: www.usbr.gov/projects/index.php?id=506 (accessed February 27, 2020).

¹⁶ Davids Engineering, Inc., et. al. 2020, op. cit.

¹⁷ State Water Resources Control Board. 2012. Impaired Water Bodies. Website: www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml (accessed February 27, 2020).

¹⁸ Davids Engineering, Inc., et. al. 2020, op. cit.

protection.¹⁹ The volume of stormwater that recharges the City of Madera is not available. Additionally, treated effluent water from the City's WWTP is disposed through on-site percolation ponds which also help recharge the City.

Groundwater Quality. The Madera Subbasin generally has high-quality water. According to the 2017 Urban Waste Management Plan, the Madera Subbasin has generally acceptable concentrations of arsenic (below the maximum contaminant level (MCL) of 10 micrograms per liter ($\mu\text{g/L}$)), total dissolved solids, or TDS (concentrations are generally acceptable within the Madera area with the exception of several wells in the western portion with elevated concentrations of over 1,000 milligrams per liter (mg/L)), and nitrate as NO_3 (under the MCL of 45 mg/L , with the exception of an area southwest of the City of Madera where land use may be potentially affecting the shallow aquifer water quality).²⁰

The average TDS of the subbasin is 215 mg/L ²¹ with increasing TDS from east to west across the subbasin.²² Higher TDS concentrations found within the subbasin may be caused by the natural salinity present in groundwater occurring within marine-sourced sediments derived from the Coast Range.²³ Nitrate within the subbasin have more commonly higher concentrations in the western parts of the subbasin. Some of the higher concentrations of nitrate in the area are known to be associated with regulated facilities and contamination remediation sites.²⁴ Higher concentrations of arsenic are scattered throughout the subbasin but are more common in the eastern part of the subbasin.

Other constituents of particular concern within the Madera Subbasin are 1,2-Dibromo-3-chloropropane (DBCP), 1,2-Dibromoethane (EDB), 1,2,3-Trichloropropane (1,2,3-TCP), perchlorate, Tetrachloroethylene (PCE), and Benzene, Toluene, Ethylbenzene, Xylenes (BTEX). The varieties of constituents are generally anthropogenic contaminants like pesticides, solvents, and petroleum-related chemicals.²⁵

DBCP and EDB have had localized issues within the City of Madera and are being treated with a granular activated carbon (GAC) treatment system. Manganese also has a presence in the City of Madera and is being treated as well. These localized issues were discussed in the City of Madera General Plan Update/Draft Environmental Impact Report dated May 2009.²⁶

¹⁹ Provost and Pritchard Consulting Group. 2017, op. cit.

²⁰ Ibid.

²¹ Ibid.

²² Davids Engineering, Inc., et. al. 2020, op. cit.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Madera, City of. 2009. *General Plan Update/Draft Environmental Impact Report*. Updated May 2009.

Flood Control

Flood Zones. The Specific Plan Area is located on Flood Insurance Rate Maps (FIRMs)²⁷ under FIRM Panels 06039C1150E and 06039C1155E. As shown in Figure 4.10-1, the majority of Specific Plan Area's eastern portion is classified as "Zone X",²⁸ except for the southern border of the Specific Plan Area along the Fresno River. Approximately 675 acres of the Specific Plan Area is within Zone X which has been determined to be outside the 500-year flood plain. This area is protected by levees from 200-year flood and is considered as a moderate flood risk area.²⁹ The western portion of the Specific Plan Area is classified as "Zone AO" which covers approximately 1,169 acres of the Specific Plan Area.³⁰ Zone AO is considered a high risk area because this zone designation is subject to inundation with a one-percent or greater chance for shallow flooding (1-3 feet) to occur each year.³¹ The southern border of the Specific Plan Area along the Fresno River is classified as "Zone A" and covers approximately 53 acres of the Specific Plan Area.³² Zone A areas are also considered high risk as they are subject to inundation by a one-percent-annual-chance flood event and have not determined Base Flood Elevations (BFEs), which require a hydraulic analyses to determine flood depths.³³ The Fresno River is dry throughout most of the year unless there has been a water release from upstream agencies.³⁴

Levees. Although there are numerous levee systems within Madera County, none of the levees are accredited by the Federal Emergency Management Agency (FEMA) as providing protection against a 100-year flood.³⁵ There have been no reported disaster declarations related to levy failure in Madera County.

According to Madera County's Local Hazard Mitigation Plan (LHMP), there have been at least seven sites of seepage (boils) within the Fresno River levee in 2010-2011. Damage was temporarily alleviated with boil sack rings in affected areas. A \$2.5 million-dollar grant was obtained by the County to repair these critical sites.³⁶ The Fresno River borders the southern portion of the Specific Plan Area.

²⁷ Federal Emergency Management Agency. Flood Map Service Center. Website: msc.fema.gov/portal/search?AddressQuery=madera%2C%20california#searchresultsanchor (accessed February 26, 2020).

²⁸ Federal Emergency Management Agency. National Flood Hazard Layer Viewer. Website: hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd (accessed February 25, 2020).

²⁹ Federal Emergency Management Agency. Definitions of FEMA Flood Zone Definitions. Available online at: snmapmod.snco.us/fmm/document/fema-flood-zone-definitions.pdf (accessed February 26, 2020).

³⁰ Federal Emergency Management Agency, National Flood Hazard Layer Viewer, op. cit.

³¹ Federal Emergency Management Agency. Definitions of FEMA Flood Zone Definitions, op. cit.

³² Federal Emergency Management Agency, National Flood Hazard Layer Viewer, op. cit.

³³ Federal Emergency Management Agency. 2012. *The Zone A Manual: Managing Floodplain Development in Approximate Zone A Areas*. Website: www.fema.gov/media-library/assets/documents/7273 (accessed February 26, 2020). March 2.

³⁴ Madera, City of. 2009, op. cit.

³⁵ Madera, County of. 2017. *Madera County Local Hazard Mitigation Plan Update*. Available online at: www.madera.gov/wp-content/uploads/2018/09/Madera-County-Local-Hazard-Mitigation-Plan-2018.pdf (accessed February 26, 2020). October.

³⁶ Ibid.

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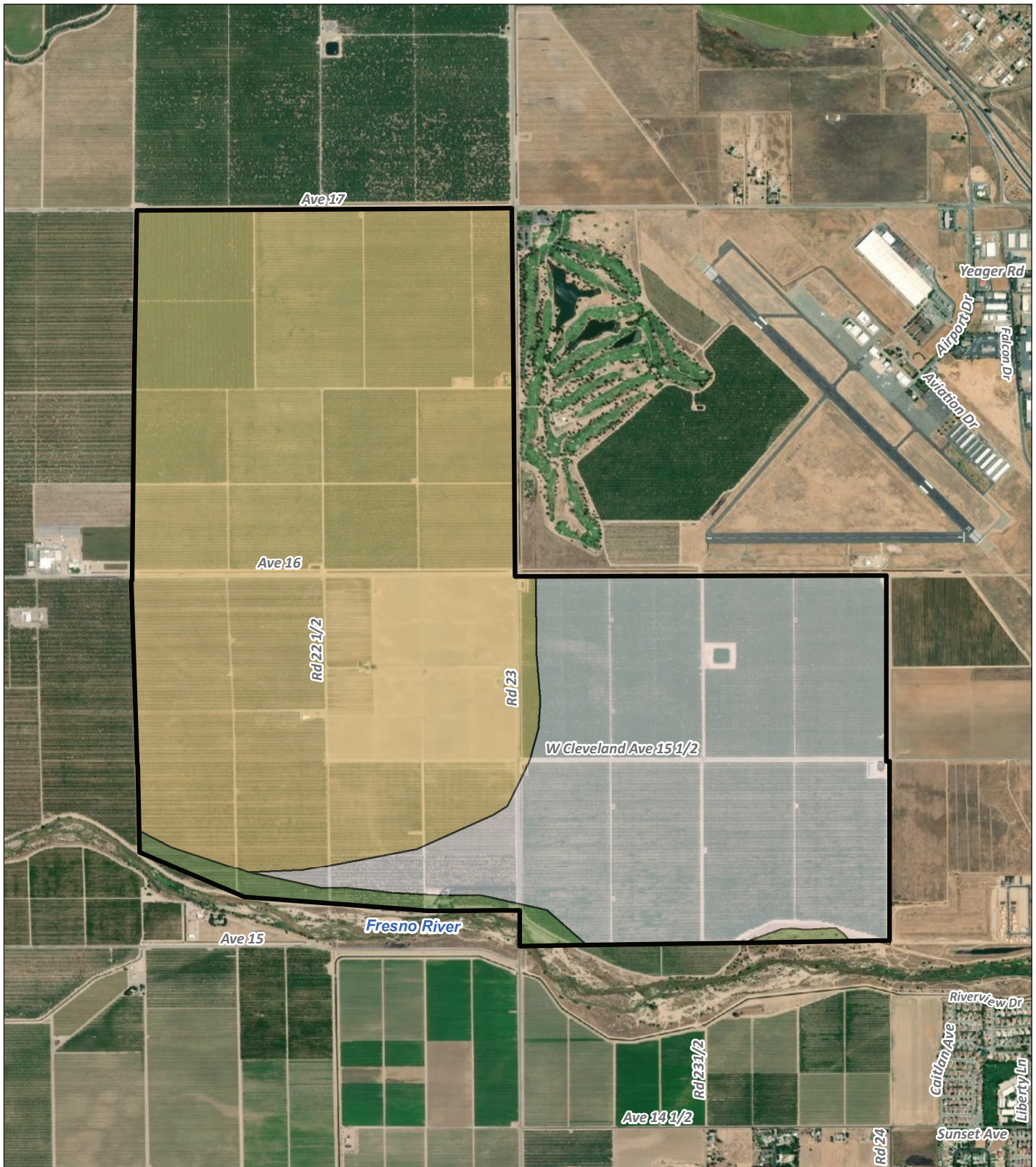



FIGURE 4.10-1


LSA

 Project Area

Flood Zones

 **A (45.59 acres)**

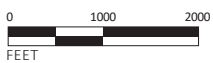
No Base Flood Elevations determined.

 **AO (1,169.35 acres)**

Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

 **X (664.51 acres)**

Other flood areas. Areas of 0.2% chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.



*The Villages at Almond Grove
Specific Plan EIR
Flood Zones*

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Dam Inundation. The DWR, Division of Safety of Dams reviews and publishes dam breach inundation maps prepared by licensed civil engineers and submitted by dam owners indicating risk hazards associated with dam inundation.³⁷ The hazards scale ranges from four rankings: low, significant, high, and extremely high.

Madera Lake Dam,³⁸ owned by the MID is the only dam within the Madera Subbasin included as an inundation hazard and has a high downstream hazard risk. The Madera Lake Dam is relatively small and is 7.75 miles northeast from the Specific Plan Area and is located on the Fresno River. The inundation boundary follows the Fresno River, passing through the City of Madera and terminates a few feet away from the intersecting Chowchilla bypass. The Madera Lake Dam inundation boundary follows the southern border of the Specific Plan Area but does not cross into the Site as shown in Figure 4.10-2. Madera Lake dam is an earthen embankment with a reservoir capacity of 2,300 acre-feet and was built in 1958. In the event of inundation, bridges along the Fresno River path are not expected to be overtopped. Saddle dams exist at Madera Lake to prevent inundation and excess water is diverted along the John Franchi Diversion Dam.³⁹

In addition to the Madera Lake Dam, three major dams also have the potential to inundate portions of Madera County if they were to fail: Friant Dam on the San Joaquin River, Buchanan Dam on the Chowchilla River, and Hidden Dam on the Fresno River, just upstream of the Madera Dam. If the Hidden Dam fails, the City of Madera, the Specific Plan Area, and the surrounding area of 132 square miles within Madera County would directly be impacted.⁴⁰ The inundation boundary for the Hidden Dam is shown on Figure 4.10-2 and covers most of the Specific Plan Area. Approximately 207 acres of the northern portion of the Specific Plan Area are not within the Hidden Dam inundation boundary. The Hidden Dam is an earth-fill dam at a height of 184 feet and capacity of 90,000 acre-feet.⁴¹

Seiche. Seiches are surface waves with longer period of water-level oscillations within a lake, bay, or estuary typically caused by earthquakes, wind, or changes in atmospheric pressure.⁴² Once the forces stop, water rebounds to the other side of the enclosed area and oscillates back and forth for a given amount of time (typically hours) based on the size and volume of the water body. The nearest water body to the Specific Plan Area capable of generating a seiche is Madera Lake. The potential for failure of Madera Lake Dam is addressed above under *Dam Inundation*.

³⁷ California Department of Water Resources. Division of Safety of Dams. California Dam Breach Inundation Maps. Website: fmds.water.ca.gov/maps/damim (accessed February 26, 2020).

³⁸ California Department of Water Resources. 2017. Division of Safety of Dams. *Dams Within Jurisdiction of the State of California, National ID no. CA00027; Dam Number 682.000*. Available online at: water.ca.gov/LegacyFiles/damsafety/docs/Dams%20by%20Dam%20Name_Sept%202017.pdf (accessed February 25, 2020). September.

³⁹ United States Bureau of Reclamation. John Franchi Diversion Dam. Website: www.usbr.gov/projects/index.php?id=171 (accessed February 23, 2020).

⁴⁰ Madera, County of. 2017. *Madera County Local Hazard Mitigation Plan Update*, op. cit.

⁴¹ Madera, City of. 2009. *General Plan Update/Draft Environmental Impact Report*, op. cit.

⁴² United States Geological Survey. Earthquake Glossary, *seiche*. Website: earthquake.usgs.gov/learn/glossary/?term=seiche (accessed February 26, 2020).

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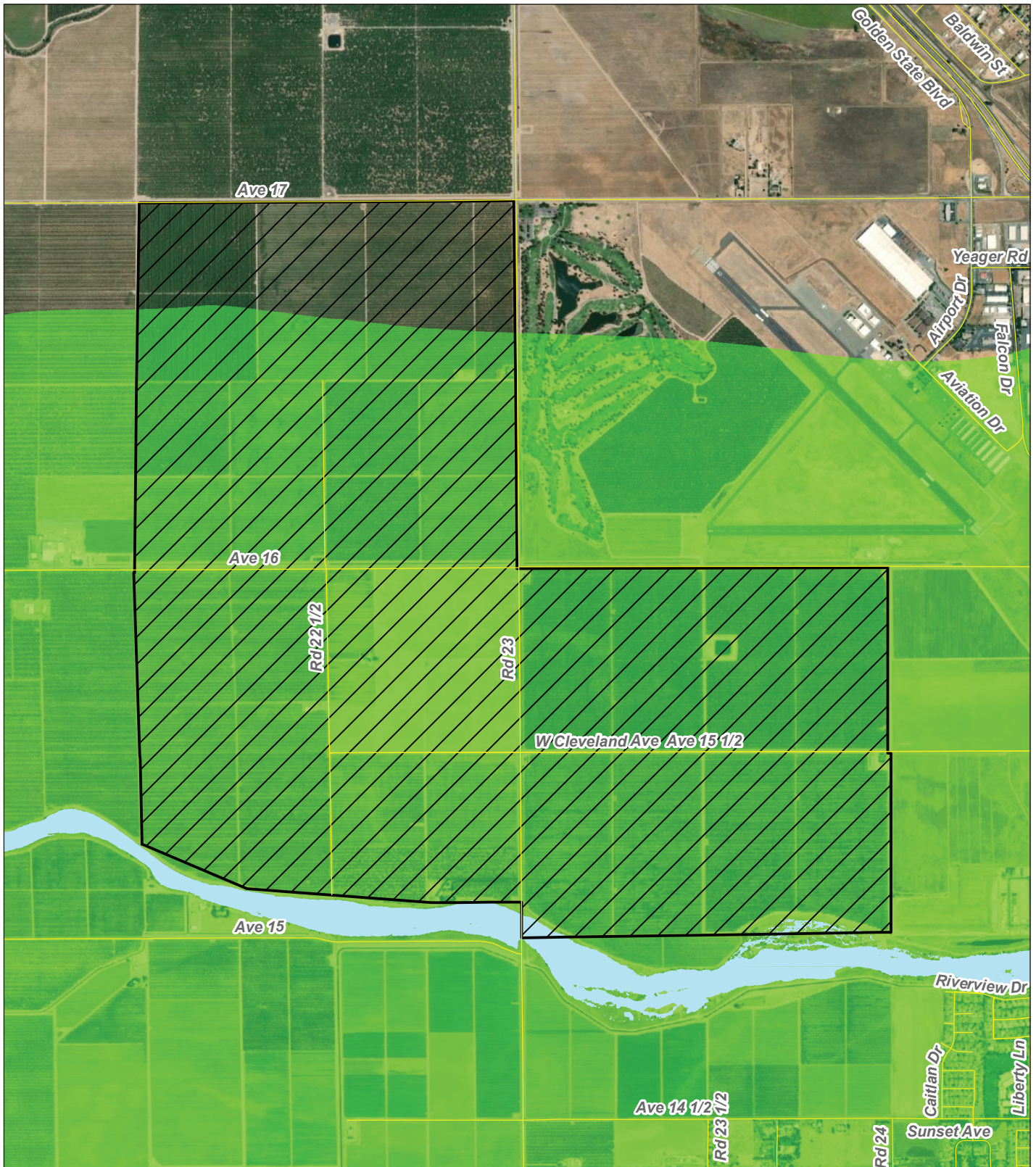
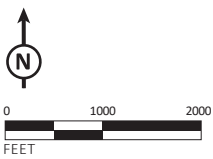


FIGURE 4.10-2

LSA



- Roads
- Project Area
- Madera Lake Dam
- Hidden Dam

*The Villages at Almond Grove
Specific Plan EIR
Inundation Boundaries*

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Tsunami. A tsunami is an ocean wave caused by sudden large-scale displacement on the ocean floor and is associated with large earthquakes.⁴³ The Specific Plan Area is approximately 98 miles inland from the Pacific Ocean with an elevation ranging from about 230 feet above mean sea level (amsl) at the edge of the Specific Plan Area to about 260 feet amsl at the south-eastern corner of the Specific Plan Area. There are no tsunami flood hazards within Madera County.

Mudflow. A mudflow is type of landslide composed of saturated fine-grained earth materials with a wet cement consistency.⁴⁴ The Specific Plan Area is relatively flat and slopes to the southwest with an average grade of about 0.2 percent. There are no slopes on or immediately near the Specific Plan Area capable of generating a mudflow.

4.10.1.2 Specific Plan Area

The Specific Plan Area is surrounded by primarily agriculture uses on the north and western boundaries, and the Fresno River and agriculture uses to the south. The Specific Plan Area has existing residential and agricultural support structures, as well as irrigation canals, as outlined in Section 3.1.3, Existing Land Uses and Infrastructure, of the Project Description.

4.10.1.3 Regulatory Context

This section summarizes key federal, State and local regulations and programs related to the proposed Specific Plan.

Federal Regulations

Clean Water Act. The Clean Water Act (CWA), enacted in 1977, provides the framework for regulating discharges of pollutants into water and regulating surface water quality standards. The US Environmental Protection Agency (USEPA) is the federal responsible agency and is authorized under the CWA to implement water-quality regulations to reduce water contamination and restore the integrity of the nation's waters. Under Section 402(p) of the CWA, otherwise known as the National Pollutant Discharge Elimination System (NPDES), stormwater discharges are regulated to prevent water pollution. California has an approved State NPDES program and the SWRCB and nine Regional Water Quality Control Boards (RWQCBs) implement the program.

The CWA, under Section 303(d) also requires each state identify water bodies or segments of water bodies that are considered "impaired" as they do not meet one or more of the water-quality standards established by the State. Impaired waters are considered polluted and need further attention to support their beneficial uses. A Total Maximum Daily Load (TMDL) must be established for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water-quality standards. Categories 5, 4a, and 4b are considered part of Section 303(d), indicating water quality

⁴³ United States Geological Survey. Earthquake Glossary, *tsunami*. Website: earthquake.usgs.gov/learn/glossary/?term=tsunami (accessed February 26, 2020).

⁴⁴ Colorado Geological Survey. Debris and Mud Flows. Website: coloradogeologicalsurvey.org/hazards/debris-flows/ (accessed April 28, 2020).

parameters are not being met. Section 401⁴⁵ requires a federal permit if an activity may result in discharge to “waters of the United States”. Discharge must comply with other provisions of the act. Discharging other pollutants into US water are covered in Sections 402 and 403.

National Pollutant Discharge Elimination System. Municipal and industrial discharges to municipal storm sewer systems are regulated by NPDES permits. All facilities discharging pollutants into waters of the United States are required to obtain a NPDES permit. Stormwater discharges are also regulated under this program. Pollutant discharges are minimized under NPDES through a variety of measures. Examples of these measures include:

- Counties with storm drain systems serving a population of 100,000 or more, as well as construction sites 1 acre or more in size, must file for and obtain an NPDES permit.
- EPA’s Storm Water Phase I Final Rule requires an operator (such as a City) of a regulated municipal separate storm sewer system (MS4) to develop, implement, and enforce a program (including best management practices (BMPs), ordinances, or other regulatory mechanisms) to reduce pollutants in post-construction runoff to the City’s storm drain system from new development and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre. The Phase I Final rule is required for publicly owned conveyances or systems of conveyances.
- EPA’S Phase II Final Rule requires an operator of a regulated small MS4 to reduce stormwater runoff pollutants by implementing proper erosion and sediment controls on construction sites, provide procedures for construction sites that consider water quality impacts, enforcement measures, sanitation to ensure compliance, and BMPs.

National Flood Insurance Program. The National Flood Insurance Act⁴⁶ passed in 1968 and is mandated by FEMA to evaluate flood hazards. The Flood Disaster Protection Act of 1973 also supports this Act. FIRMs for local and regional planners are provided by FEMA to promote sound land use and floodplain development and identify potential flood areas based on current conditions. Flood Insurance Studies are conducted by FEMA engineers and cartographers in order to delineate Special Flood Hazard Areas (SFHAs) on FIRMs. The Specific Plan Area is on FIRMs⁴⁷ 06039C1150E and 06039C1155E both dated Septembers 26, 2008.

In new development areas determined as high risk and that do not have a BFE, also known as a “Zone A”, the community is responsible for ensuring construction of the new development uses methods to minimize flood damage.⁴⁸

⁴⁵ United States Environmental Protection Agency. CWA Section 401 Certification. Website: www.epa.gov/cwa-401/basic-information-cwa-section-401-certification (accessed April 28, 2020).

⁴⁶ Federal Emergency Management Agency. The National Flood Insurance Program. Website: www.fema.gov/national-flood-insurance-program (accessed April 28, 2020).

⁴⁷ Federal Emergency Management Agency. Flood Map Service Center, op. cit.

⁴⁸ Federal Emergency Management Agency. 2012. *The Zone A Manual*, op. cit.

State Regulations

Porter-Cologne Water Quality Act. The Porter-Cologne Water Quality (California Water Code Section 13000 et seq.) is the basic water-quality regulation for California. The California Environmental Protection Agency (CalEPA) has delegated authority to the SWRCB to control State water rights and regulate water-quality restrictions by issuing NPDES permits for any discharge that may compromise land or surface water. The SWRCB, through its nine RWQCBs, carries out the regulation, protection, and administration of water quality in each region by requiring a Water Quality Control Plan, or Basin Plan. These Plans recognize regional differences in existing water quality, beneficial uses of the region's water body (ground and/or surface), and local water-quality conditions and problems. Plans establish standards for the basin and set water quality criteria for groundwater within the basin, as well recognizing actions necessary to achieve standards.

The City of Madera and the Specific Plan Area is within the San Joaquin Valley Basin and falls under the jurisdiction of the Central Valley RWQCB (Region 5). Region 5 is divided into three basins (Sacramento River, San Joaquin, and Tulare Lake Basin). The Basin Plan for San Joaquin Valley was last revised in 2018.

Statewide General Construction Permit. General Construction Permit, Order No. 2012-0006-DWQ requires construction projects of 1 acre or more to file Permit Registration Documents (PRDs) with the SWRCB prior to the start of construction.⁴⁹ The PRDs include a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. SWPPP must demonstrate conformance with applicable BMPs, including a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Specific Plan Area. BMPs must be listed within the SWPPP that would prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources.

SWPPP also addresses BMP failure by requiring a visual monitoring program, chemical monitoring program for nonvisible pollutants, and a sediment monitoring plan in case the site discharges directly to a water body listed on the 303(d) list for sediment. There are several categories of construction BMPs. The following categories⁵⁰ of construction BMPs are relevant to prevent stormwater discharge:

- Erosion Controls: Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind. Examples include mulch, geotextiles, mats, hydroseeding, earth dikes, and swales

⁴⁹ State Water Resources Control Board. 2010. Storm Water Program. Website: www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml (accessed on April 28, 2020).

⁵⁰ United States Environmental Protection Agency. 2007. *Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites*. Available online at: www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf (accessed April 28, 2020). May.

- **Sediment Controls:** Filter out soil particles that have been detached and transported in water. Examples include barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; and cleaning measures such as street sweeping.
- **Tracking Controls:** Minimize the tracking of soil off-site by vehicles. Examples include stabilized construction roadways and construction entrances/exits, and entrance/outlet tire wash.
- **Waste Management and Controls (housekeeping):** Management of materials and wastes to avoid contamination of stormwater. Examples include spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

Sustainable Groundwater Management Act. California legislature passed the SGMA in September 2014 to establish new measures for groundwater management and regulation statewide by providing sustainable local control of groundwater resources. Under SGMA, local agencies must establish governance of their subbasin by forming GSAs that have been given the authority to develop, adopt, and implement a Groundwater Sustainability Plan (GSP) for the subbasin. GSAs must define and monitor groundwater conditions in the subbasin and set and achieve sustainable groundwater management within 20 years of adopting the GSP.⁵¹

Local and Regional Regulations

MS4 Permits for the Madera Region. Madera County implemented a Phase II MS4 General Permit (Order 2013-0001-DWQ) which expired on June 30, 2018⁵² and a General Permit for Discharges of Storm Water Associated with Industrial Activity (Industrial General Permit) (Order 2014-0057-DWQ) which expires on June 30, 2020.⁵³ On June 21, 2016, Madera County adopted an Urgency Ordinance (Urgency Ordinance No. 680)⁵⁴ giving the county control relating to stormwater and storm sewer systems, illicit discharge and connections, construction site stormwater runoff and landscaping as required by MS4. The Madera County MS4 Permit is a five-year plan that will expire in 2021 and follows NPDES requirements. The Madera County MS4 Permit uses six Minimum Control Measures (MCMs) to manage stormwater discharges:

1. Public Education and Outreach on Storm Water Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control

⁵¹ Davids Engineering, Inc., et. al. 2020, op. cit.

⁵² State Water Resource Control Board. 2013. *General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)*, Order No. 2013-0001-DWQ. Available online at: www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0001dwq.pdf (accessed February 26, 2020).

⁵³ State Water Resource Control Board. 2014. *General Permit for Storm Water Discharges Associated with Industrial Activities*, Order 2014-0057-DWQ. Available online at: www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2014/wqo2014_0057_dwq_rev_mar2015.pdf (accessed February 26, 2020).

⁵⁴ Madera, County of. AIS Ordinance 1860. Website: maderacountyca.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=1057&MediaPosition=&ID=1860&CssClass= (accessed April 28, 2020).

5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations.

The most recent SWRP produced by Madera County was released to the public on December 28, 2017.⁵⁵ Madera County prepared the SWRP “with Community input through direct outreach and a series of Stakeholder, Public, and Technical Advisory (TAC) Meetings.” The SWRP includes 24 projects from Stakeholders that will provide groundwater recharge, low impact development/green infrastructure, conveyance and infrastructure improvements, floodplain restoration and water quality improvements in Madera County.

Madera County Flood Control & Water Conservation Agency. The Madera County Flood Control & Water Conservation Agency has adopted floodplain management regulations under Government Code Sections 65302, 65560, and 65800 and California Code Article 122 [21570-21572]. These regulations are designed to promote public health, safety, general welfare, and minimize public and private losses due to flood conditions.

Madera Irrigation District. The MID is a public agency encompassing approximately 139,665 acres and was established by the State Legislature as a Special Act District. The MID has a mission to obtain and manage surface water (including stormwater) and groundwater supplies at an affordable price and in a way that will ensure long-term viability for its agricultural service area.⁵⁶

City of Madera Urban Water Management Plan. The City of Madera has prepared an Urban Water Management Plan (UWMP) in March 2017 (Water Code Section 10610-10656). The UWMP describes the current conditions and characteristics of the City of Madera and includes information regarding the City’s WWTP.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. Through its ten elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera’s quality of life and implement the community’s shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City’s operations and decisions. Hydrology and water quality related goals, objectives, and policies specific to the city are included in the General Plan.

The General Plan contains policies that address hydrology and water quality in the proposed Specific Plan and are listed in Table 4.10.A.

⁵⁵ Madera, County of. 2017. *County of Madera Storm Water Resource Plan*. Available online at: www.madera-countywater.com/wp-content/uploads/2018/06/FINAL_MaderaSWRP_171228.pdf (accessed April 28, 2020). December.

⁵⁶ Madera Irrigation District. History of Madera Irrigation District. Website: www.madera-id.org/about-us/history-of-mid (accessed February 25, 2020).

Table 4.10.A: General Plan Policies Related to Hydrology and Water Quality

Policy/Action Item Number	Policy
Health and Safety Element	
Policy HS-16	The City will work with other responsible agencies on efforts to clean up or contain identified soil or water contamination identified in the city limits. This policy will extend to the former Oberti salt ponds and other related facilities at such time as they are annexed to the city.
Policy HS-19	The City shall not permit new development projects to result in new or increased flooding impacts on adjoining parcels in either upstream or downstream areas.
Policy HS-20	The City's first priority in preventing risks to life and property resulting from flooding shall be to designate appropriate land uses in areas subject to flooding. Only when this land use-based approach is not sufficient to reduce hazards to life and property to acceptable levels will the City support the construction of new flood control projects.
Policy HS-21	The City shall require any development on land subject to a 100-year flood event, based on Federal Emergency Management Agency (FEMA) or on other updated mapping acceptable to the City, to conform to NFIP standards.
Policy HS-22	Creation of lots whose access will be inundated by flows resulting from a 10-year or greater storm shall not be allowed. Bridges or similar structures may be used to provide flood-free access.
Policy HS-23	The City shall limit the number of crossings of natural streams in order to reduce potential flooding, degradation, hydrological changes and property access problems. Among the methods which may be used to reduce the number of crossings is a shared access drive serving two or more parcels.
Policy HS-24	Parcels shall not be created on which the presence of easements, floodplain, marsh or riparian habitat, or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.
Policy HS-25	New and modified bridge structures shall not cause an increase in water surface elevations of the 100-year floodplain exceeding one foot, unless analysis clearly indicates that the physical and/or economic use of upstream or downstream property will not be adversely affected.
Policy HS-26	The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.
Policy HS-27	Upon adoption of the Central Valley Flood Protection Plan, and this General Plan, the City shall review the consistencies of City flood-related planning documents for consistency with the current General Plan with the provisions of Central Valley Flood Protection Plan and the policies of the General Plan.
Policy HS-28	The City shall continue to cooperate with Madera County and other agencies in pre-disaster planning activities for potential dam breach and similar potential disasters.
Conservation Element	
Policy CON-1	The City will coordinate with local, regional, and state water suppliers and water resource managers to identify water management strategies and issues that ensure a clean and sustainable water supply.
Policy CON-2	The City supports the consideration and implementation of a broad range of strategies to ensure the long-term sustainability of its water supply, including strategies related to conservation, reclamation, recharge, and diversification of supply.

Table 4.10.A: General Plan Policies Related to Hydrology and Water Quality

Policy/Action Item Number	Policy
Policy CON-3	The City supports natural groundwater recharge and new groundwater recharge opportunities through means such as: <ul style="list-style-type: none"> • Developing a comprehensive groundwater recharge program to be applied in conjunction with new development. • Increasing the area on developed sites into which rainwater can percolate. • Providing areas where rainwater and other water can collect and percolate into the ground. • Providing for groundwater recharge in storm drainage facilities. • The use of reclaimed water to recharge the groundwater table.
Policy CON-4	The City will coordinate water resource management planning with other conservation planning efforts, such as those related to open space, parkland, and agricultural preservation.
Policy CON-5	To reduce the need for groundwater, the City encourages water conservation and the use of reclaimed water.
Policy CON-8	The City encourages Low Impact Development practices in all residential, commercial, office, and mixed-use discretionary projects and land division projects to reduce, treat, infiltrate, and manage runoff flows caused by storms, urban runoff, and impervious surfaces. Low impact development practices may include: <ul style="list-style-type: none"> • Use of small scale stormwater controls such as bioretention, grass swales and channels, vegetated rooftops, rain barrels and cisterns. • Reduction of impervious surfaces through site design and use of pervious paving materials. • Retention of natural features such as trees and ponds on site. • The use of drought tolerant plant materials and/or water-conserving irrigation systems.
Policy CON-11	The City shall protect and maintain water quality for the health of all users, including natural plant and animal communities.
Policy CON-12	The City shall seek to minimize toxic runoff from such sources as homes, golf courses, and roadways. Examples of potential programs include: <ul style="list-style-type: none"> • The use of “bioswales” and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants; • Installation of grease/oil separators to keep these contaminants out of storm runoff; • Regular street sweeping programs to prevent the buildup of oil, grease, and other contaminants and keep them from being swept into creeks and rivers; • Minimizing pesticide use and promoting the use of natural pest controls; • Encouraging the installation of “gray water” systems; • The development of new storm drain runoff retention ponds for sediment and pollutant removal based on the updated storm water master plan.
Policy CON-13	The City will endeavor to protect groundwater quality from pollution by point and non-point sources.
Policy CON-14	The relocation of natural stream courses is discouraged. Where flood protection is a necessity, the City supports leaving existing natural stream courses and adjoining land in a natural state and creating new storm drainage capacity in parallel above- or below-ground facilities.

Source: City of Madera General Plan (October 2009).

4.10.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to hydrology and water quality that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed

Specific Plan and the recommended mitigation measures, if required. Cumulative impacts are also addressed.

4.10.2.1 Significance Criteria

The thresholds for impacts related to hydrology and water quality used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to hydrology and water quality if it would:

- Threshold 4.10.1** **Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;**
- Threshold 4.10.2** **Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;**
- Threshold 4.10.3** **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:**
- **Result in a substantial erosion or siltation on- or off-site;**
 - **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;**
 - **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**
 - **Impede or redirect flood flows.**
- Threshold 4.10.4** **In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or**
- Threshold 4.10.5** **Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

4.10.2.2 Project Impacts

The following discussion describes the potential impacts related to hydrology and water quality that could result from implementation of the proposed Specific Plan.

- Threshold 4.10.1** **Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?**

Anticipated buildout of the proposed Specific Plan would include several construction activities (clearing, grading, excavation) that could impact water through soil erosion and increased sediment and debris discharged into runoff. Other risks to surface water quality include construction materials that would be on-site such as fuels, paints, and solvents. Construction materials and equipment that are temporary stored in work areas or staging areas have the potential to release hazardous materials, sediments, or trash into the storm drain system.

Implementing the proposed Specific Plan would result in approximately 10,800 residential units, approximately 2.1 million square feet of commercial and office space, approximately 165 acres of parks and recreational area, and approximately 55 acres of public facilities including schools.

Pollutants of Concern from Construction Projects. The following contaminants can be released during buildout and can contaminate stormwater: sediment, nutrients, bacteria and viruses, oil and grease, metals, organic (carbon-based) compounds, oxygen-demanding substances, pesticides, and trash and debris.

It should be noted organic compounds are found in pesticides, solvents, and hydrocarbons. To further clarify, oxygen-demanding substances include proteins, carbohydrates, and fats caused by microbial degradation which increases oxygen demand when in water.

Construction Water Quality Requirements. Construction occurring within the Specific Plan Area that would be more than one acre in size is required to comply with the General Construction Permit, Order No. 2012-0006-DWQ, issued by the SWRCB in 2012. Through this permit, future discretionary development projects would develop and implement a SWPPP prior to the initiation of grading that would estimate sediment risk from construction activities to receiving waters and specify BMPs that would be used during implementation of the proposed Specific Plan to minimize pollution of stormwater. BMP categories that would be implemented include erosion, sediment, wind erosion, and sediment control. These BMPs are discussed above. As a result, construction-related impacts would be less than significant.

Operational Impacts. Runoff resulting from the anticipated buildout of the Specific Plan Area would be managed by the City and would meet water quality standards as listed in Madera County's SWRP, and as required by applicable regulatory permits. Additionally, the City requires developers to improve storm drainage systems in conjunction with new housing developments. These improvements are guided by City Code and Standard Specifications as referenced in the General Plan, and set forth in the Infrastructure Master Plan, included as Appendix C of this Draft EIR.

The following General Plan policies address water quality standards:

Policy HS-16: The City will work with other responsible agencies on efforts to clean up or contain identified soil or water contamination in the city limits. This policy will extend to the former Oberti salt ponds and other related facilities at such time as they are annexed to the city.

Policy CON-5: To reduce the need for groundwater, the City encourages water conservation and the use of reclaimed water.

Policy CON-8: The City encourages Low Impact Development practices in all residential, commercial, office, and mixed-use discretionary projects and land division projects to reduce, treat, infiltrate, and manage runoff flows caused by storms, urban runoff, and impervious surfaces. Low impact development practices may include:

- Use of small-scale stormwater controls such as bioretention, grass swales and channels, vegetated rooftops, rain barrels and cisterns.
- Reduction of impervious surfaces through site design and use of pervious paving materials
- Retention of natural features such as trees and ponds on site.
- The use of drought tolerant plant materials and/or water-conserving irrigation systems.

Policy CON-11: The City shall protect and maintain water quality for the health of all users, including natural plant and animal communities.

Policy CON-12: The City shall seek to minimize toxic runoff from such sources as homes, golf courses, and roadways. Examples of potential programs include:

- The use of “bioswales” and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants;
- Installation of grease/oil separators to keep these contaminants out of storm runoff;
- Regular street sweeping programs to prevent the buildup of oil, grease, and other contaminants and keep them from being swept into creeks and rivers;
- Minimizing pesticide use and promoting the use of natural pest controls;
- Encouraging the installation of “gray water” systems;
- The development of new storm drain runoff retention ponds for sediment and pollutant removal based on the updated storm water master plan.

Policy CON-13: The City will endeavor to protect groundwater quality from pollution by point and non-point sources.

Storm water originating from the development of the proposed Specific Plan shall be treated utilizing BMPs as permitted by the NPDES general permitting process of the Clean Water Act. BMPs for the proposed Specific Plan would be developed during the design phase, and may be drawn from the City or local area authorities including Caltrans. Regulatory Compliance Measure (RCM) HYD-1, is included below to further identify regulatory compliance required prior to construction activities. Compliance with existing regulations including the General Construction Permit, BMPs, the Standard

Condition of Approval and implementation of General Plan policies would reduce potential impacts related to water quality to less-than-significant levels.

RCM HYD-1: Prior to approval of each subsequent Specific Plan grading permit, grading plans must be prepared for and approved by the City of Madera Engineering Department and must be in compliance with the General Construction Permit including implementation of SWPPPs with specific BMPs to minimize pollution of stormwater. BMPs shall follow City of Madera Storm drainage BMPs and Storm Drainage Management Plan. The City shall also review and confirm compliance with Statewide National Pollutant Discharge Elimination System (NPDES) permits for construction runoff and municipal storm drain systems (MS4) provisions of water quality control measures.

Significance Without Mitigation: Less than significant. Incorporation of RCM HYD-1 would ensure regulatory compliance related to water quality standards throughout implementation of the proposed Specific Plan.

Threshold 4.10.2 Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Water demands for the City of Madera are increasing each year. In 2014, the City had an annual demand of 13,800 acre-feet to service the 63,105 population.⁵⁷ Anticipated buildout of the proposed Specific Plan would increase water demands within the Specific Plan Area and would encourage the need for sustainable water sources. The City of Madera uses a variety of methods to facilitate groundwater recharge. The General Plan,⁵⁸ Madera County Local Hazard Mitigation Plan,⁵⁹ and FEMA Flood Insurance Study have noted the Madera County area has excellent drainage.

Stormwater from the City is sent to retention basins to recharge and manage the Madera Subbasin. During drier periods of time, the City as the option to use small purchases of surface water from the MID to send to the City's stormwater basins. In addition, the Infrastructure Master Plan for the proposed Specific Plan includes three on-site retention basins to capture excess flood waters from MID to be used for groundwater recharge. A study conducted by the EPA (among others) discusses urban water management BMPs and has identified successful water quality control within infiltration basins⁶⁰ where runoff infiltrated into the ground separates contaminants that attach to the soil and those that dissolve.

⁵⁷ Madera, County of. 2017. *County of Madera Storm Water Resource Plan*, op. cit.

⁵⁸ Madera, City of. 2010. *General Plan*. October.

⁵⁹ Madera, County of. 2017. *Madera County Local Hazard Mitigation Plan Update*. op. cit.

⁶⁰ United States Environmental Protection Agency. 1999. *Preliminary Data Summary of Urban Storm Water Best Management Practices*. Available online at: www.epa.gov/sites/production/files/2015-11/documents/urban-stormwater-bmps_preliminary-study_1999.pdf (accessed February 26, 2020).

The following General Plan policies address groundwater recharge and supplies:

Policy CON-1: The City will coordinate with local, regional, and state water suppliers and water resource managers to identify water management strategies and issues that ensure a clean and sustainable water supply.

Policy CON-2: The City supports the consideration and implementation of a broad range of strategies to ensure the long-term sustainability of its water supply, including strategies related to conservation, reclamation, recharge, and diversification of supply.

Policy CON-3: The City supports natural groundwater recharge and new groundwater recharge opportunities through means such as:

- Developing a comprehensive groundwater recharge program to be applied in conjunction with new development
- Increasing the area on developed sites into which rainwater can percolate
- Providing areas where rainwater and other water can collect and percolate into the ground.
- Providing for groundwater recharge in storm drainage facilities.
- The use of reclaimed water to recharge the groundwater table.

As stated in the Infrastructure Master Plan, reclaimed water would be used for groundwater recharge and irrigation of landscaped areas and open space areas to reduce groundwater demand. As stated in the Water Supply Assessment (WSA) prepared for the proposed Specific Plan (included as Appendix I of this EIR), the GSP concluded that the groundwater basin is capable of supplying the potable water required to meet the City's water demands through 2040. The WSA further states that the existing City water distribution system infrastructure is not capable of supplying the water required to meet the demands of the City and the proposed Specific Plan through 2040. However, the master planned water system infrastructure would provide the City the ability to meet the demands of the City and proposed Specific Plan through 2040. As such, implementation of the proposed Specific Plan would increase impervious surface within the Specific Plan Area, but with the use of recharge basins included in the Infrastructure Master Plan and use of the City's water supply and recycled water, the proposed Specific Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. In addition, incorporation of RCM HYD-1 would require regulatory compliance to address water quality of runoff generated during construction and operation of the proposed Specific Plan. As a result, a less-than-significant impact would occur.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.10.3 Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

Result in a substantial erosion or siltation on- or off-site? Erosion is a natural process in which soil is moved from place to place by wind or from flowing water. The effects of erosion within the Specific Plan Area can be accelerated by ground-disturbing activities associated with development. Erosion control methods outlined in the SWPPPs for future development within the Specific Plan Area would limit soil transportation and erosion.

Siltation is the settling of sediment to the bed of a stream or lake which increases the turbidity of water. Turbid water can have harmful effects to aquatic life by clogging fish gills, reducing spawning habitat, and suppress aquatic vegetation growth.

Anticipated buildout of the proposed Specific Plan would result in the development of the existing agricultural lands. Bare soils, common within farmlands are more susceptible to erosion than an already developed urban land, thus it is expected erosion would occur on-site. During construction activities, and in compliance with future project-specific SWPPPs, several construction BMPs would be implemented to reduce potential impacts related to erosion and siltation. These BMPs would include, but are not limited to, covering and/or binding soil surfaces to prevent soil from being detached and transported by water or wind, and the use of barriers such as straw bales and sandbags to control sediment. RCM HYD-1 requires the compliance with City of Madera construction requirements including implementation of a SWPPP with construction BMPs.

Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? Anticipated buildout of the proposed Specific Plan would increase the amount of impermeable land surfaces on-site which would increase runoff from the Specific Plan Area. Currently there is no storm water flow crossing through the Specific Plan Area from any upstream adjacent property. Runoff from the Specific Plan Area would travel to the three proposed retention basins located within the north-west and central east portions of the Specific Plan Area.⁶¹ As identified in the Infrastructure Master Plan, all grading within the Specific Plan Area would be completed in accordance with the City of Madera Grading Ordinance, the current building code, and the recommendations provided in the Infrastructure Master Plan. During Project design, detailed grading plans shall be prepared, in conformance with the overall drainage concept and the defined drainage area boundaries. As identified in RCM HYD-1, grading plans must be prepared for and reviewed by the City of Madera Engineering Department. As a result, the anticipated buildout of the proposed Specific Plan would not substantially alter drainage patterns on or across the Specific Plan Area, and building code regulations would be enforced to ensure that runoff would not result in flooding on- or offsite.

Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? As required through the incorporation of RCM HYD-1, BMPs would be enforced during the anticipated

⁶¹ Provost and Pritchard Consulting Group. 2017, op. cit.

buildout of the proposed Specific Plan which would limit polluted runoff to the City's storm drains. Impacts on runoff and storm drain capacity would be less than significant, as substantiated above.

Impede or redirect flood flows? Although implementation of the proposed Specific Plan would result in impervious surface, because there are no drainages that cross the Specific Plan Area that would be altered, drainage patterns would not be altered. Expansion and maintenance of the City's municipal storm drain system in the identified flood zone in the Southeast Neighborhood of the Specific Plan Area would minimize flood risks. Runoff within the Specific Plan Area would be conveyed to storm drain inlets and then carried to retention basins to infiltrate into soil. The Specific Plan Area would also have improved drainage systems as outlined in the Infrastructure Master Plan for the proposed Specific Plan.

The following General Plan policies address erosion and stormwater runoff:

Policy CON-14: The relocation of natural stream courses is discouraged. Where flood protection is a necessity, the City supports leaving existing natural stream courses and adjoining land in a natural state and creating new storm drainage capacity in parallel above- or below-ground facilities.

Policy CON-8: The City encourages Low Impact Development practices in all residential, commercial, office, and mixed-use discretionary projects and land division projects to reduce, treat, infiltrate, and manage runoff flows caused by storms, urban runoff, and impervious surfaces. Low impact development practices may include:

- Use of small-scale stormwater controls such as bioretention, grass swales and channels, vegetated rooftops, rain barrels and cisterns.
- Reduction of impervious surfaces through site design and use of pervious paving materials
- Retention of natural features such as trees and ponds on site.
- The use of drought tolerant plant materials and/or water-conserving irrigation systems."

Policy HS-19: The City shall not permit new development projects to result in new or increased flooding impacts on adjoining parcels in either upstream or downstream areas.

Policy HS-20: The City's first priority in preventing risks to life and property resulting from flooding shall be to designate appropriate land uses in areas subject to flooding. Only when this land use-based approach is not sufficient to reduce hazards to life and property to acceptable levels will the City support the construction of new flood control projects.

- Policy HS-21: The City shall require any development on land subject to a 100-year flood event, based on Federal Emergency Management Agency (FEMA) or on other updated mapping acceptable to the City, to conform to NFIP standards.
- Policy HS-22: Creation of lots whose access will be inundated by flows resulting from a 10-year or greater storm shall not be allowed. Bridges or similar structures may be used to provide flood-free access.
- Policy HS-24: Parcels shall not be created on which the presence of easements, floodplain, marsh or riparian habitat, or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.

With incorporation of RCM HYD-1 which requires implementation of a SWPPP, BMPs, the Infrastructure Master Plan for the proposed Specific Plan, impacts related to the existing drainage pattern of the Specific Plan Area to less-than-significant levels.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.10.4 Would the project release of pollutants due to project inundation in a flood hazard, tsunami, or seiche zones?

The Specific Plan Area is located within a high-risk flood zone⁶² and has the potential to be affected by inundation. However, the Specific Plan Area would not be a cause for inundation as the anticipated buildout of the proposed Specific Plan would be contained within the Specific Plan Area. Some levee failure has previously occurred along the Fresno River. A \$2.5 million grant was obtained by the County to repair these critical sites.⁶³ The anticipated buildout of the proposed Specific Plan would not exacerbate these existing conditions as future development within the Specific Plan Area would result in continued maintenance and expansion of the City's municipal storm drain system, and implementation of the Infrastructure Master Plan would minimize potential flooding issues associated with urban growth within the Specific Plan Area. Additionally, the City's continued participation in the National Flood Insurance Program would minimize risks associated with existing flood hazards.

The Specific Plan Area, as well as the City of Madera, has historically been subject to low to moderate ground shaking and has a relatively low probability of shaking.⁶⁴ Seiches are unlikely to form due to the low seismic energy produced in the area. Additionally, the nearest body of water to the Specific Plan Area is the Madera Lake approximately 7.75 miles northeast from the Specific Plan Area. According to the DWR, if the Madera Lake Dam were to inundate, the Specific Plan Area would

⁶² Federal Emergency Management Agency, National Flood Hazard Layer Viewer, op. cit.

⁶³ Madera, County of. 2017. *Madera County Local Hazard Mitigation Plan Update*, op. cit.

⁶⁴ California Emergency Management Agency and Earthquake Country Alliance. 2009. Central Valley (South) ~ ShakeOut Area, Probability of Shaking. Available online at: www.shakeout.org/california/images/Central_Valley_South_Probability_map.jpg (accessed April 29, 2020). Revised June 7, 2010.

not be affected and such inundation would be contained within the Fresno River.⁶⁵ The Specific Plan Area would not cause or exacerbate a flood hazard related to the release of pollutants because the Specific Plan Area is downstream from large bodies that are not projected to flood the Specific Plan Area. Additionally, with expansion and maintenance of the City's municipal storm drain system through implementation of the Infrastructure Master Plan, the release of pollutants during flooding would be minimized.

The Specific Plan Area is approximately 98 miles inland from the Pacific Ocean, thus there are no tsunami hazards associated with the Specific Plan Area.

Anticipated buildout of the proposed Specific Plan would not be the cause for any potential pollutant release. Construction within the Specific Plan Area would follow regulations (as specified in RCM HYD-1), as well as the following General Plan policies that address potential flood, seiche, and tsunami hazards:

- Policy HS-19: The City shall not permit new development projects to result in new or increased flooding impacts on adjoining parcels in either upstream or downstream areas.
- Policy HS-20: The City's first priority in preventing risks to life and property resulting from flooding shall be to designate appropriate land uses in areas subject to flooding. Only when this land use-based approach is not sufficient to reduce hazards to life and property to acceptable levels will the City support the construction of new flood control projects.
- Policy HS-21: The City shall require any development on land subject to a 100-year flood event, based on Federal Emergency Management Agency (FEMA) or on other updated mapping acceptable to the City, to conform to NFIP standards.
- Policy HS-22: Creation of lots whose access will be inundated by flows resulting from a 10-year or greater storm shall not be allowed. Bridges or similar structures may be used to provide flood-free access.
- Policy HS-24: Parcels shall not be created on which the presence of easements, floodplain, marsh or riparian habitat, or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.
- Policy HS-27: Upon adoption of the Central Valley Flood Protection Plan, and this General Plan, the City shall review the consistencies of City flood-related planning documents for consistency with the current General Plan with the provisions of Central Valley Flood Protection Plan and the policies of the General Plan.

⁶⁵ California Department of Water Resources. Division of Safety of Dams. California Dam Breach Inundation Maps, op. cit.

Policy HS-28: The City shall continue to cooperate with Madera County and other agencies in pre-disaster planning activities for potential dam breach and similar potential disasters.

Implementation of the General Plan would reduce potential impacts related to the release of pollutants due to project inundation to less-than-significant levels.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.10.5 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan (SGMA)?

Implementation of the proposed Specific Plan would not compromise water quality control. Incorporation of RCM HYD-1 would require Statewide NPDES permits for construction runoff and municipal storm drain systems (MS4) require provisions of water quality control measures be upheld to protect groundwater quality. Stormwater is sent to retention basins within the Specific Plan Area as well as the City and serves to recharge groundwater. This process would allow multi-generational use by returning water back into the aquifer which would ultimately help with the implementation of SGMA.

The following General Plan policies address water quality and groundwater management:

Policy HS-16: The City will work with other responsible agencies on efforts to clean up or contain identified soil or water contamination in the city limits. This policy will extend to the former Oberti salt ponds and other related facilities at such time as they are annexed to the city.

Policy CON-1: The City will coordinate with local, regional, and state water suppliers and water resource managers to identify water management strategies and issues that ensure a clean and sustainable water supply.

Policy CON-2: The City supports the consideration and implementation of a broad range of strategies to ensure the long-term sustainability of its water supply, including strategies related to conservation, reclamation, recharge, and diversification of supply.

Policy CON-3: The City supports natural groundwater recharge and new groundwater recharge opportunities through means such as:

- Developing a comprehensive groundwater recharge program to be applied in conjunction with new development
- Increasing the area on developed sites into which rainwater can percolate
- Providing areas where rainwater and other water can collect and percolate into the ground.

- Providing for groundwater recharge in storm drainage facilities.
- The use of reclaimed water to recharge the groundwater table.

Policy CON-5: To reduce the need for groundwater, the City encourages water conservation and the use of reclaimed water.

Policy CON-8: The City encourages Low Impact Development practices in all residential, commercial, office, and mixed-use discretionary projects and land division projects to reduce, treat, infiltrate, and manage runoff flows caused by storms, urban runoff, and impervious surfaces. Low impact development practices may include:

- Use of small-scale stormwater controls such as bioretention, grass swales and channels, vegetated rooftops, rain barrels and cisterns.
- Reduction of impervious surfaces through site design and use of pervious paving materials
- Retention of natural features such as trees and ponds on site.
- The use of drought tolerant plant materials and/or water-conserving irrigation systems.

Policy CON-11: The City shall protect and maintain water quality for the health of all users, including natural plant and animal communities.

Policy CON-12: The City shall seek to minimize toxic runoff from such sources as homes, golf courses, and roadways. Examples of potential programs include:

- The use of “bioswales” and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants;
- Installation of grease/oil separators to keep these contaminants out of storm runoff;
- Regular street sweeping programs to prevent the buildup of oil, grease, and other contaminants and keep them from being swept into creeks and rivers;
- Minimizing pesticide use and promoting the use of natural pest controls;
- Encouraging the installation of “gray water” systems;
- The development of new storm drain runoff retention ponds for sediment and pollutant removal based on the updated storm water master plan.

Policy CON-13: The City will endeavor to protect groundwater quality from pollution by point and non-point sources.

Implementation of the proposed Specific Plan would not conflict or implementation of a water quality control plan or a sustainable groundwater management plan by implementing the General Plan, Statewide NPDES permits for construction runoff, and municipal storm drain systems (MS4), as identified in RCM HYD-1. As a result, a less-than-significant impact would occur.

Significance Without Mitigation: Less than significant. No mitigation is required.

4.10.2.3 Cumulative Impacts

The proposed Specific Plan would not have a significant effect on the environment – in combination with other projects and would not contribute to a significant cumulative impact related to hydrology and water quality.

Surface Water, Drainage, and Flooding. The area considered for cumulative impacts to surface water, drainage, and flooding is the Madera Subbasin, which spans about 543 square miles and most of Madera County. Implementing the proposed Specific Plan would result in increased impermeable surfaces, thus increasing runoff to surface waters and storm drainage systems. Anticipated buildout of the Specific Plan Area would be required to infiltrate or treat stormwater pursuant to the MS4 permit. The City of Madera and Madera County each have policies limiting and regulating development in 100-year flood zones. Cumulative hydrology and flooding impacts would be less than significant after compliance with the MS4 permit. Impacts resulting from implementation of the proposed Specific Plan would not be cumulatively considerable because RCM HYD-1 would be incorporated into the proposed Specific Plan and applicable to each subsequent project to ensure that regulatory requirements are met.

Groundwater Supply and Recharge. Cumulative groundwater impacts resulting of the proposed Specific Plan would not affect the Madera Subbasin. Runoff created during development would be treated and inevitable recharge the Madera Subbasin. Cumulative groundwater impacts would be less than significant after compliance with the MS4 permit, and potential impacts would not be cumulatively considerable.

Water Quality. Runoff from the Specific Plan Area would not significantly affect water quality within the Madera Subbasin. Development of future projects within the Specific Plan Area that are one acre or more would require a Stormwater Pollution Prevention Plans pursuant to the Statewide General Construction Permit. Cumulative water quality impacts would be less than significant after compliance the General Construction Permit, Order No. 2012-0006-DWQ.

Significance Without Mitigation: Less than significant. No mitigation is required.

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4.11 LAND USE AND PLANNING

This section describes the existing land use character of the Specific Plan Area and evaluates the potential land use and policy consistency impacts of future development that could occur by adopting and implementing the proposed Specific Plan. This section is based on the land uses proposed in the proposed Specific Plan, included as Appendix B to this Environmental Impact Report (EIR).

4.11.1 Environmental Setting

4.11.1.1 Specific Plan Area

The project area (Specific Plan Area) is approximately 1,900 acres in size and is located on the western edge of the City of Madera and represents the majority of the 2,763 acre “Village D: Northwest Madera” Plan Area – one of several planned growth areas in the form of “villages” identified in the City’s General Plan Land Use Element. In October 2018, the Madera Local Agency Formation Commission (LAFCO) approved the expansion of the City’s Sphere of Influence (SOI) to include the Specific Plan Area. The proposed project is comprised of the entire Specific Plan Area and is bounded by the Fresno River to the south, Road 24 to the east, Avenue 17 to the north, and Road 22 to the west.

The Specific Plan Area is currently developed with agricultural uses, agricultural support structures, and seven residential structures. It is surrounded by primarily agriculture uses on the north and western boundaries, and the Fresno River and agriculture uses to the south. The Madera Municipal Golf Course, Madera Municipal Airport, and residential uses are directly north and east of the project site.

4.11.1.2 Regulatory Context

Federal Regulations

Federal Aviation Regulation Title 14 Part 77. The Federal Aviation Administration regulates airspace around civil airports. The three existing airports located within the Planning Area are required to be consistent with Part 77 of the Federal Aviation Regulation (FAR). Part 77 requires the airspace to be free of obstructions to air navigation during critical flight phases and states that obstructions shall not penetrate the “imaginary surfaces” surrounding an airfield as defined in FAR Part 77. The “imaginary surfaces” are determined by runway length and type of navigational approach instrumentation available.

State Regulations

The Cortese-Knox-Hertzberg Local Government Reorganization Act. The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code Section 56300 et seq.) governs the establishment and revision of local government boundaries. The Act was a comprehensive revision of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 1985. The Act is a policy of the state to encourage orderly growth and development that is essential to the social, fiscal, and economic well-being of the state. The intent of the Act is to promote orderly development while balancing competing state interests of discouraging urban sprawl, preserving open space and prime agricultural lands, and efficiently extending

government services. The Act had previously established the Madera LAFCO, which gave it authority to consider and approve city and special district annexations, dissolutions, and formations.

California Land Conservation Act. The California Land Conservation Act, better known as the Williamson Act, was enacted by the State Legislature in 1965 to encourage the preservation of agricultural lands. Under the provisions of the act, landowners agreeing to keep their lands under agricultural production for a minimum of ten years receive property tax adjustments. Williamson Contracts limit the use of the properties to agricultural, open space, and other compatible use. Williamson Act lands are assessed based on their agricultural value, rather than their potential market value under nonagricultural uses.

California's 2017 Legislative Housing Package. The 2017 Housing Package provides new regulatory and financial resources to provide for housing opportunities throughout the State.¹ Components include funding sources for new affordable housing and creation of streamlined processes to increase housing supply. The legislation holds local jurisdictions accountable for addressing housing needs by increasing enforcement by the California Department of Housing and Community Development (HCD), and creates new opportunities to develop new affordable homes and preserve existing affordable homes.

Regional Policies and Regulations

Madera Local Agency Formation Commission. The Madera LAFCO was established to discourage urban sprawl and encourage orderly formation and development of local agencies based upon local conditions and circumstances. LAFCO sets spheres of influence for each city and special district within its jurisdiction; conducts special studies to review potential simplification and streamlining of governmental structure and increase cost effectiveness; and provides for reorganization or consolidation of local governmental agencies when appropriate. It is LAFCO's goal to prevent premature or illogically planned development and to see that services are provided efficiently and economically while agricultural and open-space lands are protected. In October 2018, the Madera LAFCO approved the expansion of the City's Sphere of Influence to include the Specific Plan Area.

Madera Countywide Airport Land Use Compatibility Plan. The Madera Countywide Airport Land Use Compatibility Plan (ALUCP) contains individual compatibility plans for the Chowchilla Municipal Airport and the Madera Municipal Airport, the two public-use airports in Madera County. The Madera Municipal Airport is located directly north of the Specific Plan Area. In 2015, the Madera County Airport Land Use Commission (ALUC) adopted the ALUCP for the two airports within the County, including the Madera Municipal Airport.

The ALUCP identifies four compatibility factors in which the compatibility zones for the Chowchilla and Madera Municipal Airport were derived. The four compatibility factors are defined by:

¹ California Department of Housing and Community Development. 2017. California's 2017 Housing Package. Website: www.hcd.ca.gov/policy-research/lhp.shtml (accessed February 17, 2020).

- Noise – Future noise contours reflecting a forecasted aircraft activity level of 100,000 annual operations.
- Overflight – Primary traffic patterns reflecting where aircraft and helicopters operating at the airport routinely fly.
- Safety – Generic safety zones provided in the California Airport Land Use Planning Handbook (October 2011) are applied to the existing and future runway configurations.
- Airspace Protection – Outer boundary of the Obstruction Surfaces as defined by FAR Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

The ALUCP provides land use compatibility criteria for land near the airport to avoid potential safety problems and to ensure airport operations are not constrained by surrounding development. To establish compatibility criteria, the ALUCP establishes three safety zones that are linked to land use compatibility: clear, approach/departure, and overflight. The clear zone is near each end of the runway and is the most restrictive in allowing land uses. The approach/departure zone is located under the takeoff and landing slopes, and is less restrictive. The overflight zones are areas where aircraft maneuver to enter or leave the traffic pattern, typically defined by the FAR Part 77, as described above. The safety zones in turn form the establishment of “Compatibility Zones” around airports for the purpose of assessing land use compatibility within the Airport Influence Area (AIA). Figure 4.11-1 depicts the four Compatibility Zones in the AIA of the Madera Municipal Airport. A small portion of the Southeast Neighborhood is located within Compatibility Zone B2 (Sideline Zone), which has a low to moderate risk level associated with accidents. A small portion of the Specific Plan Area located in the Northwest Neighborhood is within Compatibility Zone C1 (Outer Approach/Departure Zone), which has a moderate risk level. In addition, small portions of the Specific Plan Area adjacent to Avenue 16 are also within Compatibility Zone C1 as it relates to Runway 8-26, a runway that is restricted to agricultural use. All overlay zones related to Runway 8-26 are no longer in effect because Runway 8-26 closed in early 2021. Other portions of the Specific Plan Area are located in Compatibility Zone C2 (Primary Traffic Zone), which has a low-to-moderate risk level associated with accidents, and Compatibility Zone D (Other Airport Environs), with low risk levels.

Under California Government Code Section 65302.3(a), general plans must be consistent with any airport land use plan adopted pursuant to Public Utilities Code Section 21675. The Madera County ALUC monitors land use and development compliance with Airport Land Use Compatibility Plan provisions.

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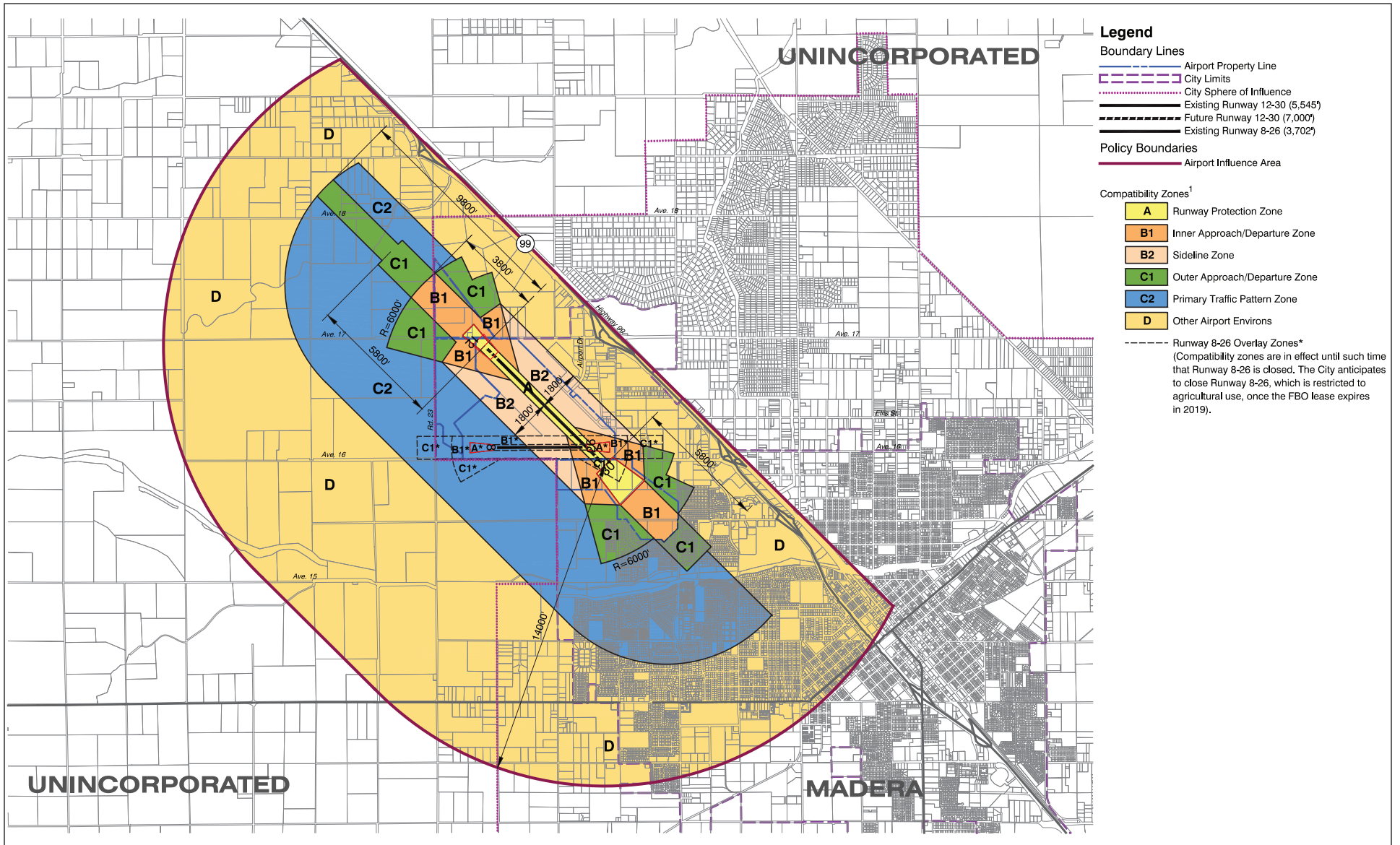
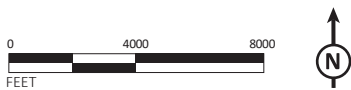


FIGURE 4.11-1

LSA



SOURCE: Madera Countywide ALUCP, 2015

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Madera County Transportation Commission. The Madera County Transportation Commission (MCTC) is the Regional Transportation Planning Agency (RTPA) and the designated Metropolitan Planning Organization (MPO). MCTC’s efforts address regional issues relating to transportation, land use and urban form, housing, environment, economic development, regional public facilities, and climate change plans and programs that MCTC has adopted or participates in are described below.

2018 Regional Transportation Plan and Sustainable Communities Strategy. The MCTC is required to update the Regional Transportation Plan (RTP) to reflect the existing and future regional transportation system in Madera County. The 2018 update reflects the horizon or “planning” year of 2042, to ensure that the region’s transportation system and implementation policies and programs in the RTP and in the Sustainable Communities Strategy (SCS) will safely and efficiently accommodate growth envisioned in the General Plan Land Use Elements of the Cities of Chowchilla and Madera and Madera County. As the RTPA and MPO for Madera County, MCTC is responsible for development of the RTP and the SCS.

San Joaquin Valley Blueprint. The MCTC works with the seven Regional Transportation Agencies of the additional counties within the San Joaquin Valley to implement the San Joaquin Valley Blueprint planning process. The San Joaquin Valley Blueprint planning process is a unique opportunity to work together to convey a regional vision of land use and transportation that will be used to guide growth in the San Joaquin Valley over the next 50 years. Through its public outreach and education component and technical data for local decision makers, the Blueprint provides a tangible opportunity to ensure the San Joaquin Valley remains a desirable place to live.

San Joaquin Valley Greenprint. The San Joaquin Valley Greenprint is a voluntary, stakeholder-driven project that provides agricultural, water, and environmental leaders with improved planning data and fosters regional collaboration on strategies that prioritize resource sustainability while enhancing economic prosperity. It focuses on the challenges and opportunities in non-urban land use planning, and how those rural decisions shape the region’s economy and environment.

Local Policies and Regulations

City of Madera General Plan. Planning of the City of Madera is guided by the City of Madera General Plan. The Land Use Element of the City of Madera General Plan “establishes the pattern of activity the community would like to see develop in the years to come, and defines areas of the City for housing, business, industry, open space, recreation, education and other public services.”

At approximately 1,900 acres, the Specific Plan represents the majority of the 2,763 acre “Village D: Northwest Madera” Plan Area – one of several planned growth areas in the form of “villages” identified in the City’s General Plan Land Use Element. Villages are collections of 3 to 4 neighborhoods featuring a mix of residential housing opportunities (e.g., single-family detached and attached homes, apartments). At the center of each village is the “Village Center” composed

primarily of commercial uses (e.g., retail, offices, restaurants, services) intended to meet the daily needs of its service area. Residential uses are permitted in conjunction with retail and/or offices. Village centers are to be spaced 1.5 to 2 miles apart from one another serve an area of approximately 800 acres composed of a population of approximately 15,000.

Village D: Northwest Madera (Village D) is the collection of four neighborhoods with a village core planned along the Fresno River to create opportunities for commercial development integrated with park and open space amenities fronting the River, as shown in Figure 3-6 in Chapter 3.0, Project Description.

The majority of the Specific Plan Area is designated by the City of Madera General Plan Map as Village Reserve (VR). Additional land use districts within the Specific Plan Area include Village Mixed Use (VMU), Neighborhood Mixed Use (NMU), High Density Residential (HD), Medium Density Residential (MD), Low Density Residential (LD), Open Space (OS), and Resource Conservation/Agriculture (RC) (refer to Figure 3-6 in Chapter 3.0, Project Description).

All planning for areas designated as “VR” are required to follow the following 3-step planning process intended to provide progressively more detailed plans for the VR, neighborhoods and individual development projects:

- Step 1: Comprehensive Land Use and Implementation Planning
- Step 2: Detailed Neighborhood Plans
- Step 3: Development Proposals

Each step in the planning process may be initiated by the City or by a private or public applicant. Each step in the planning process must be completed as a prerequisite for the next step. However multiple steps may be undertaken simultaneously. While encouraged, areas not designated VR in the Village Planning Areas identified in the City’s General Plan Land Use Element are not subject to the 3-step process. As shown in Figure 3-6, in Chapter 3.0, Project Description, 1 of the 4 neighborhoods identified within Village D is not designated as VR. This neighborhood, which represents 882 acres, is within the City limits and is already either subject to housing construction or entitled for residential subdivision development.

Table 4.11.A, located under discussion of Threshold 4.11.2, contains a list of objectives that relate to land use in the General Plan.

4.11.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to land use and planning that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.11.2.1 Significance Criteria

The thresholds for impacts related to land use and planning used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to land use and planning if it would:

Threshold 4.11.1 Physically divide an established community; or

Threshold 4.11.2 Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.11.2.2 Project Impacts

The following discussion describes the potential impacts related to land use and planning that could result from implementation of the proposed Specific Plan.

Threshold 4.11.1 Would the project physically divide an established community?

The proposed project would have a significant environmental impact if it would create a barrier between portions of an established community. Implementation of development under the Specific Plan would add physical structures and features, such as buildings and roadway improvements, which would have the potential to physically divide the surrounding area.

As described above, the Specific Plan Area generally consists of farmland, a few single-family homes, and several non-residential buildings and structures ancillary to the farmland operations. The existing roads that traverse the Specific Plan Area would not be removed as a result of implementation of the proposed Specific Plan, nor would implementation preclude travel through the Specific Plan Area. Land uses adjacent to the Specific Plan Area would not be restricted or divided from services and would continue to operate as they do in the existing condition.

The proposed Specific Plan is designed to improve and integrate existing on-site roads into the overall circulation network of the City. In addition, the improvements made to the Specific Plan Area as a result of the proposed Specific Plan, including pedestrian and bicycle paths and trails, as well as roadway, landscape, and sidewalk improvements, would help provide connectivity within the Specific Plan Area. Therefore, the proposed Specific Plan would not divide an established community and a less-than-significant impact would occur.

Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.11.2 Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Development of the proposed Specific Plan in accordance with the General Plan would require consistency with various federal, State, and local plans, policies, and regulations. Many of the plans, policies, and regulations are addressed in various sections of Chapter 4.0 of this EIR. Policy conflicts

do not, in and of themselves, constitute a significant environmental impact. Policy conflicts are considered to be environmental impacts only when they would result in direct physical impacts or where those conflicts relate to avoiding or mitigating environmental impacts. As such, associated physical environmental impacts are discussed in this Draft EIR under specific topical sections, such as Section 4.4, Biological Resources, and Section 4.5, Cultural Resources and Tribal Cultural Resources, however, a discussion of certain land use plans, policies, and regulations that are applicable to implementation of the proposed Specific Plan are included below.

General Plan. The General Plan includes several policies that are applicable to the proposed Specific Plan. Table 4.11.A provides a comparison of the proposed Specific Plan's characteristics with all applicable policies included in the General Plan as they relate to land use issues. As discussed below, the proposed Specific Plan is generally consistent with the General Plan because the proposed Specific Plan implements a comprehensive land use plan that is required by Policy LU-34 of the General Plan. The majority of the Specific Plan Area is designated as Village Reserve that requires implementation of a specific plan prior to development. The proposed project includes a General Plan Amendment to remove the requirement of establishing a permanent agricultural buffer along the westerly edge of the Specific Plan Area. Upon project approval and amendment to the General Plan, the proposed Project would be consistent with the General Plan. Therefore, this impact is considered less-than-significant.

City of Madera Municipal Code. The City's Municipal Code implements the General Plan and ensures land use compatibility by defining the specific land uses permitted in an area based on the anticipated type of use, level of activity, hours of operation, and other factors. The Municipal Code also contains development standards that help to avoid or minimize incompatibilities related to noise and aesthetics. Implementation of the proposed Specific Plan would be subject to the provisions of the Municipal Code, which is used in conjunction with the General Plan to ensure redevelopment activities and future development is suitable and compatible with adjacent and nearby land uses, and is protective of the human health, safety, and welfare. The proposed Specific Plan would be adopted as a planning and regulatory document that is to guide the development of the Specific Plan Area. Upon adoption of the proposed Specific Plan, the Specific Plan must, as required by law, be consistent with the City's adopted General Plan. As a regulatory document, similar to the City's Zoning Ordinance of the City's Municipal Code, which specifies process, procedures, and measurable standards where applicable throughout the City, the proposed Specific Plan will serve as the regulatory ordinance (i.e., process, procedures, and standards) specific to only the development of the Plan Area. Upon adoption the Plan would prevail over the City's Zoning Ordinance specific to development within the Plan Area. As an ordinance regulating development of the Plan Area, the Specific Plan, where applicable, will be required to be compliant with the City's Municipal Code. Consequently, no environmental impacts are anticipated from the update of either document beyond what is addressed in this EIR. This impact would be less than significant.

Table 4.11.A: General Plan Policies Related to Land Use and Planning

Policy	Policy Language	Consistency Discussion
Policy LU-11	<p>The City specifically envisions the establishment and maintenance of a greenbelt of agricultural and other open space lands around the urbanized portion of the Planning Area, outside the Growth Boundary, as shown on the Land Use Map. In addition to the maintenance of appropriate agricultural land use designations, the City encourages the use of Williamson Act contracts and similar mechanisms to ensure the maintenance of the greenbelt. Along the west edge of the Planning Area, the greenbelt is intended to be permanent, and the implementing mechanisms on the west edge should reflect that intent, including transfer of development rights, permanent conservation easements, etc. (See specific policies for Villages D & E for requirements to establish a permanent edge/buffer on the western boundary of these Villages).</p>	<p>Partially Consistent. The City’s Urban Growth Boundary would be consistent with the boundaries of the proposed Specific Plan Area. As a result, the areas outside of the Specific Plan Area would function as a greenbelt of agriculture. Although the proposed Specific Plan would include setbacks along the boundary of the Specific Plan Area, the proposed Specific Plan does not include greenbelt areas along the boundary of the project. The City has no planning authority for areas outside of the City limits and, therefore, cannot ensure that existing agricultural land will be maintained as an agricultural greenbelt.</p> <p>Areas within the Specific Plan Area would serve to preserve open space. Areas include open space along the Fresno River, and recreational trail facilities located throughout the Specific Plan Area.</p>
Policy LU-13	<p>The City shall support the annexation of property to its boundaries for the purpose of new development only when it determines that the following conditions exist: 1) Sufficient public infrastructure, facilities, and services are available or will be provided in conjunction with new development; and 2) Demands on public infrastructure, facilities and services created by the new development will not result in reductions in capacity that is necessary to serve the existing city limits (including demand created by potential infill development), reductions in existing service levels within the city limits, or the creation of detrimental fiscal impacts on the City.</p>	<p>Consistent. The proposed Specific Plan implements the goals of the General Plan by providing urban growth areas to focus future growth. As the proposed Specific Plan is implemented, including the associated Infrastructure Master Plan that includes a Water Master Plan and Wastewater System Master Plan, the City will continue to evaluate public infrastructure, facilities, and services to ensure that adequate capacity is available to accommodate the growth.</p>
Policy LU-14	<p>All proposals to annex property into the City limits for the purpose of new development shall prepare a Public Facilities Financing Plan (PFFP) that articulates infrastructure and public facilities requirements, their costs, financing mechanisms, and the feasibility of the financial burden. The PFFP shall analyze backbone infrastructure and public service needs and funding capacity at the Village level, as defined in Figure LU-3 of the Land Use Element of this General Plan. (The Planning Process required for Village Reserve Areas in Policy LU-34 shall be sufficient to meet this requirement.) The cost of preparing the PFFP shall be shared proportionately among property owners in each Village, with the shares of any</p>	<p>Consistent. A PFFP that identifies infrastructure and public facilities requirements, and associated costs and financing mechanisms, will be included as part of the project approval of the proposed Specific Plan. Mitigation Measure LU-2.1 is included below to require completion and acceptance of a PFFP prior to approval of the proposed Specific Plan.</p>

Table 4.11.A: General Plan Policies Related to Land Use and Planning

Policy	Policy Language	Consistency Discussion
	<p>non-participating owner collected at the time of development and reimbursed to owner(s) who prepared the PFFP through a reimbursement agreement.</p>	
Policy LU-17	<p>It is the policy of the City of Madera that any lands in the Planning Area outside of the City which are proposed to be converted from agricultural use should be annexed to the City before development. The City encourages the County to assist in the implementation of this policy by taking the following actions:</p> <ul style="list-style-type: none"> • Discouraging the subdivision of unincorporated land within the Planning Area to parcel sizes less than twenty acres. • Directing all new urban development within the Growth Boundary (development that would typically be expected to connect to community sewer and water systems) to annex into the City and by supporting annexation applications at the Local Agency Formation Commission. 	<p>Consistent. The land within the Specific Plan Area is primarily agricultural in nature, and once annexed into the City, would be converted to non-agricultural, urban land uses throughout implementation of the proposed Specific Plan.</p> <p>The development of the proposed Specific Plan would occur within the City’s Urban Growth Boundary and after the Specific Plan Area is annexed into the City. Implementation of the proposed Specific Plan would ensure orderly growth and adequate infrastructure and public facilities and services to support the future population within the Specific Plan Area by establishing a land use plan, as shown in Figure 3-5 of the Project Description, and establishing financing and maintenance responsibilities through likely Development Agreements for long-term implementation and buildout.</p>
Policy LU-20	<p>New residential development should be designed to avoid continuous blocks or clusters of dwellings that are connected only by streets, sidewalks, and hardscape. New development shall incorporate amenities which establish a sense of identity at the project or neighborhood level, create opportunities for community interaction, and enhance the visual appeal of the area. Features which accomplish these goals may include pathways, paseos, parks, community gardens, and other semi-public gathering places.</p>	<p>Consistent. The proposed Specific Plan establishes Development Standards and Design Guidelines to establish a cohesive neighborhood that provides a sense of identity by creating a compact mixed-use community, a diversity of residential building types, and walkable and bikeable streets that allow for a diverse, well-balanced community. The Specific Plan also includes public amenities, including parks, recreation areas, natural open space, and trails/paseos.</p>
Policy LU-22	<p>Single family developments need to provide functional outdoor recreational space. The space can be provided either on individual lots or more efficiently as aggregated local public spaces, creating features such as those described in Policy LU-20.</p>	<p>Consistent. The proposed Specific Plan includes approximately 165 acres of parks and public recreation throughout the Specific Plan Area. Outdoor recreational space would be provided in the form of community parks, neighborhood parks, pocket parks and trails.</p>
Policy LU-34	<p>All planning for areas designated on the Land Use Map as “Village Reserve” shall implement the 3-step planning process described below: Step 1: Comprehensive Land Use and Implementation Planning Step 2: Detailed Neighborhood Plans Step 3: Development Proposals This planning process is intended to provide progressively more detailed plans for Village</p>	<p>Consistent. All of the proposed Northwest, Southwest and northern half of the Southeast Neighborhood Plan Areas within the overall Specific Plan Area are identified as Village Reserve. The implementation of the proposed Specific Plan initiates this process identified in Policy LU-34 by completing Step 1 of this policy through the establishment of a comprehensive land use plan for the Specific</p>

Table 4.11.A: General Plan Policies Related to Land Use and Planning

Policy	Policy Language	Consistency Discussion
	<p>Reserve areas, Neighborhoods, and individual development projects.</p> <p>The following general rules apply to this planning process:</p> <ul style="list-style-type: none"> • Each step in the planning process may be initiated by the City of Madera or by another private or public sector applicant(s). • Each step in the planning process must be completed as a prerequisite for the next step. However, multiple steps (1+2 or 1+2+3 or 2+3) may be undertaken simultaneously. As a general rule, the City would expect that a private applicant would submit a Comprehensive Land Use and Implementation Plan and its components (Step 1), together with a Neighborhood Plan (Step 2) for at least one neighborhood, as the initial submittal. • At the Comprehensive Land Use and Implementation Plan and Neighborhood Plan level, the participation of all affected property owners is encouraged, but not required. A private sector applicant submitting either type of plan must include a list of all affected owners and their property(ies) and must show how their participation was sought. • In some Village areas (as mapped and defined in this Land Use Element), the Village Reserve designation applies only to a portion of the Village. In this case, the process outlined below is required only for the Village Reserve areas, not to the entire Village. However, submitting plans that cover the entire Village is permitted. <p>In some Village Reserve areas, a Village Center is not required. See the detailed policies for the affected Village area (later in this Land Use Element) for further information.</p> <p>In addition to the required plans, maps, reports, etc., the City may at its discretion require other items as needed to address issues in any particular Village. These may include additional environmental analysis, traffic studies, biological studies, noise studies, etc.</p>	<p>Plan Area. The proposed Specific Plan establishes design standards and guidelines that would establish detailed neighborhood plans that would, in turn, result in development proposals subject to future discretionary actions.</p> <p>The implementation of the proposed Specific Plan has been initiated by the property owners in the Specific Plan Area. Future implementation of the proposed Specific Plan would occur only with voluntary participation by property owners.</p> <p>The proposed Specific Plan includes two village centers. One village center is to be positioned in the in the Southeast Neighborhood and the other is to be positioned in the Northwest Neighborhood. The village centers envisioned include ground-level retail, dining and entertainment uses, outdoor public spaces, connective walking and bicycle paths, and pedestrian-friendly streetscape amenities.</p>
<p>VILLAGE D: SPECIFIC POLICIES</p>	<p>The following policies are intended to identify some of the unique issues for this area which will need to be addressed, and to guide development, as the area transitions to urban use.</p> <ul style="list-style-type: none"> • All future development in this Village shall 	<p>Consistent. The proposed Specific Plan establishes orderly growth in the City's urban growth area and would conform to the City's Building Blocks principles by including a mix of land uses, implementing a circulation network</p>

Table 4.11.A: General Plan Policies Related to Land Use and Planning

Policy	Policy Language	Consistency Discussion
	<p>conform to the Building Blocks principles as described in this General Plan.</p> <p>In conjunction with village and neighborhood planning, a mechanism shall be established which creates a permanent agricultural buffer where the westerly edge of the Village abuts the Growth Boundary. This buffer shall average at least 400' in depth, with a minimum depth of 250', and must run continuously along westerly edge of the Village. No habitable structures are to be located within this buffer, although passive recreational opportunities (such as trails and community gardens) may be allowed. Alternative methods and designs to establish the buffer may be proposed, and including placing the buffer on either side of the Growth Boundary. Physical maintenance of the buffer shall be provided consistent with the design and function of the space.</p> <ul style="list-style-type: none"> • The Village core area shall provide for an integrated mix of uses, including park and open space uses, along the river. • Future development along the Fresno River should be designed to take advantage of the river frontage, including orienting development to front the river where not otherwise prohibited by site conditions. • Village and neighborhood planning shall provide for the alignment of the designated arterial collector which runs through the Village east and west (Cleveland Avenue), to bend to the south to provide circulation to the proposed village core located along the Fresno River. • All development proposals within Village D shall comply with the provisions of the Airport Land Use Master Plan. The establishment of land use designations at the village and neighborhood levels, as well as the layouts of individual projects, shall reflect the allowable uses and densities in the Airport Land Use Master Plan. 	<p>to allow for connectivity across the City and throughout the Specific Plan Area, and a design that provides a livable, human-scaled community.</p> <p>The proposed Specific Plan does not identify a permanent agriculture buffer along the westerly edge of the Village that averages 400 feet in depth, with a minimum of 250 feet in depth. However, the proposed project proposes a General Plan Amendment to remove this requirement for an agricultural buffer. Approval of the General Plan Amendment would ensure that the proposed project is consistent with the General plan land use policies. .</p> <p>The proposed Specific Plan includes two areas of mixed land uses (Village Center) – one adjacent to and the other east of Road 23 in the southern portion of the Specific Plan Area near the boundary of the Specific Plan Area. These areas would include residential, commercial, and recreation and open space in areas of the Specific Plan Area closest to the Fresno River. The Village Center east of Road 23 envisioned as part of the proposed Specific Plan would be located in close proximity to the Fresno River would utilize the natural setting to include open space provide a trail system connection.</p> <p>The proposed Specific Plan continues the existing roadway network and would utilize Road 23, Avenue 16, and Cleveland Avenue that would provide access to mixed-use areas along the Fresno River.</p> <p>Development occurring within the Specific Plan Area would be required to be consistent with the ALUCP. As discussed below, land uses within the Specific Plan Area would be required to restrict and limit land uses as well as the intensity of land uses whereby prohibiting certain land uses and limit the number of inhabitants and employees within specific airport compatibility zones. Future discretionary projects would be required to conform with the ALUCP.</p>

Source: LSA (2020)

Madera Countywide Airport Land Use Compatibility Plan. The ALUCP contains individual compatibility plans for the Chowchilla Municipal Airport and the Madera Municipal Airport, the two public-use airports in Madera County. Under California Government Code Section 65302.3(a), general plans must be consistent with any airport land use plan adopted pursuant to Public Utilities Code Section 21675. The Madera County ALUC monitors compliance with ALUCP provisions. The Conceptual Land Use Plan, included as Figure 3-5 of the Project Description of this EIR, includes appropriate land use types and densities located within the airport zones to ensure consistency with the ALUC plan, and future development within the airport zones would be required to comply with the restrictions of the ALUC plan prior to approval both by law and per the General Plan. The Runway 8-26 Overlay Zones within the Specific Plan Area, as shown in Figure 4.11-1, would not apply because Runway 8-26 closed in early 2021. As a result, potential impacts related to implementation of the ALUCP would be considered less than significant.

The Cortese-Knox-Hertzberg Local Government Reorganization Act. The General Plan includes various objectives and policies to provide for the future orderly growth and development of the Planning Area. The proposed Specific Plan is located within the City's SOI and has been identified for future growth in the General Plan. Since the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 governs the establishment and revision of local government boundaries, implementation of the proposed Specific Plan, which requires annexation in the City prior to project approval, would provide for orderly growth to ensure that adequate services are available to serve the new development.

California Land Conservation Act. Potential impacts associated with the Williamson Act are provided in Section 4.2, Agricultural and Forestry Resources. Implementation of the Specific Plan would conflict with existing Williamson Act contracts. However, as discussed in Table 4.11.A, the proposed Specific Plan would implement growth as identified in the General Plan, and the General Plan includes Policy LU-11 and specific policies relevant to the proposed Specific Plan. Although implementation of the proposed Specific Plan would conflict with existing Williamson Act contracts, the lands with existing Williamson Act contracts would be required to cancel or not renew the existing contract prior to development. The potential inconsistencies identified between the County General Plan and the proposed Specific Plan would be resolved upon annexation of the Specific Plan Area into the City as required and would be supported by the City's General Plan policies. Therefore, impacts would be less-than-significant and no mitigation is required.

Madera County Local Agency Formation Commission. As identified above, the General Plan includes policies to provide for the future orderly growth and development of the Planning Area. This orderly growth would be consistent with LAFCO's objectives to encourage orderly formation of local governmental agencies, preserve agricultural land resources and to discourage urban sprawl. Policies LU-13, LU-14, and LU-17 would result in consistency with LAFCO's general policies by requiring annexation and implementation of the General Plan Building Blocks principles. Therefore, impacts would be less-than-significant and no mitigation is required.

Madera County Transportation Commission. The MCTC is required to develop and update the RTP-SCS, and works with other agencies to implement the San Joaquin Valley Blueprint and the

San Joaquin Valley Greenprint. These documents take into account development identified in the respective General Plans of jurisdictions, including the City of Madera and County of Madera. The proposed Specific Plan provides further direction for development identified in the City's General Plan. Therefore, implementation of the proposed Specific Plan would not be in conflict with the MCTC documents.

As discussed above, implementation of the proposed Specific Plan includes a General Plan Amendment that would remove the requirement to include a 400-foot agriculture buffer on the western edge of the Specific Plan Area. In order to ensure that a PFFP is implemented, Mitigation Measure LU-2.1 is included below. As a result, a less-than-significant impact would occur.

Level of Significance Without Mitigation: Potentially significant.

Impact LU-2: The Specific Plan would be inconsistent Policy LU-14 related to the preparation of a Public Facilities Financing Plan (PFFP).

Mitigation Measure LU-2.1: Prior to adoption of the Specific Plan by the City, a Public Facilities Financing Plan (PFFP) shall be completed by the project applicant and approved by the Community Development Director or designee. The PFFP shall identify all infrastructure and public facilities required to support the Specific Plan area and shall identify associated costs and financing mechanisms to fund these facilities.

Significance With Mitigation: Less than significant.

4.11.2.3 Cumulative Impacts

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to land use and planning.

Adoption of the proposed Specific Plan would require annexation of the Specific Plan Area into the City prior to approval of subsequent development entitlements within the Plan Area. The proposed Specific Plan includes development standards specific to the Plan Area, which upon adoption would be required to be consistent with the City's General Plan and Municipal Code. As a result, this proposed Specific Plan would not contribute to cumulative impacts related to policy inconsistencies with City plans or policies intended to reduce potential environmental impacts.

As discussed above under Threshold 4.11.1, the proposed Specific Plan would not physically divide an established community. Considering that the proposed Specific Plan is anticipated to extend the urban fabric of the City at its peripheral, the proposed Specific Plan would not impact adjacent communities. The proposed Specific Plan is not expected to contribute to any cumulative division of the City or any established surrounding communities.

As discussed in Threshold 4.11.2, the proposed Specific Plan would be generally consistent with plans and polices applicable to the Specific Plan Area. The conversion of agricultural land to urban uses, as identified in the proposed Specific Plan, would be in conflict with the California Land

Conversion Act which encourages the preservation of agricultural lands; however, the potential inconsistencies identified between the existing agriculture uses of the Specific Plan Area, and the proposed Specific Plan would be resolved upon annexation of the Specific Plan Area into the City.

The proposed Specific Plan includes a General Plan Amendment that removes the requirement to establish a permanent agriculture buffer. Upon adoption of the proposed Specific Plan and approval of the General Plan Amendment, the proposed Specific Plan, in combination with other development would not be inconsistent with the General Plan, and a less-than-significant cumulative impact would occur.

Level of Significance Without Mitigation: Less than significant.

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4.12 MINERAL RESOURCES

This section describes the existing mineral resources of the Specific Plan Area and evaluates the potential impacts associated with the proposed Specific Plan, both at the individual and cumulative levels.

4.12.1 Environmental Setting

The following sections provide an overview of the physical setting of the Specific Plan Area, as well as the regulatory setting established by the proposed Specific Plan.

4.12.1.1 Specific Plan Area

Mineral resources, such as aggregate material, are necessary to support urban development, as all public and private projects utilize mineral resources for roadway paving, structural elements, and hardscape, including sidewalks, curbing, and gutters. The Specific Plan Area is used for agriculture production contains approximately 20 different soil types including Madera loam, Pachappa fine sandy loam and Grangeville fine sandy loam.¹ According to the California Department of Conservation, Division of Mines and Geology, there are no known mineral resources located within the Specific Plan Area.²

4.12.1.2 Regulatory Context

This section summarizes key federal, State and City regulations and programs related to the proposed Specific Plan.

4.12.1.3 Federal Policies and Regulations

No federal policies or regulations pertaining to mineral resources are applicable to the proposed Specific Plan.

4.12.1.4 State Policies and Regulations

Surface Mining and Reclamation Act. In 1975, the California Legislature enacted the Surface Mining and Reclamation Act (SMARA), which, among other things, provided guidelines for the classification and designation of mineral lands. Areas are classified on the basis of geologic factors without regard to existing land use and land ownership. The areas are categorized into four Mineral Resource Zones (MRZs):

- **MRZ-1:** An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

¹ United States Department of Agriculture. Natural Resources Conservation Service, Web Soil Survey. Website: websoilsurvey.nrcs.usda.gov/app (accessed March 31, 2020).

² California Department of Conservation. 1999. Division of Mines and Geology. *USGS Update of Mineral Land Classification: Aggregate Materials in the Fresno Production-Consumption Region, California.*

- **MRZ-3:** An area containing mineral deposits, the significance of which cannot be evaluated.
- **MRZ-4:** An area where available information is inadequate for assignment to any other MRZ zone.

Of the four categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the State of California Mining and Geology Board as being “regionally significant.” Such designations require that a Lead Agency’s land use decisions involving designated areas are to be made in accordance with its mineral resource management policies and that it consider the importance of the mineral resource to the region or the State as a whole, not just to the Lead Agency’s jurisdiction.

4.12.1.5 Local Policies and Regulations

The City of Madera does not have any General Plan policies or regulations pertaining to mineral resources.

4.12.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to mineral resources that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, to eliminate or reduce significant impacts to a less-than-significant level. Cumulative impacts are also addressed.

4.12.2.1 Significance Criteria

Development of the proposed Specific Plan would result in a significant impact related to mineral resources if it would:

- | | |
|-------------------------|---|
| Threshold 4.12.1 | Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or |
| Threshold 4.12.2 | Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. |

4.12.2.2 Project Impacts

The following discussion describes the potential impacts related to mineral resources that could result from implementation of the proposed Specific Plan.

- | | |
|-------------------------|--|
| Threshold 4.12.1 | Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? |
|-------------------------|--|

According to the California Department of Conservation, Division of Mines and Geology,³ there are no Mineral Resource Zones located within Specific Plan Area. In addition, the City's General Plan EIR states that the implementation of the General Plan, which includes the Specific Plan Area, does not have the potential to affect the availability of any State or locally designated mineral resource. Furthermore, the General Plan does not designate the Specific Plan Area as a site containing important mineral resources or mineral resource extraction operations. Therefore, the implementation of the proposed Project would not result in the loss of availability of a locally important mineral resource. As a result, a less-than-significant impact would occur and no mitigation is required.

Level of Significance Without Mitigation: Less than Significant Impact. No mitigation is required.

Threshold 4.12.2 Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

As discussed under Threshold 4.12.1, according to the California Department of Conservation, Division of Mines and Geology,⁴ there are no known mineral resources located within the Specific Plan Area and no mineral resource extraction activities occur on the site. In addition, the Specific Plan Area is not located within an area known to contain locally important mineral resources. Therefore, no impacts related to the loss of availability of a locally important mineral resource recovery site as delineated on a local general plan, specific plan, or other land use plan would occur as a result of project implementation. As a result, a less-than-significant impact would occur, and no mitigation is required.

Level of Significance Without Mitigation: Less than Significant Impact. No mitigation is required.

4.12.2.3 Cumulative Impacts

The proposed Specific Plan would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to mineral resources. The cumulative study area for mineral resources is the City of Madera.

According to the California Department of Conservation, Division of Mines and Geology,⁵ there are no mineral resources located within the Specific Plan Area and implementation of the proposed Specific Plan would not result in the loss of mineral resources. As a result, implementation of the proposed Specific Plan, in combination with other projects, would not contribute to a significant cumulative impact to mineral resources. As a result, a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than Significant Impact. No mitigation is required.

³ California Department of Conservation. 1999. Division of Mines and Geology. USGS Update of Mineral Land Classification: Aggregate Materials in the Fresno Production-Consumption Region, California.

⁴ Ibid.

⁵ Ibid.

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4.13 NOISE

This section describes existing noise and vibration conditions, sets forth criteria for determining the significance of noise and vibration impacts and estimates the likely noise and vibration impacts that would result from construction and operation of the proposed Specific Plan. Mitigation measures are identified, as necessary, to address significant environmental impacts.

4.13.1 Environmental Setting

This section describes the fundamentals of noise and vibration, summarizes the regulatory framework, and describes the existing noise environment of the Specific Plan Area.

4.13.1.1 Characteristics of Sound

Noise is generally defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is the number of complete vibrations or cycles per second of a wave that results in the range of tone from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment, and it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effects on adjacent sensitive land uses.

Measurement of Sound. Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. Table 4.13.A contains a list of typical acoustical terms and definitions. Figure 4.13-1 shows representative outdoor and indoor noise levels in units of dBA.

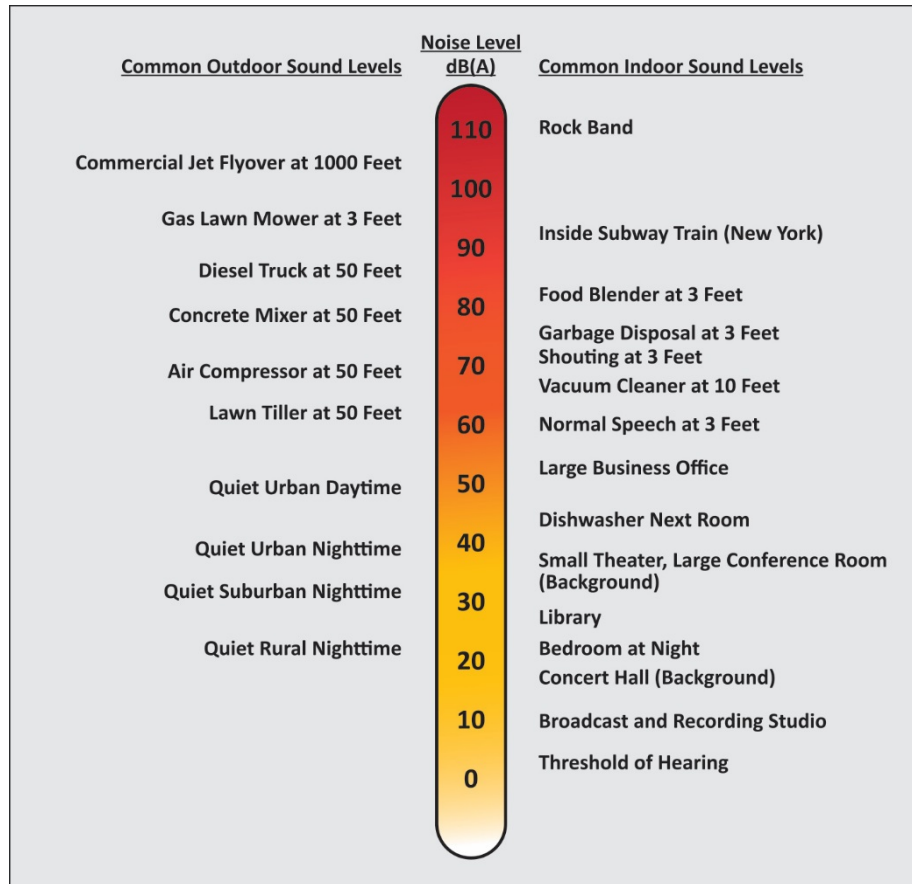
A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Changes of three dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of three dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness.

Table 4.13.A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of level that denotes the ratio between two quantities proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{01} , L_{10} , L_{50} , L_{90}	The fast A-weighted noise levels equaled or exceeded by a fluctuating sound level for 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of five decibels to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max} , L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris, Cyril 1998).

Figure 4.13-1: Typical A-Weighted Sound Levels



Source: Compiled by LSA (2016).

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a six dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} , the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally

exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours. Typical A-weighted sound levels from various sources are described in Figure 4.13-1.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions, and addresses the annoying aspects of intermittent noise.

Noise standards in terms of percentile exceedance levels, L_n , are often used together with the L_{max} for noise enforcement purposes. When specified, the percentile exceedance levels are not to be exceeded by an offending sound over a stated time period. For example, the L_{10} noise level represents the level exceeded ten percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the lowest noise level experienced during a monitoring period. It is normally referred to as the background noise level. For a relatively steady noise, the measured L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dBA or greater, since, as described earlier, this level of noise change has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dBA. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1.0 dBA that are inaudible to the human ear. A change in noise level of at least 5 dBA would be required before any noticeable change in human response would be expected and a 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise. The effects of noise on people can also be described in three categories: annoyance, interference with activities such as speech or sleep, and physiological effects such as hearing loss. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the ear, and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling.

Unwanted community effects of noise occur at levels much lower than those that cause hearing loss and other health effects. Noise annoyance occurs when it interferes with sleeping, conversation, and noise-sensitive work, including learning or listening to the radio, television, or music. According to World Health Organization (WHO) noise studies, few people are seriously annoyed by daytime

activities with noise levels below 55 dBA, or are only moderately annoyed with noise levels below 50 dBA.¹

4.13.1.2 Characteristics of Groundborne Vibration

Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings. As the vibration propagates from the foundation throughout the remainder of the building, the vibration of floors and walls may cause perceptible vibration from the rattling of windows or a rumbling noise. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. When assessing annoyance from groundborne noise, vibration is typically expressed as root mean square (rms) velocity in units of decibels of 1 micro-inch per second. To distinguish vibration levels from noise levels, the unit is written as “VdB.” Human perception to vibration starts at levels as low as 67 VdB and sometimes lower. Annoyance due to vibration in residential settings starts at approximately 70 VdB. Groundborne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of the building, the motion does not provoke the same adverse human reaction.

In extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Vibration impacts on building structures are generally assessed in terms of peak particle velocity (PPV). Common sources of groundborne vibration include trains and construction activities such as blasting, pile driving and operating heavy earthmoving equipment. Typical vibration source levels from construction equipment are shown in Table 4.13.B.

Table 4.13.B: Typical Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 feet (in/sec)	Approximate VdB at 25 feet
Pile Driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	In soil	0.008	66
	In rock	0.017	75
Vibratory roller		0.210	94
Hoe ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration. *Transit Noise and Vibration Impact Assessment Manual*. (September 2018).

¹ World Health Organization. 1999. *Guidelines for Community Noise*.

4.13.1.3 Project Area

The ambient noise environment in the City of Madera is affected by a variety of noise sources, including mobile source noise and stationary noise. As indicated in the City's General Plan Noise Element, the most significant mobile sources of noise in Madera are the Madera Municipal Airport (noise created by aircraft takeoffs and landings), the two railroad lines that pass through the Planning Area, and State Route 99 and other major roadways. Stationary noise sources in Madera include outdoor machinery, the Madera Raceway, the high school football stadium, and the industrial areas near the Madera Municipal Airport and in the southwest portion of the City. Noise generated at construction sites is also a source of noise in Madera. The following section describes the existing noise environment and identifies the primary noise sources in the vicinity of the project site.

Existing Traffic Noise. Motor vehicles with their distinctive noise characteristics are a major source of noise in Madera. The amount of noise varies according to many factors, such as volume of traffic, vehicle mix (percentage of cars and trucks), average traffic speed, and distance from the observer.

Existing roadway traffic noise levels in the Specific Plan Area were assessed using the Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108). Traffic volumes were obtained from the proposed Specific Plan's Traffic Impact Analysis (TIA).² This model uses a typical vehicle mix for urban/suburban areas in California and requires parameters, including traffic volumes, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the day-night average noise level (L_{dn}) values. Existing traffic noise contours along modeled roadway segments are shown in Table 4.13.C.

Existing Aircraft Noise. The Madera Municipal Airport is located directly north and east of the Specific Plan Area. Based on Exhibit 5D of the Madera Countywide Airport Land Use Compatibility Plan, the northernmost portions of the Specific Plan Area, including near the intersections of Avenue 17 and Road 23 and Avenue 16 and Road 24, lie within the 65 dBA CNEL noise contours for this airport. The rest of the Specific Plan Area lies beyond the 65 dBA CNEL noise contour.

Existing Sensitive Land Uses. Sensitive receptors include residences, schools, hospitals, churches, and similar uses that are sensitive to noise. Construction and operation associated with the proposed Specific Plan could adversely affect nearby noise-sensitive land uses. The closest sensitive receptors to the Specific Plan Area include the single-family residence located along Avenue 15, approximately 370 feet south of the Specific Plan Area boundary, the single-family residences located along Catlan Drive, located approximately 1,240 feet southeast of the Specific Plan Area boundary, and the single-family residences located along Camino Lane, approximately 2,180 feet east of the Specific Plan Area boundary.

² LSA. 2020. *Traffic Impact Analysis, Village D Specific Plan*. February.

Table 4.13.C: Existing Traffic Noise Levels

Roadway Segment	Average Daily Trips	Centerline to 70 dBA CNEL (feet)	Centerline to 65 dBA CNEL (feet)	Centerline to 60 dBA CNEL (feet)	CNEL (dBA) 50 Feet From Outermost Lane
Road 23 between Avenue 17 and Project Driveway 3	4,458	< 50	61	131	65.6
Road 23 between Project Driveway 3 and Avenue 16	4,458	< 50	61	131	65.6
Road 23 between Avenue 16 and Cleveland Avenue	4,658	< 50	63	135	65.8
Road 23 between Cleveland Avenue and Project Driveway 4	5,575	< 50	71	152	66.5
Road 23 between Project Driveway 4 and Project Driveway 5	5,575	< 50	71	152	66.5
Road 23 between Project Driveway 5 and Avenue 14 ½	5,575	< 50	71	152	66.5
Road 23 between Avenue 14 ½ and Avenue 14	5,052	< 50	66	143	66.1
Westberry Boulevard between Sunset Avenue and Avenue 14/Howard Road	3,888	< 50	< 50	58	59.5
Granada Drive between Cleveland Avenue and Fresno River	10,439	< 50	77	165	67.1
Granada Drive between Sunset Avenue and Avenue 14/Howard Road	7,707	< 50	63	135	65.8
Avenue 17 between Road 22 and Project Driveway 1	802	< 50	< 50	< 50	58.1
Avenue 17 between Project Driveway 1 and Road 23	802	< 50	< 50	< 50	58.1
Avenue 17 between Road 23 and Golden State Boulevard	2,233	< 50	< 50	83	62.6
Avenue 17 between Golden State Boulevard and State Route 99 Southbound Off-Ramp	9,626	< 50	102	219	68.9
Avenue 16 between Road 22 and Project Driveway 2/Road 22 ½	453	< 50	< 50	< 50	55.6
Avenue 16 between Project Driveway 2/Road 22 ½ and Road 23	453	< 50	< 50	< 50	55.6
Cleveland Avenue between Road 22 ½ and Road 23	36	< 50	< 50	< 50	44.6
Cleveland Avenue between Road 23 and Project Driveway 6	2,349	< 50	< 50	86	62.8
Cleveland Avenue between Project Driveway 6 and Westberry Boulevard	2,349	< 50	< 50	86	62.8
Cleveland Avenue between Westberry Boulevard and Granada Drive	3,879	< 50	< 50	86	62.2
Cleveland Avenue between Granada Drive and Schnoor Street	9,473	< 50	75	156	65.1
Cleveland Avenue between Schnoor Street and Fairgrounds	15,080	< 50	84	175	65.9
Cleveland Avenue between Fairgrounds and State Route 99 Southbound Ramps	15,080	< 50	84	175	65.9
Sunset Avenue between Granada Drive and Schnoor Street	6,123	< 50	< 50	77	61.5
Howard Road between Granada Drive and Schnoor Street	10,751	< 50	57	114	63.0
Howard Road between Schnoor Street and Pine Street	16,597	< 50	73	150	64.9
Olive Avenue between Yosemite Avenue and I Street	11,314	< 50	58	117	63.2
Olive Avenue between I Street and State Route 99 Southbound Off-Ramp	11,314	< 50	58	117	63.2
Olive Avenue between State Route 99 Southbound Off-Ramp and Madera Avenue	11,314	< 50	54	115	64.7

Source: Compiled by LSA (December 2020).

Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibels

4.13.1.4 Regulatory Context

The following section provides brief discussions of the federal, State, and local regulatory framework related to noise.

Federal Regulations. In 1972 Congress enacted the Noise Control Act. This act authorized the U.S. Environmental Protection Agency (USEPA) to publish descriptive data on the effects of noise and establish levels of sound “requisite to protect the public welfare with an adequate margin of safety.” These levels are separated into health (hearing loss levels) and welfare (annoyance levels), as shown in Table 4.13.D. The USEPA cautions that these identified levels are not standards because they do not take into account the cost or feasibility of the levels.

Table 4.13.D: Summary of USEPA Noise Levels

Effect	Level	Area
Hearing loss	$L_{eq}(24) \leq 70$ dB	All areas.
Outdoor activity interference and annoyance	$L_{dn} \leq 55$ dB	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	$L_{eq}(24) \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{eq} \leq 45$ dB	Indoor residential areas.
	$L_{eq}(24) \leq 45$ dB	Other indoor areas with human activities such as schools, etc.

Source: U.S. Environmental Protection Agency. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (March 1974).

For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to an $L_{eq}(24)$ of 70 dBA. The “(24)” signifies an L_{eq} duration of 24 hours. The USEPA activity and interference guidelines are designed to ensure reliable speech communication at about five feet in the outdoor environment. For outdoor and indoor environments, interference with activity and annoyance should not occur if levels are below 55 dBA and 45 dBA, respectively.

The noise effects associated with an outdoor L_{dn} of 55 dBA are summarized in Table 4.13.E. At 55 dBA L_{dn} , 95 percent sentence clarity (intelligibility) may be expected at 11 feet, and no substantial community reaction. However, 1 percent of the population may complain about noise at this level and 17 percent may indicate annoyance.

Table 4.13.E: Summary of Human Effects in Areas Exposed to 55 dBA L_{dn}

Type of Effect	Magnitude of Effect
Speech – Indoors	100 percent sentence intelligibility (average) with a 5 dB margin of safety.
Speech – Outdoors	100 percent sentence intelligibility (average) at 0.35 meter.
	99 percent sentence intelligibility (average) at 1.0 meter.
	95 percent sentence intelligibility (average) at 3.5 meters.
Average Community Reaction	None evident; 7 dB below level of significant complaints and threats of legal action and at least 16 dB below “vigorous action.”
Complaints	1 percent dependent on attitude and other non-level related factors.
Annoyance	17 percent dependent on attitude and other non-level related factors.
Attitude Towards Area	Noise essentially the least important of various factors.

Source: U.S. Environmental Protection Agency. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (March 1974).

State of California. The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. The “State Noise Insulation Standard” requires noise-sensitive land uses to meet performance standards through design and/or building materials that would offset any noise source in the vicinity of the building. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL.

The State has also established land use compatibility guidelines for determining acceptable noise levels for specified land uses.

City of Madera General Plan. The City of Madera addresses noise in the Noise Element of the General Plan.³ The Noise Element provides goals, policies, and action items that work to protect residents from the harmful effects of exposure to excessive noise, and to protect the economic base of the City by preventing the encroachment of incompatible land uses near roadways, industries, railroads, and other sources of noise. Table 4.13.F includes policies and action items from the Noise Element that would be applicable to the proposed project. Tables 4.13.G through 4.13.I include additional City standards.

City of Madera Municipal Code. The City of Madera’s Noise Ordinance (Title III: Public Safety, Chapter 11: Noise Control) includes various nuisance provisions intended to protect community residents from prolonged unnatural or unusual noise levels that could cause increased levels of annoyance, discomfort, or injury. Section 3-11.01 stipulates that no person shall make, or cause or permit to be made or caused, upon any premises owned, occupied, possessed, or controlled by them or upon any public street, alley, or thoroughfare any unnecessary noise or sound which is physically annoying to persons of ordinary and normal sensitivity or which is so harsh or so prolonged unnatural or unusual in its use, time, and place as to cause physical discomfort, or which is injurious to the lives health, peace, and comfort of the inhabitants of the City.

³ Madera, City of. 2009. *City of Madera General Plan. Noise Element*. October 7.

Table 4.13.F: General Plan Policies Related to Noise

Policy/Action Item Number	Policy
Policy N-1	<p>The City will protect residential areas and other noise-sensitive uses from excessive noise by doing the following:</p> <ol style="list-style-type: none"> 1. Requiring that land uses, roadways, and other sources do not create incompatible noise levels on adjacent parcels. 2. Allowing homes or noise-sensitive uses to be developed only in places where existing and projected noise levels will meet the exterior noise guidelines and standards shown in Policies N-5 and N-6. 3. Requiring that City decisions which would cause or allow an increase in noise created by stationary or mobile sources (such as development of noise-generating land uses or the construction of new or wider roadways) be informed by a noise analysis and accompanied by noise reduction measures to keep noise at acceptable levels. <p>The analysis may be accomplished by reviewing available noise data, by requiring additional information on potential noise that would be created, or by a noise analysis prepared as part of the project’s environmental analysis. Roadway projects which are consistent with the Circulation Map in this General Plan will generally not require the preparation of a noise analysis.</p>
Action Item N-2.1	<p>Apply the State Noise Insulation Standards, zoning and building controls, buffers, sound barriers, traffic controls, and other effective measures to reduce exposure to noise that exceeds the standards contained in this General Plan.</p>
Action Item N-2.2	<p>Action Item N-2.2: Require acoustical studies for:</p> <ol style="list-style-type: none"> 1. Significant new noise generators, or 2. New uses which are proposed to be developed in areas which do not meet the “completely compatible” exterior noise guidelines contained in Policy N-5 or Policy N-6. <p>If information on the noise environment at a project site is not available, a measurement of the noise environment by a qualified acoustical engineer may be needed to make a determination whether a proposed project complies with the guidelines and standards in Policy N-5 or N-6.</p>
Policy N-4	<p>The following compatibility standards shall be used to determine whether a proposed use is appropriate for its location, given the projected ambient noise level.</p> <ul style="list-style-type: none"> • “Completely Compatible” means that the specified land use is satisfactory and both the indoor and outdoor environments are pleasant. • “Tentatively Compatible” means that noise exposure may be of concern, but common building construction practices will make the indoor living environment acceptable, even for sleeping quarters, and outdoor activities will not be unduly disturbed by noise. • “Normally Incompatible” means that noise exposure warrants special attention, and new construction or development should generally be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features are included in the design. Careful site planning or exterior barriers may be needed to make the outdoor environment tolerable. • “Completely Incompatible” means that the noise exposure is so severe that new construction or development should generally not be undertaken.
Policy N-5	<p>The following are the maximum 24-hour exterior noise levels for land designated by this General Plan for residential, commercial/retail, and public parks:</p> <ul style="list-style-type: none"> • See Policy N-4 for the definitions of these levels of compatibility. • These guidelines apply to land designated by this General Plan for these uses. Residential, retail, or public parks which have been developed on land designated for other uses shall be subject to the exterior noise guidelines for the land on which they are located. • Non-residential uses located on residentially designated land shall be subject to the exterior noise guidelines for residential lands. • All uses on commercial lands, including non-commercial uses, shall be subject to the standards for commercial land. • Land use designations not listed above do not have exterior noise compatibility standards. Land use designations with no exterior noise compatibility standard include office and industrial. <p>Standards for public schools are set and enforced by the State of California and are not regulated by the City of Madera. Therefore, no standards for public schools are shown in Table 4.13.G.</p>

Table 4.13.F: General Plan Policies Related to Noise

Policy/Action Item Number	Policy
Policy N-6	<p>The following are the City’s standards for maximum exterior non-transportation noise levels to which land designated for residential land uses may be exposed for any 30-minute period on any day.</p> <ul style="list-style-type: none"> • Where existing ambient noise levels exceed these standards, the ambient noise level shall be highest allowable noise level as measured in dBA Leq (30 minutes). • The noise levels specified above shall be lowered by 5 dB for simple tonal noises (such as humming sounds), noises consisting primarily of speech or music, or for recurring impulsive noises (such as pile drivers, punch presses, and similar machinery). Example: the Single Family/Duplex standard from 10:00 p.m. to 7:00 a.m. for these types of noises is 45 dBA. • The City may impose exterior noise standards which are less restrictive than those specified above, provided that: <ol style="list-style-type: none"> 1. The noise impact on the residential or other noise-sensitive use is addressed in an environmental analysis, 2. A finding is made by the approving body stating the reasons for accepting a higher exterior noise standard, and 3. Interior noise standards will comply with those identified in Policy N-7.
Policy N-7	<p>The following are the City’s standards for acceptable indoor noise levels for various types of land uses. These standards should receive special attention when projects are considered in “Tentatively Compatible” or “Normally Incompatible” areas.</p> <ul style="list-style-type: none"> • Noise created inside a use listed above shall not count toward the acceptable noise levels to be maintained in accordance with this policy.
Policy N-8	<p>Multi-Family residential uses constructed in a mixed-use setting with commercial or office uses may be exempted from exterior noise standards at the City’s discretion but must meet interior noise standards as defined in Policy N-7.</p>
Policy N-9	<p>The City’s preferences for providing noise mitigation are, in order (#1 is the most preferred, #5 the least):</p> <ol style="list-style-type: none"> 1. Reduce noise at the source. 2. If #1 is not practical, seek to designate land uses which are compatible with projected noise levels. 3. If #1 or #2 are not practical, use distance from the source to reduce noise to acceptable levels. 4. If #1, #2, or #3 are not practical, use buildings, berms, or landscaping or a combination of these to reduce exterior noise to acceptable levels. Use construction techniques (sound-reducing windows, etc.) to reduce interior noise to acceptable levels. 5. The last measure which should be considered is the use of a sound wall to reduce noise to acceptable levels.
Policy N-10	<p>Where they are constructed, sound walls should be:</p> <ol style="list-style-type: none"> 1. Considered only if proven effective by accompanying noise studies. 2. Be visually attractive, complement the surroundings, and require a minimum of maintenance. (See Community Design Element references to sound wall designs). 3. As small/low as possible consistent with the need to reduce noise to acceptable levels.
Policy N-11	<p>The City shall generally not require the installation of sound walls in front yard areas to reduce noise to acceptable levels in residential areas which were originally constructed without sound walls. The City shall emphasize other methods to reduce noise levels in these situations, and may accept exterior noise levels higher than those shown in Policy N-5 in order to minimize the construction of sound walls. Examples of “other methods” include:</p> <ul style="list-style-type: none"> • Installation of double- or triple-paned windows; • Installation of weather stripping or seals to keep noise out; • Replacing wooden fencing with walls or other materials with better sound reducing properties; • Use of rubberized asphalt to reduce roadway noise.

Table 4.13.F: General Plan Policies Related to Noise

Policy/Action Item Number	Policy
Policy N-12	All acoustical analysis prepared pursuant to this Noise Element shall: <ol style="list-style-type: none"> 1. Be the financial responsibility of the applicant. 2. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. 3. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources. 4. Estimate existing and projected cumulative (20 years) noise levels in terms of Ldn or CNEL and/or the standards in this Noise Element, and compare those levels to the policies in this Noise Element. 5. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of this Noise Element, giving preference to proper site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses. 6. In cases where a sound wall is proposed, the potential impacts associated with noise reflecting off the wall and toward other properties or sensitive uses shall be evaluated. 7. Estimate noise exposure after the prescribed mitigation measures have been implemented. 8. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.
Policy N-13	For the purposes of CEQA analysis, a 5 db increase in CNEL or L _{dn} noise levels shall be normally considered to be a significant increase in noise.

Source: City of Madera General Plan (October 2009).

Table 4.13.G: Exterior Noise Compatibility Guidelines for Noise from all Sources, Including Transportation Noise (24-Hour Day/Night Average [CNEL/L_{dn}])

Land Use Designations	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible
All Residential (Single- and Multi-Family)	Less than 60 dBA	60 – 70 dBA	70 – 75 dBA	Greater than 75 dBA
All Commercial	Less than 70 dBA	70- 75 dBA	Greater than 75 dBA	¹
Public Parks (Lands designated as Open Space on which public parks are located or planned)	Less than 65 dBA	65- 70 dBA	70 – 75 dBA	Greater than 75 dBA

Source: City of Madera (October 2009).

¹ No “Completely Incompatible” category is shown for commercial uses because not all commercial uses are incompatible with noisy environments. The City may determine as part of the review of individual development proposals that some types of commercial uses are incompatible with noise environments in excess of 75 dBA CNEL.

Table 4.13.H: Exterior Noise Level Standards for Non-Transportation Noise, Measured as dBA L_{eq} (30 minutes)

Land Use Type	Time Period	Maximum Noise Level (dBA)
Single-Family Homes and Duplexes	10:00 p.m. to 7:00 a.m.	50
	7:00 a.m. to 10:00 p.m.	60
Multiple Residential 3 or More Units Per Building (Triplex +)	10:00 p.m. to 7:00 a.m.	55
	7:00 a.m. to 10:00 p.m.	60

Source: City of Madera (October 2009).

Table 4.13.I: Maximum Acceptable Interior Noise Levels Created by Exterior Noise Sources

Land Use Type	Acceptable Noise Level (dBA L _{dn} or CNEL)
Residential Living and Sleeping Areas	45
Residential Living and Sleeping Areas where the dwelling unit is subject to noise from railroad tracks, aircraft overflights, or similar sources which produce clearly identifiable, discrete noise events (such as the passing of a train as opposed to relatively steady or constant noise sources such as roadways)	40
Private & Semi Private School Classrooms ¹	55
All Places of Work Other than School Classrooms	Conform with applicable state and federal workplace safety standards

Source: City of Madera (October 2009).

¹ Standards for public schools are set and enforced by the State of California and are not regulated by the City of Madera.

In addition, the Noise Ordinance prohibits noise sources associated with operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, remodeling, paving, or grading of any real property or demolition work between the hours of 8:00 p.m. and 6:00 a.m. However, the Community Development Director or their designated representative may exempt certain construction work from the provisions of this chapter for a limited time. In such circumstance, the contractor or owner shall be allowed to work after 8:00 p.m. and to operate machinery and equipment. The Noise Ordinance also prohibits the operation of any mechanically powered saw, drill, grinder, lawn or garden tool, or similar tool between the hours of 8:00 p.m. and 6:00 a.m.

4.13.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to noise that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.13.2.1 Significance Criteria

The thresholds for impacts related to noise used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to noise if it would:

- Threshold 4.13.1** **Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;**

Threshold 4.13.1 **Generate excessive groundborne vibration or groundborne noise levels;**

Threshold 4.13.1 **For a project located within the vicinity of a private airstrip an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.**

Policy N-13 of the City's General Plan states that for the purposes of CEQA analysis, a 5 db increase in CNEL or L_{dn} noise levels shall be normally considered to be a significant increase in noise. Therefore, the significance criteria define a significant impact to occur if the Specific Plan would result in a substantial (5 dBA or greater) permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

4.13.2.2 Project Impacts

The following discussion describes the potential impacts related to noise that could result from implementation of the proposed Specific Plan.

Threshold 4.13.1 **Would the project generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

The following section describes the short-term construction and long-term operational noise impacts associated with implementation of the proposed Specific Plan.

Short-Term Construction-Related Noise Impacts. Construction associated with implementation of the proposed Specific Plan would occur over a period of approximately 30 years. Construction activities associated with development allowed under the proposed Specific Plan could result in substantial temporary or periodic increases in ambient noise levels at development sites throughout the Specific Plan Area.

Construction would result in short-term noise impacts on the nearby sensitive receptors. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. The level and types of noise impacts that would occur during construction are described below.

Short-term noise impacts would occur during grading and site preparation activities. Table 4.13.J lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, obtained from the FHWA Roadway Construction Noise Model. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would no longer occur once construction of the project is completed.

Table 4.13.J: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L _{max}) at 50 Feet ¹
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Pick-up Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

L_{max} = maximum instantaneous sound level

Two types of short-term noise impacts could occur during construction of projects associated with the proposed Specific Plan. The first type involves construction crew commutes and the transport of construction equipment and materials to sites, which would incrementally increase noise levels on roads leading to the site. As shown in Table 4.13.J, there would be a relatively high single-event noise exposure potential at a maximum level of 84 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during grading and construction on project sites. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 4.13.J lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Typical maximum noise levels range up to 87 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction

equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Construction allowed under the Specific Plan is expected to require the use of earthmoving equipment, dozers, and water and pickup trucks. The maximum noise level generated by each scraper on future project sites would be approximately 84 dBA L_{max} at 50 feet from the scraper. Each dozer would generate approximately 82 dBA L_{max} at 50 feet. The maximum noise level generated by water and pickup trucks would be approximately 75 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level during this phase of future construction would be 86 dBA L_{max} at a distance of 50 feet from the active construction area. In addition, some construction projects could require pile driving, which would have a maximum noise level of approximately 95 dBA L_{max} at 50 feet.

Noise-sensitive receptors include residences, schools, hospitals, churches, and similar uses that are sensitive to noise. Construction and operation of development allowed under the proposed Specific Plan could adversely affect nearby noise-sensitive land uses. Construction noise is permitted by the City of Madera when activities occur between the hours of 6:00 a.m. and 8:00 p.m. While construction noise impacts are exempt from specific noise levels limits under the City's Municipal Code, projects that have unusual or extremely loud construction activities (i.e., pile driving, nighttime construction work) would require additional impact considerations. The specific equipment mix for construction associated with implementation of the Specific Plan is unknown at this time as specific development plans have not been prepared. Therefore, Mitigation Measure NOI-1.1 would be required to limit noise from construction activities in order to reduce potential construction period noise impacts for nearby sensitive receptors to less-than-significant levels.

Implementation of Mitigation Measure NOI-1.1 would limit construction hours and require the construction contractor to implement noise-reducing measures during construction, which would reduce short-term construction noise impacts to a less-than-significant level.

Long-Term Operational Noise Impacts. Implementation of the Specific Plan would result in a mix of residential, commercial/office, business park industrial uses, public facilities and park/open space uses in the Specific Plan Area. The development described in the Specific Plan would occur as individual, site-specific applications are brought forth by property owners. Such plans are not developed at this time and therefore project-specific noise analysis cannot be prepared. Future discretionary projects will be reviewed for noise impacts at the time they are submitted. However, noise-generating uses associated with development under the Specific Plan would typically include vehicle traffic and operational noise, such as heating, ventilation, and air conditioning (HVAC) equipment and typical motor vehicle/parking area activities.

Traffic Noise Impacts. Traffic noise levels under the existing conditions and by phase were assessed using the FHWA Highway Traffic Noise Prediction Model (FHWA RD 77-108). Traffic volumes were obtained from the proposed Specific Plan's TIA.⁴ Existing, Phase I Project Completion Year (2029), Phase II Project Completion Year (2039), and Phase III Project Completion Year (2049) Without and With Project traffic noise levels at 50 feet from the centerline of the outermost travel lane for each roadway segment in the Specific Plan Area are shown in Table 4.13.K. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between traffic and the location where the noise contours are drawn. Appendix J provides the specific assumptions used in developing these noise levels and model printouts.

Off-Site Traffic Noise Impacts. As shown in Table 4.13.K, future noise levels without the proposed Specific Plan along existing roadways are projected to increase by approximately up to 10.9 dBA at roadway segments outside of the Specific Plan Area. The largest off-site noise level increase in traffic-related noise as a result of development under the Specific Plan would be on Avenue 17 between Road 23 and Golden State Boulevard, with up to a 10.9 dBA increase under Existing With Project conditions and up to 9.3 dBA increase under Phase III Project Completion Year (2049) With Project conditions. This noise level increase would exceed the significance criteria for noise-level increases of 5 dBA. In addition, Road 23 between Avenue 14 ½ and Avenue 14 and Cleveland Avenue between Westberry Boulevard and Granada Drive would result in noise level increases that exceed the 5 dBA significance criteria.

To reduce traffic noise at outdoor living areas, typical noise mitigation would include the construction of a stand-alone sound wall, which reduces noise levels by approximately 5 to 10 dBA. However, building a sound wall to mitigate noise levels may not be feasible because a sound wall could limit access to properties or could be infeasible for other reasons such as lack of right-of-way. Therefore, because project specific plans are not yet developed, additional noise mitigation measures cannot be designed or incorporated to ensure a reduction of exterior noise levels. Therefore, noise impacts along Road 23 between Avenue 14 ½ and Avenue 14, Avenue 17 between Road 23 and Golden State Boulevard, and Cleveland Avenue between Westberry Boulevard and Granada Drive would be considered significant and unavoidable.

⁴ LSA, 2020, op. cit.

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Table 4.13.K: Traffic Noise Levels Without and With Specific Plan

Roadway Segment	Existing Traffic Volumes					Phase I Project Completion Year (2029) Traffic Volumes					Phase II Completion Year (2039) Traffic Volumes					Phase III Completion Year (2049) Traffic Volumes				
	Without Project		With Project			Without Project		With Project			Without Project		With Project			Without Project		With Project		
	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Road 23 between Avenue 17 and Project Driveway 3	4,458	65.6	40,636	75.2	9.6	4,524	65.6	12,096	69.9	4.3	4,590	63.5	26,359	71.1	7.6	4,657	63.5	40,835	73.0	9.5
Road 23 between Project Driveway 3 and Avenue 16	4,458	65.6	33,971	74.4	8.8	4,572	65.7	12,144	69.9	4.2	4,686	63.6	18,126	69.4	5.8	4,799	63.7	34,312	72.2	8.5
Road 23 between Avenue 16 and Cleveland Avenue	4,658	65.8	34,926	74.5	8.7	5,586	66.6	12,324	70.0	3.4	6,515	65.0	18,459	69.5	4.5	7,443	65.6	37,711	72.6	7.0
Road 23 between Cleveland Avenue and Project Driveway 4	5,575	66.5	36,640	74.7	8.2	6,226	67.0	14,726	70.8	3.8	6,877	65.2	19,935	69.9	4.7	7,528	65.6	38,592	72.7	7.1
Road 23 between Project Driveway 4 and Project Driveway 5	5,575	66.5	33,303	74.3	7.8	5,955	66.8	15,995	71.1	4.3	6,334	64.9	19,062	69.7	4.8	6,714	65.1	34,442	72.2	7.1
Road 23 between Project Driveway 5 and Avenue 14 ½	5,575	66.5	33,665	74.4	7.9	5,660	66.6	15,700	71.0	4.4	5,744	64.5	18,474	69.5	5.0	5,829	64.5	33,919	72.2	7.7
Road 23 between Avenue 14 ½ and Avenue 14	5,052	66.1	26,622	73.3	7.2	5,215	66.3	13,077	70.3	4.0	5,378	64.9	15,162	69.4	4.5	5,541	65.0	27,111	71.9	6.9
Westberry Boulevard between Sunset Avenue and Avenue 14/Howard Road	3,888	59.5	5,060	60.7	1.2	4,846	60.5	5,614	61.1	0.6	5,803	60.3	6,571	60.9	0.6	6,760	61.0	7,932	61.7	0.7
Granada Drive between Cleveland Avenue and Fresno River	10,439	67.1	10,795	67.2	0.1	11,674	67.6	11,930	67.7	0.1	12,910	66.5	13,266	66.6	0.1	14,145	66.9	14,501	67.0	0.1
Granada Drive between Sunset Avenue and Avenue 14/Howard Road	7,707	65.8	7,707	65.8	0.0	8,086	66.0	8,086	66.0	0.0	8,464	64.7	8,464	64.7	0.0	8,843	64.8	8,843	64.8	0.0
Avenue 17 between Road 22 and Project Driveway 1	802	58.1	2,300	62.7	4.6	894	58.6	1,358	60.4	1.8	987	56.8	2,391	60.6	3.8	1,080	57.2	2,577	61.0	3.8
Avenue 17 between Project Driveway 1 and Road 23	802	58.1	11,439	69.7	11.6	902	58.6	1,366	60.4	1.8	1,003	56.9	11,409	67.4	10.5	1,103	57.3	11,740	67.6	10.3
Avenue 17 between Road 23 and Golden State Boulevard	2,233	62.6	27,891	73.5	10.9	3,262	64.2	5,338	66.4	2.2	3,351	62.1	22,463	70.4	8.3	3,440	62.2	29,098	71.5	9.3
Avenue 17 between Golden State Boulevard and State Route 99 Southbound Off-Ramp	9,626	68.9	29,982	73.9	5.0	14,168	70.6	15,884	71.1	0.5	17,771	69.4	33,915	72.2	2.8	21,374	70.2	41,730	73.1	2.9
Avenue 16 between Road 22 and Project Driveway 2/Road 22 ½	453	55.6	691	57.5	1.9	459	55.7	459	55.7	0.0	465	55.8	465	55.8	0.0	470	55.8	708	57.6	1.8
Avenue 16 between Project Driveway 2/Road 22 ½ and Road 23	453	55.6	10,456	69.3	13.7	1,187	59.8	1,187	59.8	0.0	1,920	61.9	5,203	66.2	4.3	2,654	63.3	12,657	70.1	6.8
Cleveland Avenue between Road 23 and Project Driveway 6	2,349	62.8	28,339	73.6	10.8	2,425	62.9	14,959	70.8	7.9	2,501	63.1	15,868	71.1	8.0	2,576	63.2	28,566	73.6	10.4
Cleveland Avenue between Project Driveway 6 and Westberry Boulevard	2,349	62.8	31,877	74.1	11.3	2,967	63.8	21,105	72.3	8.5	3,586	64.6	22,277	72.6	8.0	4,204	65.3	33,732	74.4	9.1
Cleveland Avenue between Westberry Boulevard and Granada Drive	3,879	62.2	22,801	69.9	7.7	4,942	63.2	17,008	68.6	5.4	6,005	64.7	18,071	69.5	4.8	7,068	65.4	25,990	71.0	5.6
Cleveland Avenue between Granada Drive and Schnoor Street	9,473	65.1	26,807	69.7	4.6	10,997	65.8	22,233	68.9	3.1	12,520	66.4	23,756	69.1	2.7	14,044	66.9	31,378	70.3	3.4

Table 4.13.K: Traffic Noise Levels Without and With Specific Plan

Roadway Segment	Existing Traffic Volumes					Phase I Project Completion Year (2029) Traffic Volumes					Phase II Completion Year (2039) Traffic Volumes					Phase III Completion Year (2049) Traffic Volumes				
	Without Project		With Project			Without Project		With Project			Without Project		With Project			Without Project		With Project		
	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Cleveland Avenue between Schnoor Street and Fairgrounds	15,080	65.9	29,794	68.9	3.0	16,508	66.3	26,120	68.3	2.0	17,936	65.9	27,548	67.8	1.9	19,364	66.3	34,078	68.7	2.4
Cleveland Avenue between Fairgrounds and State Route 99 Southbound Ramps	15,080	65.9	30,178	68.9	3.0	17,328	66.5	26,940	68.4	1.9	19,577	66.3	29,725	68.1	1.8	21,825	66.8	36,923	69.1	2.3
Sunset Avenue between Granada Drive and Schnoor Street	6,123	61.5	7,555	62.4	0.9	6,225	61.6	6,709	61.9	0.3	6,327	60.7	6,811	61.0	0.3	6,429	60.8	7,861	61.6	0.8
Howard Road between Granada Drive and Schnoor Street	10,751	63.0	19,675	65.6	2.6	11,299	63.2	14,443	64.3	1.1	11,847	63.4	15,223	64.5	1.1	12,395	63.6	21,319	66.0	2.4
Howard Road between Schnoor Street and Pine Street	16,597	64.9	25,521	66.8	1.9	16,913	65.0	20,057	65.7	0.7	17,229	64.3	20,605	65.1	0.8	17,544	64.4	26,468	66.2	1.8
Olive Avenue between Yosemite Avenue and I Street	11,314	63.2	17,868	65.2	2.0	12,501	63.7	14,441	64.3	0.6	13,688	64.1	15,628	64.6	0.5	14,875	64.4	21,429	66.0	1.6
Olive Avenue between I Street and State Route 99 Southbound Off-Ramp	11,314	63.2	16,316	64.8	1.6	12,501	63.7	13,835	64.1	0.4	13,688	64.1	15,022	64.5	0.4	14,875	64.4	19,877	65.7	1.3
Olive Avenue between State Route 99 Southbound Off-Ramp and Madera Avenue	11,314	64.7	18,050	66.8	2.1	14,470	65.8	16,437	66.4	0.6	17,626	65.2	20,492	65.8	0.6	20,783	65.9	27,519	67.1	1.2
Road 22 between Avenue 17 and Avenue 16	-	-	490	56.0	-	-	-	10	39.1	-	-	-	10	39.1	-	-	-	490	56.0	-
Road 22 between Avenue 16 and Cleveland Avenue	-	-	280	53.6	-	-	-	10	39.1	-	-	-	10	39.1	-	-	-	280	53.6	-
Road 22 south of Cleveland Avenue	-	-	40	45.1	-	-	-	0	29.1	-	-	-	0	29.1	-	-	-	40	45.1	-
Cleveland Avenue between Road 22 and Project Driveway 2/Road 22 1/2	-	-	230	42.8	-	-	-	0	19.2	-	-	-	0	19.2	-	-	-	230	42.8	-
Cleveland Avenue between Project Driveway 2/Road 22 1/2 and Road 23	-	-	18,950	62.0	-	-	-	770	48.1	-	-	-	770	48.1	-	-	-	18,950	62.0	-
Project Driveway 2/Road 22 1/2 between Avenue 16 and Cleveland Avenue	-	-	8,540	60.0	-	-	-	10	30.7	-	-	-	390	46.6	-	-	-	8,540	60.0	-
Project Driveway 2/Road 22 1/2 between Avenue 17 and Avenue 16	-	-	7,210	59.3	-	-	-	20	33.7	-	-	-	7,980	59.7	-	-	-	7,990	59.8	-
Avenue 16 between Road 22 and Westberry Road	-	-	6,460	60.8	-	-	-	4,330	59.1	-	-	-	7,480	61.4	-	-	-	6,460	60.8	-
Project Driveway 5 west of Project Driveway 2/Road 22 1/2	-	-	1,030	49.4	-	-	-	0	19.2	-	-	-	0	19.2	-	-	-	1,030	49.4	-
Project Driveway 5 east of Project Driveway 2/Road 22 1/2	-	-	1,550	51.1	-	-	-	0	19.2	-	-	-	0	19.2	-	-	-	1,550	51.1	-

Table 4.13.K: Traffic Noise Levels Without and With Specific Plan

Roadway Segment	Existing Traffic Volumes					Phase I Project Completion Year (2029) Traffic Volumes					Phase II Completion Year (2039) Traffic Volumes					Phase III Completion Year (2049) Traffic Volumes				
	Without Project		With Project			Without Project		With Project			Without Project		With Project			Without Project		With Project		
	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	ADT	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Project Driveway 2/Road 22 1/2 north of Project Driveway 5	-	-	780	49.6	-	-	-	0	20.7	-	-	-	0	20.7	-	-	-	780	49.6	-
Project Driveway 4 east of Road 23	-	-	25,780	63.3	-	-	-	11,460	59.8	-	-	-	22,680	62.8	-	-	-	25,780	63.3	-
Project Driveway 5 west of Road 23	-	-	3,080	54.1	-	-	-	430	45.6	-	-	-	800	48.3	-	-	-	4,230	55.5	-
Project Driveway 6 south of Cleveland Avenue	-	-	8,110	59.8	-	-	-	8,110	59.8	-	-	-	7,920	59.7	-	-	-	7,850	59.7	-
Project Driveway 2/Road 22 1/2 between Road 23 and Project Driveway 3	-	-	10,020	60.7	-	-	-	0	20.7	-	-	-	10,060	60.8	-	-	-	10,020	60.7	-
Project Driveway 4 between Project Driveway 2/Road 22 1/2 and Road 23	-	-	16,850	61.5	-	-	-	3,230	54.3	-	-	-	20,480	62.3	-	-	-	16,720	61.5	-

Source: Compiled by LSA (December 2020).

Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

Shaded cells indicate roadways within the Specific Plan Area.

ADT = average daily traffic

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibels

- = Future roadway segment that would be constructed as part of the proposed project.

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On-Site Traffic Noise Impacts. As shown in Table 4.13.L, future noise levels along roadway segments within the Specific Plan Area (represented by the shaded cells in the table) would be up to 75.2 dBA CNEL. Based on the City’s Exterior Noise Compatibility Guidelines for Noise, this noise level would be within the City’s *Normally Incompatible* exterior noise level for residential and public parks land uses and within the City’s *Tentatively Compatible* exterior noise level for all commercial land uses. Therefore, proposed land uses may be permitted only after detailed analysis of the noise reduction features proposed to be incorporated in the project design. Table 4.13.L identifies noise contours for roadway segments within the Specific Plan Area based on distance attenuation. Figure 4.13-2 identifies the future traffic noise contours for these roadway segments.

Table 4.13.L: Traffic Noise Contours Along Roadway Segments Within the Specific Plan Area

Roadway Segment	dB CNEL at 50 feet from Roadway Centerline	Feet from Roadway Centerline (Distance to Noise Contours)		
		60 dBA	65 dBA	70 dBA
Road 23 between Avenue 17 and Project Driveway 3	75.2	572	265	123
Road 23 between Project Driveway 3 and Avenue 16	74.4	507	236	109
Road 23 between Avenue 16 and Cleveland Avenue	74.5	517	240	112
Road 23 between Cleveland Avenue and Project Driveway 4	74.7	533	248	115
Road 23 between Project Driveway 4 and Project Driveway 5	74.3	501	232	108
Road 23 between Project Driveway 5 and Avenue 14 ½	74.4	504	234	109
Avenue 17 between Road 22 and Project Driveway 1	62.7	84	< 50	< 50
Avenue 17 between Project Driveway 1 and Road 23	69.7	246	114	53
Avenue 16 between Road 22 and Project Driveway 2/Road 22 ½	57.6	< 50	< 50	< 50
Avenue 16 between Project Driveway 2/Road 22 ½ and Road 23	70.1	263	122	57
Cleveland Avenue between Road 23 and Project Driveway 6	73.6	449	209	97
Cleveland Avenue between Project Driveway 6 and Westberry Boulevard	74.4	452	210	98
Road 22 between Avenue 17 and Avenue 16	56.0	< 50	< 50	< 50
Road 22 between Avenue 16 and Cleveland Avenue	53.6	< 50	< 50	< 50
Road 22 south of Cleveland Avenue	45.1	< 50	< 50	< 50
Cleveland Avenue between Road 22 and Project Driveway 2/Road 22 1/2	42.8	< 50	< 50	< 50
Cleveland Avenue between Project Driveway 2/Road 22 1/2 and Road 23	62.0	98	< 50	< 50
Project Driveway 2/Road 22 1/2 between Avenue 16 and Cleveland Avenue	60.0	56	< 50	< 50
Project Driveway 2/Road 22 1/2 between Avenue 17 and Avenue 16	59.8	54	< 50	< 50
Avenue 16 between Road 22 and Westberry Road	61.4	90	< 50	< 50
Project Driveway 5 west of Project Driveway 2/Road 22 1/2	49.4	< 50	< 50	< 50
Project Driveway 5 east of Project Driveway 2/Road 22 1/2	51.1	< 50	< 50	< 50
Project Driveway 2/Road 22 1/2 north of Project Driveway 5	49.6	< 50	< 50	< 50
Project Driveway 4 east of Road 23	63.3	119	59	< 50
Project Driveway 6 south of Cleveland Avenue	59.8	54	< 50	< 50
Project Driveway 2/Road 22 1/2 between Road 23 and Project Driveway 3	60.8	63	< 50	< 50
Project Driveway 4 between Project Driveway 2/Road 22 1/2 and Road 23	62.3	103	< 50	< 50

Source: Compiled by LSA (December 2020).

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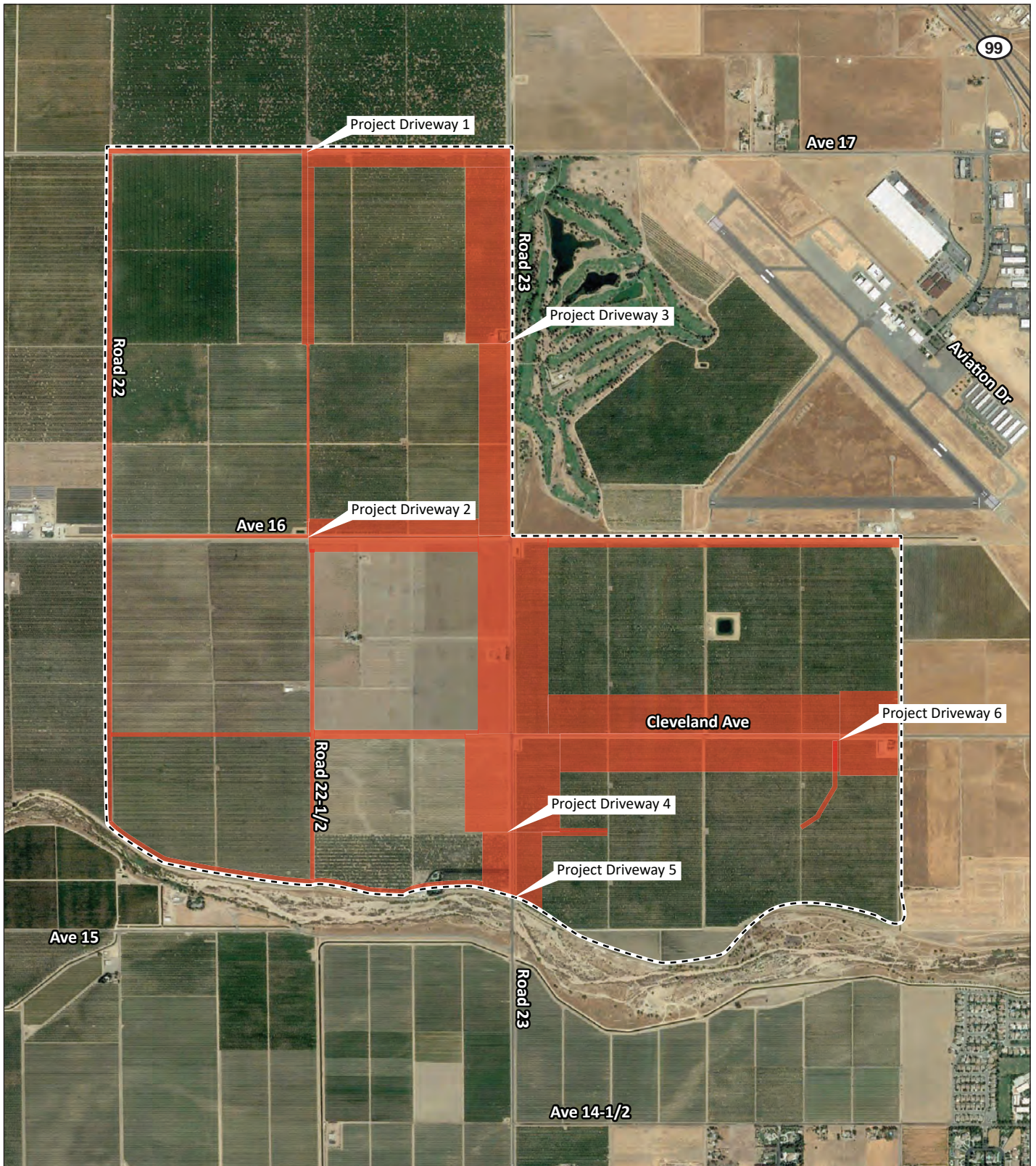
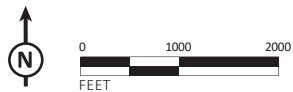


FIGURE 4.13-2

LSA



- Project Area
- Traffic noise contours with noise levels greater than 60 dBA CNEL

The Villages at Almond Grove Specific Plan EIR
 Future Traffic Noise Contours

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In addition, due to the high traffic volumes and ambient noise levels along roadways in the Specific Plan Area, future residences may be exposed to increased interior noise levels that exceed the City's acceptable interior noise level standard of 45 dBA CNEL. As shown in Table 4.13.K and Table 4.13.L, buildout of the proposed Specific Plan would generate noise levels up to 75.2 dBA CNEL. Exterior-to-interior noise level reduction with windows open would be approximately 15 dBA. Therefore, sensitive receptors near roadways in the Specific Plan Area could be exposed to interior noise levels that exceed the City's acceptable interior noise level standard of 45 dBA CNEL. Therefore, Mitigation Measure NOI-1.2, as discussed below, would be required to reduce interior noise impacts to meet the City's acceptable interior noise level at residences exposed to traffic noise exceeding 60 dBA CNEL.

Implementation of Mitigation Measure NOI-1.2 would reduce interior noise levels by more than 25 dBA with windows closed, which would reduce interior noise impacts at the residences to noise levels below the City's interior residential noise standard. However, implementation of the proposed Specific Plan would result in a substantial permanent increase in ambient noise levels that would result in outdoor living areas to exceed standards for exterior noise limits. Additionally, because developments that would be considered under the proposed Specific Plan have not been designed or proposed at this time, additional noise reduction measures would be identified at the time such projects are proposed. Therefore, the exposure of noise-sensitive land uses to noise levels in excess of standards established by the City, or to substantial noise increases as a result of future growth associated with implementation of the proposed Specific Plan, would result in a significant unavoidable permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Stationary Source Noise. Development allowed under the proposed Specific Plan may include the installation or creation of new stationary sources of noise, or could include the development of new sensitive land uses in the vicinity of existing noise sources. For commercial uses, these noise sources could include loading/unloading operations, generators, and outdoor speakers; for residential uses, stationary noise sources may include air conditioners or pool pumps. These stationary sources of noise would have the potential to disturb adjacent sensitive receptors. However, noise generation would continue to be limited by the City of Madera's Noise Ordinance (Title III: Public Safety, Chapter 11: Noise Control).

Development allowed by the proposed Specific Plan may include the development of new sensitive land uses in the vicinity of existing noise sources and could potentially subject sensitive land uses to long-term noise impacts. However, to ensure that new development will meet the interior noise standards identified by the State, all new developments in areas with noise levels greater than 60 dBA CNEL would be required to prepare an acoustical analysis and would require new residential land uses to be designed to maintain a standard of 45 dBA CNEL or less in building interiors, as required by Mitigation Measure NOI-1.2. In addition, any new noise-generating sources would be subject to compliance with the City's General Plan and Noise Ordinance (Title III: Public Safety, Chapter 11: Noise Control), which sets exterior noise standards for the various land uses within the City. Therefore, with implementation of Mitigation Measure NOI-1.3, implementation of the proposed Specific Plan would not expose

persons to stationary source noise levels in excess of the City's General Plan and Municipal Code.

Level of Significance Without Mitigation: Potentially significant.

Impact NOI-1: The proposed project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or federal standards.

Mitigation Measure NOI-1.1: The project contractor shall implement the following measures during construction of the proposed project:

- Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active project site.
- Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active project site during all construction activities.
- Ensure that all general construction related activities are restricted to between the hours of 6:00 a.m. and 8:00 p.m., consistent with the City's Noise Ordinance.
- Designate a "disturbance coordinator" at the City, at the expense of the project contractor, who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.

Mitigation Measure NOI-1.2: In order to comply with the City's noise compatibility guidelines, prior to the issuance of grading permits, new development proposed under the Specific Plan shall require an acoustic study for approval by the Community Development Director or designee for all noise-sensitive projects located within the following traffic noise contours with noise levels greater than 60 dBA CNEL:

- Within 572 feet of Road 23 between Avenue 17 and Project Driveway 3;

- Within 507 feet of Road 23 between Project Driveway 3 and Avenue 16;
- Within 517 feet of Road 23 between Avenue 16 and Cleveland Avenue;
- Within 533 feet of Road 23 between Cleveland Avenue and Project Driveway 4;
- Within 501 feet of Road 23 between Project Driveway 4 and Project Driveway 5;
- Within 504 feet of Road 23 between Project Driveway 5 and Avenue 14 ½;
- Within 84 feet of Avenue 17 between Road 22 and Project Driveway 1;
- Within 246 feet of Avenue 17 between Project Driveway 1 and Road 23;
- Within 50 feet of Avenue 16 between Road 22 and Project Driveway 2/Road 22 ½;
- Within 263 feet of Avenue 16 between Project Driveway 2/Road 22 ½ and Road 23;
- Within 449 feet of Cleveland Avenue between Road 23 and Project Driveway 6;
- Within 452 feet of Cleveland Avenue between Project Driveway 6 and Westberry Boulevard;
- Within 50 feet of Road 22 between Avenue 17 and Avenue 16;
- Within 50 feet of Road 22 between Avenue 16 and Cleveland Avenue;
- Within 50 feet of Road 22 south of Cleveland Avenue;
- Within 50 feet of Cleveland Avenue between Road 22 and between Project Driveway 2/Road 22 ½;
- Within 98 feet of Cleveland Avenue between Project Driveway 2/Road 22 ½ and Road 23;

- Within 56 feet of Project Driveway 2/Road 22 ½ between Avenue 16 and Cleveland Avenue; Within 54 feet of Project Driveway 2/Road 22 ½ between Avenue 17 and Avenue 16;
- Within 90 feet of Avenue 16 between Road 22 and Westberry Road;
- Within 50 feet of Project Driveway 5 west of Project Driveway 2/Road 22 ½;
- Within 50 feet of Project Driveway 5 east of Project Driveway 2/Road 22½;
- Within 50 feet of Project Driveway 2/Road 22 ½ north of Project Driveway 5;
- Within 119 feet of Project Driveway 4 east of Road 23;
- Within 54 feet of Project Driveway 6 south of Cleveland Avenue;
- Within 63 feet of Project Driveway 2/Road 22 ½ between Road 23 and Project Driveway 3; and
- Within 103 feet of Project Driveway 4 between Project Driveway 2/ Road 22 ½ and Road 23.

The acoustic study shall demonstrate that that interior noise levels in habitable rooms shall not exceed 45 dBA CNEL. Acoustical design features shall be incorporated into the proposed project design, which may include a combination of exterior features to reduce noise, such as berms/walls and/or architectural features such as Sound Transmission Class (STC) rated windows and doors. All STC ratings shall be shown on the building plans and incorporated into the construction of the proposed project. Once final architectural plans with the exterior-wall details and window types are available, a Final Acoustic Report shall be prepared by a qualified consultant to confirm that the interior living spaces of residential dwelling units will meet the City's interior noise standard of 45 dBA CNEL (A weighted decibel Community Noise Equivalent Level) with windows and doors closed. If interior noise levels are still exceeded after the Final Acoustic Report is completed, additional design features shall be incorporated to meet the interior noise.

Mitigation Measure NOI-1.3: In order to comply with the City's General Plan non-transportation related noise standards and Municipal Code standards, prior to the issuance of grading permits, an acoustical study shall be prepared

for any stationary sources of noise proposed under the Specific Plan. The stationary source noise study shall demonstrate that noise levels would be consistent with the Noise Ordinance standards outlined in Title III: Public Safety, Chapter 11: Noise Control and shall be approved by the City of Madera Community Development Director or designee.

Level of Significance With Mitigation: Significant and unavoidable.

Threshold 4.13.2 Would the project generate excessive groundborne vibration or groundborne noise levels?

Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Vibration energy propagates from a source, through intervening soil and rock layers, to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as the motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., pavement breaking and operating heavy-duty earthmoving equipment), and occasional traffic on rough roads. In general, groundborne vibration from standard construction practices is only a potential issue when it occurs within 25 feet of sensitive uses. Groundborne vibration levels from construction activities very rarely reach levels that can damage structures; however, these levels are perceptible near the active construction site. With the exception of old buildings built prior to the 1950s or buildings of historic significance, potential structural damage from heavy construction activities rarely occurs. When roadways are smooth, vibration from traffic (even heavy trucks) is rarely perceptible.

The streets surrounding the Specific Plan Area would be paved, smooth, and unlikely to cause significant groundborne vibration. In addition, the rubber tires and suspension systems of fire engines and other on-road vehicles make it unusual for on-road vehicles to cause groundborne noise or vibration problems. It is, therefore, assumed that no such vehicular vibration impacts would occur and, therefore, no vibration impact analysis of on-road vehicles is necessary. Additionally, once constructed, the proposed project would not contain uses that would generate groundborne vibration.

Construction Vibration. Construction of the projects allowed under the Specific Plan could result in the generation of groundborne vibration. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and will assess the potential for building damages using vibration levels in peak particle velocity (PPV inches per second [(in/sec)]) because vibration levels calculated in RMS are best for characterizing human response to building vibration, while vibration level in PPV is best used to characterize potential for damage. The FTA Transit Noise and Vibration Impact Assessment guidelines indicate that a vibration level up to 102 VdB (an

equivalent to 0.5 in/sec in PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table 4.13.M shows the PPV and VdB values at 25 feet from a construction vibration source. As shown in Table 4.13.M, bulldozers and other heavy-tracked construction equipment (except for pile drivers and vibratory rollers) generate approximately 87 VdB of groundborne vibration when measured at 25 feet, based on the Transit Noise and Vibration Impact Assessment. At this level, groundborne vibration would result in potential annoyance to residents and workers, but would not cause any damage to the buildings.

Table 4.13.M: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 feet	
	PPV (in/sec)	L _v (VdB) ^a
Pile Driver (Impact), Typical ³	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Sources: *Transit Noise and Vibration Impact Assessment* (FTA 2018).

^a RMS vibration velocity in decibels (VdB) is 1 μin/sec.

μin/sec = micro-inches per second

FTA = Federal Transit Administration

in/sec = inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

Construction vibration, similar to vibration from other sources, would not have any significant effects on outdoor activities (e.g., those outside of residential buildings in the project vicinity). Outdoor site preparation for the proposed project is expected to include the use of bulldozers and loaded trucks. The greatest levels of vibration are anticipated to occur during the site preparation phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below.

$$L_v\text{dB} (D) = L_v\text{dB} (25 \text{ feet}) - 30 \text{ Log} (D/25)$$

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$$

Based on distance attenuation, groundborne vibration levels associated with heavy construction equipment would exceed the FTA threshold of 94 VdB (0.2 in/sec PPV) for building damage when heavy construction equipment is used within 15 feet of existing structures. Implementation of the

proposed Specific Plan would allow for high density, mixed-use development in more densely developed areas where offsite structures would be more prevalent. Even during these occurrences, the buffers set forth by the City of Madera Municipal Code (e.g., setbacks, easements, right-of-ways) would ensure that in most cases onsite and offsite structures would be separated by at least 15 feet, and thus construction activities would be buffered by at least 15 feet from adjacent structures.

If construction activities would occur within 15 feet of adjacent structures, short-term construction impacts associated with groundborne vibration would be potentially significant. Therefore, implementation of Mitigation Measure NOI-2.1 would be required to increase the distance between heavy construction equipment and the surrounding structures to a minimum of 15 feet. Implementation of Mitigation Measure NOI-2.1 would ensure that construction vibration level would be below the threshold of 0.2 in/sec PPV for building damage and would reduce impacts to a less-than-significant level.

Level of Significance Without Mitigation: Potentially significant.

Impact NOI-2: The proposed project would generate excessive groundborne vibration or groundborne noise levels.

Mitigation Measure NOI-2.1 Prior to the approval of any construction or building permits for new development proposed under the Specific Plan, the City of Madera Community Development Director or designee shall ensure that construction plans include specifications that prohibit the use of heavy construction equipment within 15 feet of existing structures.

Level of Significance With Mitigation: Less than significant.

Threshold 4.13.3 **For a project located within the vicinity of a private airstrip an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

As required by the Caltrans Division of Aeronautics, the Madera County ALUC must prepare an ALUCP for public and public use airport within its jurisdiction. An ALUCP guides local jurisdictions in determining appropriate compatible land uses with detailed findings and policies. The Madera County ALUC adopted the Madera Countywide Airport Land Use Plan, which covers the Madera Municipal Airport and the Chowchilla Municipal Airport. The proposed Specific Plan, other City land use plans, and all City land use decisions must be compatible with the adopted ALUCP. The ALUCP includes CNEL noise contours based on projected airport and aircraft operations. The purpose of these noise contours are to minimize the effect of airport and aircraft noise on the adjacent community by determining land use compatibility and locations for noise mitigation measures during the planning, design, and development process.

The Madera Countywide ALUCP establishes land uses that are either acceptable or unacceptable within each CNEL noise contour based on the noise sensitivity of the particular use. Noise-sensitive

land uses such as residential uses are typically only acceptable in areas outside the 65 dBA CNEL and greater noise contours. It is within these areas that the Madera County ALUC has determined that residential uses can occur while still minimizing the effects of adjacent and overhead aircraft noise on noise-sensitive receptors. Any land use decision made within the jurisdictional boundary of the ALUCP, and based upon policies set forth by the General Plan, must be consistent with the ALUCP, including the land use compatibility policies based on CNEL noise contours, as required by law.

The Madera Municipal Airport is located directly north and east of the Specific Plan Area. Based on Exhibit 5D of the Madera Countywide ALUCP, the northernmost portions of the Specific Plan Area, including near the intersections of Avenue 17 and Road 23 and Avenue 16 and Road 24, lie within the 65 dBA CNEL noise contours for this airport. The rest of the Specific Plan Area lies beyond the 65 dBA CNEL noise contours. Based on Figure 3-5 of the Project Description, the proposed land use near the intersection of Avenue 17 and Road 23 within the 65 dBA CNEL noise contours does not include noise sensitive uses and the proposed land use near the intersection of Avenue 16 and Road 24 is a retention basin. As such, the proposed project would not include new residential uses or similar noise-sensitive land use proposed for areas susceptible to aircraft noise levels exceeding those levels that are typically considered acceptable. Additionally, future development proposals within the Specific Plan Area would be required to be consistent with the ALUCP for Madera Municipal Airport.

There are no private airstrips operating within the Specific Plan Area. As a result, any noise associated with private airstrips would not result in a substantial noise levels within the Specific Plan Area. Therefore, implementation the proposed project would not result in impacts from adjacent and overhead aircraft noise on noise-sensitive land uses. Therefore, impacts associated with noise produced by public, public use, or private airports in the Specific Plan Area would be less than significant.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.13.2.3 Cumulative Impacts

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to noise.

Short-Term Construction Impacts. Buildout of the proposed Specific Plan would introduce construction activities to the Specific Plan Area that could potentially result in temporary or periodic increases in ambient noise levels. Construction activities would typically occur intermittently and vary depending upon the nature or phase of construction, although noise ranges are usually similar across all construction phases. Depending on the equipment required and duration of use, the worst-case combined noise level during this phase of future construction would be 86 dBA L_{max} at a distance of 50 feet from the active construction area. In addition, some construction projects could require pile driving, which would have a maximum noise level of approximately 95 dBA L_{max} at 50 feet.

Hypothetically, if several different projects were constructed simultaneously within the same immediate vicinity, there would be potential for cumulative temporary noise effects, since

construction noise from individual projects could compound. However, this scenario is highly unlikely. A more reasonable assumption is that future construction activities would occur at different locations throughout the Specific Plan Area, and each would be subject to Mitigation Measure NOI-1.1. Although scheduling of some of construction activities would likely overlap, projects would not be constructed simultaneously, but instead would occur over a number of years. This distribution of individual projects would reduce the potential for compounding of construction noise.

As previously addressed, construction noise is permitted by the City of Madera when activities occur between the hours of 6:00 a.m. and 8:00 p.m. While construction noise impacts are currently exempt from specific noise levels limits, projects that have unusual or extremely loud construction activities (such as pile driving, nighttime construction work, unusually long construction duration, etc.) would be evaluated on a case-by-case basis. In addition, Mitigation Measure NOI-1.1 would be required to limit construction activities to daytime hours and implement best practices during construction and would reduce potential construction period noise impacts for nearby sensitive receptors to less-than-significant levels. Therefore, the proposed project contributions to cumulative construction noise would be less than cumulatively considerable and thus would result in a less than significant cumulative impact.

Long-Term Operational Impacts. Buildout of the Specific Plan would result in increased traffic volumes along existing roadways, thus incrementally increasing noise levels. Future noise levels are projected to increase by up to 10.9 dBA at roadway segments outside of the Specific Plan Area, as shown in Table 4.13.K. The largest off-site noise level increase in traffic-related noise as a result of the Specific Plan would be on Avenue 17 between Road 23 and Golden State Boulevard, with up to a 10.9 dBA increase under Existing With Project conditions and up to 9.3 dBA increase under Phase III Project Completion Year (2049) With Project conditions. This noise level increase would exceed the significance criteria for noise-level increases of 5 dBA.

As identified above, to reduce traffic noise at outdoor living areas, typical noise mitigation would include the construction of a stand-alone sound wall, which reduces noise levels by approximately 5 to 10 dBA. However, building a sound wall to mitigate noise levels may not be feasible because a sound wall could limit access to properties. Therefore, additional noise mitigation measures are not available to reduce exterior noise levels. Additionally, because specific development projects that would be considered under the proposed Specific Plan have not been designed or proposed at this time, additional noise reduction measures would be identified at the time such projects are proposed; therefore, the substantial noise increases as a result of future growth according to the proposed Specific Plan would be considered a potentially significant impact. Therefore, the proposed project contributions to cumulative traffic noise would be cumulatively considerable and would result in a significant cumulative impact.

In addition, buildout of the Specific Plan may include the installation or creation of new stationary sources of noise, or could include the development of new sensitive land uses in the vicinity of existing noise sources. For commercial uses, these noise sources could include loading/unloading operations, generators, and outdoor speakers; for residential uses, stationary noise sources may include air conditioners or pool pumps. These stationary sources of noise would have the potential

to disturb adjacent sensitive receptors. However, noise generation would continue to be limited by the City of Madera's Noise Ordinance (Title III: Public Safety, Chapter 11: Noise Control).

Development allowed by the proposed Specific Plan may include the development of new sensitive land uses in the vicinity of existing noise sources and could potentially subject sensitive land uses to long-term noise impacts. However, to ensure that new development will meet the interior noise standards identified by the State, all new developments in areas with noise levels greater than 60 dBA CNEL would be required to prepare an acoustical analysis and would require new residential land uses to be designed to maintain a standard of 45 dBA CNEL or less in building interiors, as required by Mitigation Measure NOI-1.2. In addition, any new noise-generating sources would be subject to compliance with the City's General Plan and Noise Ordinance (Title III: Public Safety, Chapter 11: Noise Control), which sets exterior noise standards for the various land uses within the City. Therefore, with implementation of Mitigation Measure NOI-1.3, which outlines measures to address stationary noise sources, implementation of the proposed Specific Plan would not expose persons to stationary source noise levels in excess of the City's General Plan and Municipal Code.

Construction Vibration Impacts. Buildout of the Specific Plan, along with construction of related projects in the Specific Plan Area, would use construction equipment such as tractors, trucks, and jackhammers. Hypothetically, if several different projects were constructed simultaneously upon the same construction site within 15 feet of an existing structure, there would be potential for cumulative ground vibration effects. However, this scenario is highly unlikely. A more reasonable assumption is that future construction activities would occur at different locations throughout the Specific Plan Area, and each would be subject to Mitigation Measure NOI-1.1. Although scheduling of some of these construction activities would likely overlap, projects would not be constructed simultaneously, but instead would occur over a number of years. In addition, implementation of Mitigation Measure NOI-2.1 would be required to increase the distance between heavy construction equipment and the surrounding structures to a minimum of 15 feet to ensure that construction vibration level would be below the threshold of 0.2 in/sec PPV for building damage and would reduce impacts to a less-than-significant level. As a result, with implementation of Mitigation Measure NOI-2.1, no cumulative impacts associated with ground vibration would occur in the Specific Plan Area, and therefore, the implementation of the proposed Specific Plan is not deemed cumulatively considerable.

Airport Impacts. Buildout of the proposed Specific Plan would introduce noise-sensitive land uses such as residential uses to areas potentially affected by public airport and aircraft noise. However, all development occurring within the proposed Specific Plan would be subject to the land use compatibility policies of the applicable ALUCP. The ALUCP includes CNEL noise contours based on projected airport and aircraft operations. The purpose of these noise contours are to minimize the effect of airport and aircraft noise on the adjacent community by determining land use compatibility and locations for noise mitigation measures during the planning, design, and development process. Any land use decision made within the jurisdictional boundary of an applicable ALUCP (regardless of whether within or outside the Planning Area) and based upon policies set forth by the General Plan must be consistent with the ALUCP, including the land use compatibility policies based on CNEL noise contours, as required by law.

As discussed above, based on Exhibit 5D of the Madera Countywide ALUCP, the northernmost portions of the Specific Plan Area, including near the intersections of Avenue 17 and Road 23 and Avenue 16 and Road 24, lie within the 65 dBA CNEL noise contours for this airport. The rest of the Specific Plan Area lies beyond the 65 dBA CNEL noise contours. The proposed land use near the intersection of Avenue 17 and Road 23 within the 65 dBA CNEL noise contours does not include noise sensitive uses and the proposed land use near the intersection of Avenue 16 and Road 24 is a retention basin. As such, the proposed project would not include new residential uses or similar noise-sensitive land use proposed for areas susceptible to aircraft noise levels exceeding those levels that are typically considered acceptable. Additionally, future development proposals within the Specific Plan Area would be required to be consistent with the Airport Land Use Compatibility Plan for Madera Municipal Airport.

In addition, there are no private airstrips operating within the Specific Plan Area. As a result, any noise associated with private airstrips would not result in a substantial noise levels within the Specific Plan Area. Therefore, implementation the proposed project would not result in impacts from adjacent and overhead aircraft noise on noise-sensitive land uses, and impacts associated with noise produced by public, public use, or private airports in the Specific Plan Area would be less than significant. As a result, no cumulative impacts associated with airport and aircraft noise would occur in the Specific Plan Area, and therefore, the implementation of the proposed Specific Plan is not deemed cumulatively considerable.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

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4.14 POPULATION AND HOUSING

This section describes population and housing conditions in the City of Madera, evaluates potential impacts that result from the implementation of the proposed Specific Plan, and recommends mitigation measures, where appropriate.

4.14.1 Environmental Setting

The following section utilizes data from the U.S. Census Bureau (Census) and the City's General Plan Housing Element.¹

4.14.1.1 City of Madera

Population. The City's General Plan Housing Element estimated the population of Madera was 63,008 in 2014. Between 2010 and 2014, the City's population grew by 1,592 residents, approximately 0.6 percent. The US Census QuickFacts estimated that the population of Madera had increased to 65,706 in 2018.²

Housing. The City's Housing Element estimated that the housing stock in 2014 consisted of approximately 17,240 housing units.³ Although a more recent estimate of the number of housing units in Madera is not available, the US Census QuickFacts estimated that 18,037 households existed in Madera in 2018. The majority of households consist of owner-occupied housing units (48.5 percent) and the remainder were renter-occupied housing units (51.5 percent). The average household size within the City is approximately 3.55 persons per household, which is slightly higher than the County's average of 3.28 persons per household.

4.14.1.2 Specific Plan Area

The Specific Plan area is approximately 1,900 acres and is mostly used for agricultural production. The Specific Plan area contains seven single-family residential units with an estimated population of 25 people based on an average household size of 3.55 persons.

4.14.1.3 Regulatory Context

Regional Housing Needs Allocation. Housing element law requires local jurisdictions to encourage the construction of a share of the region's projected housing needs. This share is called the Regional Housing Needs Allocation (RHNA). The specific RHNA number for a jurisdiction is important because State law mandates that each jurisdiction provide sufficient land to accommodate a variety of housing opportunities for all economic segments of the community to meet or exceed this number of housing units. In addition, each jurisdiction must also provide policy and regulatory guidance to accommodate a variety of housing types at a variety of income levels.

The allocation of projected housing demand is divided into four income categories that include very-low, low, moderate, and above-moderate. For the 2014-2023 RHNA projection period, the California

¹ Madera, City of. 2015. 2016-2024 Housing Element Update. December.

² US Census. 2018. US Census QuickFacts, Website: www.census.gov/quickfacts/fact/table/maderacity-california/HSD310218.

³ Madera, City of. 2015. 2016-2024 Housing Element Update. Table H-15. December.

Department of Housing and Community Development (HCD) assigned 12,895 units (2,890 very low-income, 2,230 low-income, 2,310 moderate-income, and 5,465 above moderate-income) to all of Madera County. The City's share, as determined by HCD, is 6,099 units and translates into sites that could accommodate housing affordable to households that fall within the various income categories as follows:

- Extremely and Very Low Income: 1,352 dwelling units
- Low Income: 1,056 dwelling units
- Moderate Income: 1,091 dwelling units
- Above-Moderate: 2,600 dwelling units

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. Through its 10 elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera's quality of life and implement the community's shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City's operations and decisions. Table 4.14.A lists the General Plan policies related to population and housing.

2016-2024 Housing Element Update. The City of Madera's updated Housing Element of the General Plan was adopted in 2015 to identify the City's housing needs, to state the community's goals and objectives with regard to housing production, rehabilitation, and conservation to meet those needs, and to define the policies and programs that the community will implement to achieve the stated goals and objectives. The Housing Element demonstrates that the City has adequate sites within the City limits to accommodate the projected housing need for the 2014-2023 RHNA, which covers a 10-year period of January 1, 2014, to December 31, 2023.

4.14.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to population and housing that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

Table 4.14.A: General Plan Policies Related to Population and Housing

Policy/Action Item Number	Policy/Action Item
Policy LU-10	<p>The Growth Boundary is considered by the City to define the physical limits of development in Madera. The City shall direct all future growth in Madera and in the unincorporated area outside the city limits to occur inside the Growth Boundary shown on the Land Use Map in this General Plan. Within the City’s Planning Area, the City encourages the County to assist the City in maintaining an agricultural greenbelt around the Growth Boundary by limiting the use of land designated for Agriculture on the City’s General Plan Land Use map to agriculture.</p> <p>The following apply to the Growth Boundary:</p> <ul style="list-style-type: none"> • The Growth Boundary may only be revised as part of a comprehensive update of the General Plan involving, at a minimum, the Land Use and Circulation elements. • Any revision to the Growth Boundary shall be accompanied by a statement of findings which demonstrate the following: <ol style="list-style-type: none"> 1) That the revision is consistent with the intent of the Growth Boundary and all other applicable policies in this General Plan; 2) That the revision is necessary to accommodate planned growth in Madera.
Policy LU-12	<p>The City shall plan and install infrastructure to serve only the area inside the Growth Boundary. The expansion of urban services (specifically including residential sewer service) outside this boundary shall not be permitted unless the City Council finds that:</p> <ol style="list-style-type: none"> 1. The extension is needed to address a clear public health or safety need; and 2. The infrastructure provided is sized to the minimum level necessary in order to reduce any excess capacity that could be used to support additional growth outside the boundary. <p>Action Item LU-12.1 Develop and implement programs and strategies that support the Growth Boundary and keep urban growth inside the Growth Boundary.</p>
Policy LS-13	<p>The City shall support the annexation of property to its boundaries for the purpose of new development only when it determines that the following conditions exist:</p> <ol style="list-style-type: none"> 1. Sufficient public infrastructure, facilities, and services are available or will be provided in conjunction with new development; and 2. Demands on public infrastructure, facilities and services created by the new development will not result in reductions in capacity that is necessary to serve the existing city limits (including demand created by potential infill development), reductions in existing service levels within the city limits, or the creation of detrimental fiscal impacts on the City. <p>Action Item LU-13.1 Maintain and periodically update a set of Facility Master Plans for major municipal infrastructure and public facilities, including, at a minimum, wastewater, water, storm drainage, and parks and recreation facilities.</p> <p>Action Item LU-13.2 Establish, maintain and monitor a set of level-of-service criteria for police and fire protection services as a tool to assess the ability of the City to service growth.</p> <p>Action Item LU-13.3 Monitor levels-of-service for streets, roads, and other features of the circulation system based on the level of criteria included in this general plan as a tool to assess the ability of the City to service growth.</p> <p>Action Item LU-13.4 Conduct an ongoing Development Monitoring Program focused on new development activity and related infrastructure and public facility construction to determine adherence to adopted level of service standards and criteria and compliance with and other City policies and programs.</p>
Policy LU-14	<p>All proposals to annex property into the City limits for the purpose of new development shall prepare a Public Facilities Financing Plan (PFFP) that articulates infrastructure and public facilities requirements, their costs, financing mechanisms, and the feasibility of the financial burden. The PFFP shall analyze backbone</p>

Table 4.14.A: General Plan Policies Related to Population and Housing

Policy/Action Item Number	Policy/Action Item
	infrastructure and public service needs and funding capacity at the Village level, as defined in Figure LU-3 of the Land Use Element of this General Plan. (The Planning Process required for Village Reserve Areas in Policy LU-34 shall be sufficient to meet this requirement.) The cost of preparing the PFFP shall be shared proportionately among property owners in each Village, with the shares of any non-participating owner collected at the time of development and reimbursed to owner(s) who prepared the PFFP through a reimbursement agreement.
Policy LU-15	The City shall deny projects and oppose the annexation of properties which are demonstrated to be out of compliance with Policies LU-13 and LU-14 above.

Source: City of Madera General Plan (October 2009).

4.14.2.1 Significance Criteria

The thresholds for impacts related to population and housing used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to population and housing if it would:

- Threshold 4.14.1 Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);**
- Threshold 4.14.2 Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.**

4.14.2.2 Project Impacts

The following discussion describes the potential impacts related to population and housing that could result from implementation of the proposed Specific Plan.

- Threshold 4.14.1 Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

Implementation of the proposed Specific Plan would implement the “Building Blocks” policies of the City’s General Plan by master-planning the Specific Plan Area. The development of the growth areas identified in the General Plan is intended to be guided by specific plans, which are used to ensure orderly growth and adequate infrastructure, facilities, and public services to support the future population of each growth area. As such, the proposed Specific Plan is intended to implement the goals and policies of the City’s General Plan by allowing for development of residential, retail, potential school sites, and open space uses. In addition, the proposed Specific Plan establishes land uses and development regulations to govern permitted uses and standards to regulate development of land uses within the Specific Plan Area.

The proposed Specific Plan would develop in three phases and would generate a maximum of 10,783 new housing units, approximately 1.8 million square feet of mixed-use development, and approximately 260,000 square feet of business park uses over the course of a 30-year buildout with a horizon year of 2049. As a result, the proposed Specific Plan would result in an estimated population of 38,280 new residents.⁴ The City's Housing Element projects a total population increase of approximately 39,031 people in the City of Madera between 2020 and 2035 for a total population of 137,975 people in 2035. The proposed Specific Plan would generate a substantial population increase relative to the population growth projected by the General Plan and Housing Element.

However, growth under the proposed Specific Plan would occur incrementally over a period of approximately 30 years and would be guided by the proposed Specific Plan. In addition, General Plan Policies LU-10, LU-12, LU-13, and LU-14, listed in Table 4.14.A, seek to plan for future development outside of the City limits and require infrastructure to support population growth. As discussed in Section 4.11, Land Use and Planning, the proposed Specific Plan, through implementation of design regulations included in the proposed Specific Plan and implementation of the Infrastructure Master Plan (included as Appendix C of this EIR), would be consistent with these General Plan policies. Therefore, population growth resulting from the proposed Specific Plan would be consistent with the City's planning objectives and would result in orderly, planned development. Although the General Plan does not assign specific population densities to the Specific Plan Area and growth in the entire Specific Plan Area is not programmed, development under the proposed Specific Plan would occur as resources and services are available to accommodate growth, as required by the General Plan. The growth within the Specific Plan Area has been previously contemplated in the General Plan. As a result, impacts to population growth associated with potential future development under the proposed Specific Plan would be considered less than significant.

Level of Significance Without Mitigation: Less than Significant. No mitigation is required.

Threshold 4.14.2 Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed Specific Plan would result in the development of approximately 1,900 acres that currently contain seven residential units. Based on an estimate of 3.55 residents per household,⁵ the estimated population of Specific Plan Area is approximately 25 people. Implementation of the proposed Specific Plan would result in the reasonably anticipated development of 10,783 residential units with an estimated buildout population of 38,280 residents, assuming a household size of 3.55 persons per household.⁶ As such, implementation of the proposed Specific Plan would not necessitate construction of replacement housing due to the substantial increase in housing units at buildout. As a result, implementation of the proposed Specific Plan would not displace substantial

⁴ Based on an average household size of 3.55 persons per unit, according to US Census QuickFacts, Ibid.

⁵ US Census. 2018. US Census QuickFacts, Ibid.

⁶ Based on an average household size of 3.55 persons per unit, according to US Census QuickFacts, Ibid.

numbers of people or existing housing units that would necessitate the construction of replacement housing elsewhere. As a result, a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.14.2.3 Cumulative Impacts

The proposed Specific Plan would have a significant effect on the environment if, in combination with other projects, it would contribute to a significant cumulative impact related to population and housing. The cumulative impact analysis for population and housing considers the larger context of future development of the City of Madera as envisioned by the General Plan and relied upon the projections of the General Plan and General Plan EIR. Cumulative impacts on population and housing would be those impacts that result from incremental changes from increased development.

As described above, the proposed Specific Plan would induce a substantial amount of population growth, but the projected population growth associated with the Specific Plan would be adequately planned for through implementation of development regulations. As discussed above, the proposed Specific Plan would result in a maximum 10,783 residential units and a buildout population of approximately 38,280 residents. Although the number of new residents generated under the proposed Specific Plan would be substantial relative to the population growth projected by the City's General Plan and Housing Element, cumulative growth within the City of Madera would be required to be consistent with General Plan policies that require orderly development to occur with infrastructure to accommodate growth. Thus, when considered along with the proposed Specific Plan, cumulative growth would not displace substantial numbers of people or housing or exceed planned levels of growth within the City. Therefore, cumulative impacts related to substantial unplanned population growth would be less than significant.

As discussed above, implementation of the proposed Specific Plan would not displace a substantial number of existing people or housing that would necessitate the construction of replacement housing elsewhere. The Specific Plan Area currently contains seven existing single-family residences and a population of approximately 25 people. Given the low population of the Specific Plan Area, implementation of the proposed Specific Plan would not combine with other projects to displace residents or housing units. As a result, a less-than-significant cumulative impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.15 PUBLIC SERVICES AND RECREATION

This section describes the existing public services and recreational facilities of the Specific Plan Area and evaluates the potential impacts associated with implementation of the proposed Specific Plan, both at the individual and cumulative levels. Appendix G of the California Environmental Quality Act (CEQA) Guidelines separates the resource topic areas of Public Services and Recreation. This Environmental Impact Report (EIR) combines these two resource topic areas to provide the reader one condensed location with pertinent information. The analysis in this section, which includes Appendix G checklist questions for both Public Services and Recreation, is based in part on the City's General Plan and the proposed Specific Plan.

4.15.1 Environmental Setting

4.15.1.1 Fire Protection

Fire protection and emergency medical services are provided to the Specific Plan Area by the Madera City Fire Department, which is administered by the California Department of Forestry and Fire Protection (CAL Fire) through a cooperative fire protection agreement. Policy direction remains with the Madera City Council and all permanent Fire Department staff are CAL Fire employees. The Department currently has three operational fire stations:

- **Fire Station 56.** Located at 317 North Lake Street, approximately 3 miles east of the Specific Plan Area
- **Fire Station 57.** Located at 200 South Schnoor Street, approximately 3 miles southeast of the Specific Plan Area.
- **Fire Station 58.** Located at 2558 Condor Drive less than 1 mile east of the Specific Plan Area.

The Fire Department staffs two fire engines and one mini-pumper. One of the engines features a 50-foot tele-squirt aerial ladder. City fire protection services provided include: fire prevention and suppression, emergency medical assistance, rescue, public assistance, fire menace standby, safety inspections, and review of building plans for compliance with applicable codes and ordinances.

4.15.1.2 Police Protection

Police protection services are provided to the Specific Plan by the City of Madera Police Department (MPD). MPD headquarters is located at 330 South C Street. According to the most recent MPD annual report, the MPD has 70 sworn officers and 35 non-sworn employees. In 2018, MPD handled 54,231 calls for services, and the average response time for an emergency calls was 5 minutes and 4 seconds, and included calls such as an armed robbery or burglary in progress, person not breathing, or traffic collisions involving injuries.¹

¹ Madera, City of. 2018. *City of Madera Police Department – Annual Report 2018*.

4.15.1.3 Public Schools

The Madera Unified School District (MUSD) provides public education services to the Specific Plan Area. MUSD is comprised of 28 schools: 18 elementary schools, 3 middle schools, 3 high schools, 2 alternative high schools, 1 community day school, and 1 adult school. The total enrollment of MUSD during the 2019-2020 school year was 21,148 students.

MUSD schools serving the Specific Plan Area include Lincoln Elementary School, a transitional kindergarten (TK) through 8th grade (TK-8) facility, Howard School, a transitional Kindergarten through 6th grade (TK-6) facility, and Dixieland School, a TK-8 facility, Thomas Jefferson Middle School, a 7th-8th grade facility, Matilda Torres High School a 9th-12th grade facility, and Madera High School, a 9th-12th grade facility.

The Madera County Superintendent of Schools (MCSOS) provides a variety of special education services through regionalized programs to identified students with special needs from birth to age twenty-two to the nine school districts and charter schools throughout Madera County. MCSOS administers programs including early education, foster youth services, homeless youth services, implementing the Madera-Mariposa Special Education Local Plan Area (SELPA), and sponsorship of student academic events.

In addition, the MCSOS administers the following four school sites:

- **Endeavor/Voyager.** Alternative education campus providing education for youth incarcerated in Madera County Juvenile Detention (MCJD) located at 28219 Avenue 14 in Madera.
- **Madera County Independent Academy.** Campus supporting K-12 home school students and K-12 independent study students, located 28123 Avenue 14 in Madera.
- **Pioneer Technical Center.** Public charter high school providing academic courses and career technical education located at 28261 Avenue 14 in Madera.
- **Pioneer Technical Center – Chowchilla.** Public charter high school providing academic courses and career technical education located at 345 S. Eleventh Street in Chowchilla.

4.15.1.4 Parks and Recreation

The City of Madera owns and maintains 26 parkland facilities, including 3 community parks, 5 neighborhood parks, 4 pocket parks, 4 linear parks, 2 trails, and 8 special use facilities. The facilities include 320 acres, not included building grounds, landscape buffer areas, median islands, and park strips.

4.15.1.5 Other Public Facilities

Public facilities in the County of Madera include libraries and hospitals that serve the City of Madera and surrounding areas, including the Specific Plan Area.

Two hospitals are located in Madera County and would serve the Specific Plan Area. Madera Community Hospital is a 106-bed hospital located at 1250 East Almond Avenue in the City of

Madera. Valley Children's Hospital is located at 9300 Valley Children's Place east of the City of Madera. Valley Children's Hospital is a 358-bed pediatric hospital.

The Madera County Library operates five branches in Madera County, with the main branch located at 121 North G Street in the City of Madera.

The Madera Superior Court provides all court related services including the Self Help/Family Law Center and Family Court Services. The Main Courthouse is located at 200 South G Street in the City of Madera.

4.15.1.6 Regulatory Context

Fire Protection

City of Madera Fire Code. The City regulates development and building design through Section 9-1.06 of its Municipal Code and is consistent with the California Fire Code.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. Through its 10 elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera's quality of life and implement the community's shared vision for the future. The General Plan is the official policy statement of the City to guide development (both public and private), as well as the City's operations and decisions. Table 4.15.A lists the General Plan policies related to fire protection.

Police Protection

City of Madera General Plan. As noted above, the City of Madera General Plan is the City's primary policy planning document. The General Plan addresses police and safety by creating more walkable, bicycle-friendly neighborhoods, and commercial areas; addressing safety hazards; working with school districts to help them provide educational opportunities for all residents; and increasing opportunities for employment. The General Plan is the official policy statement of the City to guide development (both public and private), as well as the City's operations and decisions. Table 4.15.B lists the General Plan policies related to Police Protection.

Public Schools

Senate Bill (SB) 50. SB 50 limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available, whether the school district is eligible for State funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school, and the percentage of moveable classrooms in use.

Table 4.15.A: General Plan Policies Related to Fire Protection

Policy/Action Item Number	Policy/Action Item
Circulation and Infrastructure Element	
Policy CI-44	Public facilities should be phased in a logical manner which avoids “leapfrog” development and encourages the orderly development of roadways, water and sewer, and other public facilities. The City shall not provide public financing or assistance for projects that do not comply with City master plans.
Policy CI-47	All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Policy CI-52	All new residential development shall be required to annex into City of Madera Community Facilities District 2005-01, or any subsequent CFD created in its place. The purpose of the CFD is to collect special assessments from new residential development to offset the cost of providing eligible municipal services to that development.
Health and Safety Element	
Policy HS-33	The City shall ensure the safety and protection of Madera and its community members by providing adequate first response capabilities to emergencies and by maintaining sufficient resources to expand protection as the community grows.
Land Use Element	
Policy LU-13	The City shall support the annexation of property to its boundaries for the purpose of new development only when it determines that the following conditions exist: 1. Sufficient public infrastructure, facilities, and services are available or will be provided in conjunction with new development; and 2. Demands on public infrastructure, facilities and services created by the new development will not result in reductions in capacity that is necessary to serve the existing city limits (including demand created by infill development), reductions in existing service levels within the city limits, or the creation of detrimental fiscal impacts on the City.
Policy LU-14	All proposals to annex property into the City limits for the purpose of new development shall prepare a Public Facilities Financing Plan (PFFP) that articulates infrastructure and public facilities requirements, their costs, financing mechanisms, and the feasibility of the financial burden. The PFFP shall analyze backbone infrastructure and public service needs and funding capacity at the Village level, as defined in Figure LU-3 of the Land Use Element of this General Plan. (The Planning Process required for Village Reserve Areas in Policy LU-34 shall be sufficient to meet this requirement.) The cost of preparing the PFFP shall be shared proportionately among property owners in each Village, with the shares of any non-participating owner collected at the time of development and reimbursed to owner(s) who prepared the PFFP through a reimbursement agreement.
Policy LU-15	The City shall deny projects and oppose the annexation of properties which are demonstrated to be out of compliance with Policies LU-13 and LU-14 above.
Policy LU-16	Funding mechanisms for major capital facilities which must be “oversized” to support future development shall be established to account for the full cost of the facility(ies) and provide for ultimate financing by the future development that will share in the benefit. A typical way of accomplishing this is for the initial project proponent to complete the required improvements and enter into a reimbursement agreement to be reimbursed for that portion beyond his fair share. Alternatively, a phased Community Facility District (CFD) or similar mechanism which can include all oversized facilities required for the Village can be established to finance these facilities over time.

Source: City of Madera General Plan (October 2009).

Table 4.15.B: General Plan Policies Related to Police Protection

Policy/Action Item Number	Policy/Action Item
Circulation and Infrastructure Element	
Policy CI-44	Public facilities should be phased in a logical manner which avoids “leapfrog” development and encourages the orderly development of roadways, water and sewer, and other public facilities. The City shall not provide public financing or assistance for projects that do not comply with City master plans.
Policy CI-47	All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Policy CI-52	All new residential development shall be required to annex into City of Madera Community Facilities District 2005-01, or any subsequent CFD created in its place. The purpose of the CFD is to collect special assessments from new residential development to offset the cost of providing eligible municipal services to that development.
Health and Safety Element	
Policy HS-35	<p>The City shall ensure the safety and protection of Madera and its community members by providing appropriate first response to emergencies and ensure that sufficient resources are available to expand protection as the community grows.</p> <p>Action Item HS-35.1 Collaborate with existing agencies to review existing interoperable communication and prepare a communications plan as needed.</p>
Policy HS-36	The City will maintain and enhance community safety through coordinated regional emergency, law-enforcement and protective services systems.
Policy HS-39	<p>The City encourages the use of Crime Prevention Through Environmental Design (CPTED) principles in the design of private development projects and public facilities. These basic principles include:</p> <p>Natural Surveillance A design concept directed primarily at keeping intruders easily observable. Promoted by features that maximize visibility of people, parking areas and building entrances: doors and windows that look out on to streets and parking areas; pedestrian-friendly sidewalks and streets; front porches; adequate nighttime lighting.</p> <p>Territorial Reinforcement Physical design can create or extend a sphere of influence. Users then develop a sense of territorial control while potential offenders, perceiving this control, are discouraged. This experience is promoted by features that define property lines and distinguish private spaces from public spaces by using landscape plantings, pavement designs, gateway treatments, and “CPTED” fences.</p> <p>Natural Access Control A design concept directed primarily at decreasing crime opportunity by denying access to crime targets and creating in offenders a perception of risk. This is gained by designing streets, sidewalks, building entrances and neighborhood gateways to clearly indicate public routes and discouraging general access to private areas through structural and design elements.</p> <p>Target Hardening Accomplished by features that prohibit entry or access: window locks, dead bolts for doors, interior door hinges.</p>

Source: City of Madera General Plan (October 2009).

Government Code 65995. In 1986, Assembly Bill (AB) 2926 authorized school districts to levy impact or developer fees on residential and commercial/industrial development for the purposes of funding the construction or reconstruction of school facilities. The authority for the District's assessment of developer fees is set forth in Education Code Section 17620, pursuant to Government Code 65995.

MUSD currently collects the following development impact fees:²

- \$5.25 per square foot of residential development
- \$0.66 per square foot of commercial/industrial development

The MUSD the development impact fees are subject to change, pending Board approval, in September 2021.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. The General Plan aims to ensure that the adult and child populations of Madera have access to high quality educational opportunities; promotes safe routes from residential areas to schools, including access by pedestrians, bicycles, buses, and personal vehicles are established; and establishes and maintains a positive relationship with education providers in the community. The General Plan is the official policy statement of the City to guide development (both public and private), as well as the City's operations and decisions. Table 4.15.C lists the General Plan policies related to public schools.

Table 4.15.C: General Plan Policies Related to Public Schools

Policy/Action Item Number	Policy/Action Item
Sustainability Element	
Policy SUS-1	The City shall assist the Madera Unified School District in obtaining mitigation for the impacts of new development on school facilities.
Policy SUS-2	The City shall work with the Madera Unified School District to coordinate the planning of future land use and school facilities and will encourage the District to identify school site locations and routes that are safe for children to walk or bike to school (also known as "Safe Routes to School"). Action Item SUS-2.1 Work with the Madera Unified School District to help the District identify and plan for the construction of all road, sidewalk, and other infrastructure improvements needed for new schools, and that these improvements are in place at the time the school opens.

Source: City of Madera General Plan (October 2009).

² Madera Unified School District. Developer Fees. Website: <https://www.madera.k12.ca.us/Page/10137>, accessed December 21, 2020.

Parks and Recreation

Quimby Act. The Quimby Act (California Government Code Section 66477) states that “the legislative body of a city or county may, by ordinance, require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative or parcel map.” The Quimby Act only applies to the acquisition of new parkland and does not apply to the physical development of new park facilities or associated operations and maintenance costs. The Quimby Act effectively preserves open space needed to develop parkland and recreational facilities; however, the actual development of parks and other recreational facilities is subject to discretionary approval and is evaluated on a case-by-case basis with new residential development.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. The General Plan establishes a number of specific steps that would be followed to create an enhanced parks and recreation system. The goals, policies, and actions identify what the City desires for its parks and recreation system and how it will be implemented. Table 4.15.D lists the General Plan policies related to parks and recreation facilities.

4.15.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to public services that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

4.15.2.1 Significance Criteria

The thresholds for impacts related to public services and recreation used in this analysis are consistent with Appendix G of the CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to public services and recreation if it would:

Thresholds 4.15.1 **Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives;**

Thresholds 4.15.2 **Result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives;**

Table 4.15.D: General Plan Policies Related to Parks and Recreation

Policy/Action Item Number	Policy/Action Item
Parks and Recreation Element	
Policy PR-1	The City shall endeavor to develop and maintain a complete system of public parks distributed throughout the City that provides opportunities for passive and active recreation at a minimum of 3 (three) acres per 1,000 (one thousand) residents.
Policy PR-4	The City shall acquire, develop, and maintain parks and recreation facilities in accordance with the City's Park and Recreation Master Plan, and with the City's Park Classifications and the Park and Recreation Facility Service Level Standards. All lands offered for dedication must be of size, orientation, location, and suitability to provide park and recreation facilities consistent with this General Plan and the Park and Recreation Master Plan.
Policy PR-5	Parks and other facilities will be accepted into the City's system at the City's sole discretion. Land which is proposed to be dedicated to the City will not be accepted if it does not meet the requirements of this Element and/or the Park and Recreation Master Plan.
Policy PR-6	The City encourages the integration of parks and other facilities in the master-planning of development projects. Proposed parks on remnant parcels or otherwise unusable land which do not meet the City's standards will not be accepted by the City as a park by the City and do not count toward the City's parkland standard in Policy PR-1. They may become Non-Public Park facilities if there is a permanent maintenance mechanism provided, such as a landscape maintenance district.
Policy PR-7	The development of parks in new growth areas of the City, where residential projects trigger the need for a new park(s), shall be phased and/or timed with the goal of meeting the standards of this Element and the Parks and Recreation Master Plan at all times. New development should be phased or timed in such a way as to avoid situations where insufficient park or other facilities are provided either permanently or temporarily. The City recognizes that this may require the development of parks or other facilities larger than will be needed at the time in order to ensure that standards will be maintained as future residential development occurs.
Policy PR-8	<p>The City shall endeavor to acquire new parklands, expand existing parks, or otherwise make available local parkland and open spaces in sufficient quantity to meet community demand for facilities and programs identified in the Park and Recreation Master Plan.</p> <p>Action Item PR-8.1 Ensure that a plan is prepared for each new parkland development that includes a site development plan, phasing for development, estimated cost for each phase, long-term operation and maintenance, estimated revenue generation, and funding sources for development</p>
Policy PR-10	<p>The City shall require new residential development projects, including mixed-use projects with residential components, to dedicate land and/or pay in-lieu fees to contribute to the acquisition and development of parks or recreation facilities. The determination of which method (land dedication and/or payment of in-lieu fees) is appropriate shall be made at the City's sole discretion.</p> <p>Action Item PR-10.1 Evaluate and implement, if adopted, a Park Impact and Parkland Dedication Ordinance consistent with the Quimby Act.</p>
Policy PR-14	The City will collaborate with public and private agencies to jointly plan, develop, and manage a regional park in the Planning Area.
Policy PR-15	The City shall ensure that the design and location of parks and trails reflect that active living and walkability are important to Madera's quality of life.
Policy PR-16	The City shall improve access and connectivity to parks through provision of sidewalks, bike paths, bike lanes, and bridges where appropriate.
Policy PR-18	The City shall expand its system of multi-use paths and trails available for transportation and recreation uses with the goal of achieving a service level of 0.5 linear miles of trails per 1,000 residents.
Policy PR-20	The City shall ensure that new parks provide adequate and secure onsite and offsite parking as identified in the Parks and Recreation Master Plan.

Source: City of Madera General Plan (October 2009).

- Thresholds 4.15.3** Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives;
- Thresholds 4.15.4** Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for park services;
- Thresholds 4.15.5** Result in substantial adverse physical impacts associated with the provision of new or physically altered facilities for other public facilities, need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives;
- Thresholds 4.15.6** Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Thresholds 4.15.7** Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.15.2.2 Project Impacts

The following discussion describes the potential impacts related to public services that could result from implementation of the proposed Specific Plan.

- Thresholds 4.15.1** Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The proposed Specific Plan would increase the residential population within the Specific Plan Area by up to 38,280 new residents by the year 2049. This added residential population would increase the demand for fire protection services. Fire Station 58, located at 2558 Condor Drive, approximately 0.8 miles from the Specific Plan Area, would provide fire protection services to the Specific Plan Area. Fire Station 58 currently houses a quintuple combination pumper truck and has a staff of three firefighters.

Continued implementation of the provisions of the City Fire Code provisions and implementation of the General Plan policies would ensure that adequate fire protection and emergency medical services are provided. Policies CI-47 and CI-51 specifically require that public facilities be identified and financed and that public services and facilities be available on time to maintain desired service levels. Policy HS-33 requires that adequate first response capabilities be maintained as the city develops. Policies LU-14, LU-15, and LU-16 require that financing plans be in place to ensure public services, including fire, will be available in conjunction with new development and annexation.

Throughout the 30-year buildout of the proposed Specific Plan, the Madera City Fire Department would continually evaluate service ratios and response times, as well as continue to pursue an Insurance Service Office (ISO) rating of 3 for the city. An ISO rating is a calculation made by The Insurance Service Office that determines how well a fire department is equipped to respond to emergencies in a community. A score of 1 is the best possible rating while a score of 10 indicates that a fire department does not meet ISO's minimum requirements. The Madera City Fire Department currently has an ISO rating of 4. With an increase in population resulting from implementation of the proposed Specific Plan, the Fire Department would experience an increase in service calls and would need to expand fire protection services in order to maintain an ISO rating of 4. Expansion of existing fire protection facilities or construction of new fire protection facilities could result in potential environmental impacts.

Compliance with General Plan policies CI-44, CI-47, CI-51 and CI-52, HS-33 and policies LU-13 through LU-16 would ensure that adequate facilities and financing would be available to provide fire protection to the Specific Plan Area. In addition, during the review of building permits associated with development under the proposed Specific Plan, the Madera City Fire Department would evaluate its ability to provide fire protection to the Specific Plan Area and the entirety of its service area. Additionally, development proposed under the proposed Specific Plan would be required to pay service and development fees to the City that would potentially be used to acquire land for new fire stations, and fund constructing new fire stations, purchasing fire equipment for new fire stations, and providing for additional staff as needed and as identified by the City. The Village Public Facilities (V-ES) land use category, as included in the proposed Specific Plan, includes the placement of public facilities such as fire stations within the Specific Plan Area. As such, the potential environmental impacts that would occur resulting from construction and operation of the proposed Specific Plan in order to maintain an ISO rating of 4.

Potential construction impacts resulting from on-site development, which could include construction of fire protection facilities, are discussed throughout this EIR. The proposed Specific Plan would comply with all construction-related mitigation measures identified Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources and Tribal Cultural Resources), Section 4.7 (Geology and Soils), Section 4.9 (Hazards and Hazardous Materials), Section 4.10 (Hydrology and Water Quality), and Section 4.13 (Noise). However, construction-related impacts related to air quality would not be able to be reduced to a less-than-significant level because, based on the information available, it is not known what facilities would be constructed and where they would be located. Therefore, the proposed Specific Plan would result in an adverse physical effect on the environment due to the construction of new fire facilities. This would be considered a significant and unavoidable impact.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation measures identified in this EIR would reduce most potential impacts to less-than-significant levels, several impacts, even with the implementation of mitigation measures, would not be reduced. For example, impacts related to construction-related emissions and noise would be reduced through implementation of Mitigation Measures AIR-2.1, AIR-2.2, NOI-1.2, NOI-1.2 and NOI-1.3; however, due to the increase in the use of construction equipment and the unknown extent of construction (use of equipment and duration), the potential impacts would not be reduced to a less-than-significant level.

Thresholds 4.15.2 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The estimated population of Madera in 2018 was approximately 65,706 residents. The proposed Specific Plan would increase the residential population within the Specific Plan Area by up to 38,280 new residents by Year 2049 for a total of approximately 104,000 residents. This added residential population would increase the demand for police protection services.

The City does not maintain a fixed staffing or service ratio for the MPD and service levels may be established based on various performance criteria, but currently has 70 sworn officers. As a result, based on a population of approximately 65,706, the City has a ratio of 1 sworn officer for approximately 940 residents. To maintain this ratio, the MPD would need to add approximately 40 sworn officers during the buildout of the proposed Specific Plan. The addition of approximately 40 sworn officers may necessitate an expansion of the existing police headquarters or construction of new police facilities; however, funding for new police facilities to maintain adequate service or staffing ratios would be provided from capital improvement fees that are collected by the City to offset impacts associated with new development. Development impact fees would be collected prior to construction of development that would occur under the proposed Specific Plan. Future developers are also required to pay development fees per square foot of development to offset impacts associated with increased demand on law enforcement services.

Development occurring under the proposed Specific Plan, including road widths, vehicle turning radii, and building safety, would be designed and operated per applicable standards required by the City for new development in regard to public safety. Implementation of General Plan Policies CI-47 and CI-51 require that public facilities be identified and financed and that public services and facilities be available on time to maintain desired service levels. Policy HS-35 requires that adequate first response capabilities be maintained as the city develops. Furthermore, implementation of the proposed Specific Plan would occur within the Urban Growth Boundary of the City and potential impacts resulting from buildout of the General Plan also included buildout of the proposed Specific Plan Area. The Village Public Facilities (V-ES) land use category, as included in the proposed Specific Plan, includes the placement of public facilities such as police stations within the Specific Plan Area. As such, the potential environmental impacts that would occur resulting from construction and operation of the proposed Specific Plan have been addressed in this EIR. Implementation of the

mitigation measures identified in this EIR, including Mitigation Measure BIO-1.1 through BIO-1.3 and Mitigation Measures CUL-1, CUL-2.1, CUL-2.2 and CUL-3, would address potential impacts resulting from implementation of the proposed Specific Plan. However, significant and unavoidable impacts related to construction and operation would still occur as a result of the proposed Specific Plan. For example, impacts related to construction-related emissions and noise would be reduced through implementation of Mitigation Measures AIR-2.1, AIR-2.2, NOI-1.2, NOI-1.2 and NOI-1.3; however, due to the increase in the use of construction equipment and the unknown extent of construction (use of equipment and duration), the potential impacts would not be reduced to a less-than-significant level.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation for potential environmental impacts resulting from construction of development under the proposed Specific Plan would reduce potential impacts, impacts cannot be reduced to less-than-significant level even with proposed mitigation measures identified in this EIR.

Thresholds 4.15.3 **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?**

The proposed Specific Plan would increase the residential population within the Specific Plan Area by up to 38,280 new residents by Year 2049. This added residential population would increase the student population within the MUSD and would increase enrollment at public schools within the MUSD. The proposed Specific Plan includes the Public and Semi-Public (P&SP) land use which identifies land for public uses such as schools, parks, libraries, police stations, fire stations, water facilities, etc. The proposed Specific Plan identifies 54 acres for P&SP land uses that could be used for elementary school sites. Development of school facilities on the elementary school site shall be subject to review and approval by the MUSD.

In May 2020, the MUSD published a School Facilities Needs Analysis³ to assess school classroom capacity and developer fees levied on construction of new residential and non-residential development. For the 2019-2020 school year, enrollment in grades TK-12 was 20,097 students, with most schools operating close to maximum capacity, and some schools over design capacity and relying on portable classrooms to temporarily accommodate students. MUSD has also proposed several projects at several schools to provide additional capacity. The MUSD projected that 930 housing units would be developed within the MUSD boundary over the next five years.

Table 4.15.E identifies the project students that would be generated by the proposed Specific Plan at full buildout. Table 4.15.E uses the MUSD's yield rates for students by grade level group; the MUSD does not differentiate between housing types when making projections.

³ Madera Unified School District. 2020. School Facilities Needs Analysis. May.

Table 4.15.E: Students Generated within the Specific Plan Area

Grade Level Group	Yield Rate ^a	Residential Units	Students Generated
Phase 1 – Southeast Neighborhood			
TK-6	0.332	3,972	1,319
7-8	0.094	3,972	373
9-12	0.176	3,972	699
Subtotal	0.602	3,972	2,391
Phase 2 – Northwest Neighborhood			
TK-6	0.332	3,339	1,109
7-8	0.094	3,339	314
9-12	0.176	3,339	588
Subtotal	0.602	3,339	2,010
Phase 3 – Southwest Neighborhood			
TK-6	0.332	3,472	1,153
7-8	0.094	3,472	326
9-12	0.176	3,472	611
Subtotal	0.602	3,472	2,090
Buildout Summary			
TK-6	0.332	10,783	3,580
7-8	0.094	10,783	1,014
9-12	0.176	10,783	1,897
Total	0.602	10,783	6,491

Source: Compiled by LSA (2020).

^a Yield Rates are provided by MUSD School Facilities Needs Analysis 2020.

As shown in Table 4.15.E, implementation of Phase 1 of the proposed Specific Plan, which is expected to occur over a 10-year period, would result in approximately 2,391 students. As discussed above, in 2020 the MUSD projected that 930 housing units would be constructed within the MUSD boundary over the following 5-year period. The California Government Code Section 65995 provides for the collection of school impact fees to mitigate the impacts of new development on school districts, and prevents local cities and counties from imposing additional fees or requiring additional mitigation measures. As such, future discretionary projects approved under the proposed Specific Plan would be required to comply with the provision of school developer fees for new or altered facilities, and new or expanded school facilities would be funded by fees collected by future development projects within the Specific Plan Area. Additional school resources would also continue to be funded by an increase in tax revenue as a result of future population growth. Compliance with General Plan policies SUS-1 and SUS-2 would ensure that adequate facilities would be available to students living in the Specific Plan Area. Therefore, impacts of the proposed project related to student generation and the potential need for additional school facilities would be less than significant, and no mitigation would be required.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Thresholds 4.15.4 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for park services?

The proposed Specific Plan would increase the residential population within the Specific Plan Area by up to 38,280 new residents by Year 2049. This added residential population would increase the demand for parks and recreational facilities, and this demand could increase usage of existing parks, resulting in physical deterioration of those parks. The proposed Specific Plan would provide on-site community parks, neighborhood parks, trails and pocket parks/basins pursuant to Quimby Act and General Plan policies. Compliance with General Plan policies PR-1, PR-4 through PR-8, PR-10, PR-14 through PR-16, PR-18 and PR-20 would ensure that adequate park and recreation facilities would be available in the Specific Plan Area. This would reduce the demand on existing neighborhood and regional parks and on other existing recreational facilities.

General Plan Policy PR-1 establishes a level of service of 3 acres per 1,000 residents. With an estimated buildout population of 38,280 new residents, in order to achieve the level of service identified by the City, approximately 115 acres of public park facilities would be required. The proposed Specific Plan includes the provision of approximately 164 acres of on-site community parks, neighborhood parks, trails and pocket parks/basins. Therefore, the proposed Specific Plan would meet the City's park ratio requirements.

The proposed Specific Plan includes a trail network that consists of four trail systems, including village paseo, the Vernon McCullough Fresno River Trail, landscape corridor trails, and sidewalks. In addition, the proposed Specific Plan includes typical cross sections of typical trails and paseos. The proposed Specific Plan states that the ultimate trail and paseo locations and alignments would be determined based on site conditions, engineering feasibility and design refinement.

The proposed Specific Plan includes park and recreation facilities to provide passive and active recreation within the Specific Plan Area that meets the City's standards. As mentioned above, the proposed project would comply with General Plan policies PR-1, PR-4 through PR-8, PR-10, PR-14 through PR-16, PR-18 and PR-20 to ensure that adequate park and recreation facilities would be available in the Specific Plan Area. As a result a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Thresholds 4.15.5 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered facilities for other public facilities, need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

The proposed Specific Plan would increase the residential population within the Specific Plan Area by up to 38,280 new residents by Year 2049. This added residential population would increase the demand for public facilities such as courts, libraries, and hospitals in order for these public facilities to continue to provide service levels comparable to existing conditions.

General Plan Policies CI-47 and CI-51 specifically require that public facilities be identified and financed and that public services and facilities be available on time to maintain desired service levels. Throughout the 30-year buildout of the proposed Specific Plan, the City would continually evaluate acceptable service ratios and performance objectives for public facilities. In addition, the V-ES land use category includes public facilities such as libraries, museums, and post offices. The implementation of the proposed Specific Plan would increase demand for such public facilities by increasing the overall population of within the Specific Plan Area. The potential environmental effects resulting from construction and operation of the proposed Specific Plan includes construction of facilities within the V-ES district. As identified in this EIR, potential significant environmental impacts would occur through construction and operation of the proposed Specific Plan.

Level of Significance With Mitigation: Significant and unavoidable. Although potential environmental impacts resulting from construction of development under the proposed Specific Plan would be reduced through implementation of mitigation measures identified in the EIR, potential impacts, impacts cannot be reduced to a less-than-significant level with proposed mitigation measures identified in this EIR. Impacts related to construction-related emissions and noise would be reduced through implementation of Mitigation Measures AIR-2.1, AIR-2.2, NOI-1.2, NOI-1.2 and NOI-1.3; however, due to the increase in the use of construction equipment and the unknown extent of construction (use of equipment and duration), the potential impacts would not be reduced to a less-than-significant level. Other impacts related to light and glare, and policy conflicts (level-of-service of automobiles) would be reduced through implementation of Mitigation Measures AES-4, and LU-2.1, but implementation of the Specific Plan would result in an overall change in conditions that cannot be reduced to less-than-significant levels.

Thresholds 4.15.6 Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

As discussed under Threshold 4.15.4, the proposed Specific Plan includes construction of approximately 164 acres of parks and recreation facilities within the Specific Plan Area. General Plan Policy PR-1 establishes a level of service of three acres per 1,000 residents. With an estimated buildout population of 38,280 new residents, in order to achieve the level of service identified by the City, approximately 115 acres of public park facilities. The proposed Specific Plan includes the provision of approximately 164 acres of community parks, neighborhood parks, trails and pocket parks/basins.

The residents in the Specific Plan Area are in general likely to use the planned parks, recreational facilities, and trails within the Plan Area as opposed to using existing parks in the City of Madera on a regular basis due to the proximity and accessibility of the proposed facilities. On occasions, it is

expected Plan Area residents will however patronize existing parks and recreational facilities due to special events, sports, family gathering, etc. However, no significant increase in the use of existing City of Madera parks would be anticipated as such use would be limited, and a physical deterioration of these amenities would not likely occur. As a result, this would be considered a less-than-significant impact.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Thresholds 4.15.7 Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

As discussed under Threshold 4.15.4 and Threshold 4.15.6, the proposed Specific Plan includes approximately 164 acres of parks and recreation facilities that would be constructed through implementation of the proposed Specific Plan. This EIR evaluates the potential environmental impacts that could result from implementation of the proposed Specific Plan and construction of new recreational facilities.

Operation of parks and recreational facilities would result in low-impact, passive use that would not generate significant operational impacts. Use by residents and maintenance operations would generate limited impacts to air quality through use of motorized vehicles and equipment, such as personal cars, maintenance vehicles, lawn mowers, etc., but these impacts would be considered minimal and would not result in an adverse effect on the environment. Potential construction impacts resulting from construction of the proposed park and recreational facilities are discussed throughout this EIR. The proposed Specific Plan would comply with all construction-related mitigation measures identified Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources and Tribal Cultural Resources), Section 4.7 (Geology and Soils), Section 4.9 (Hazards and Hazardous Materials), Section 4.10 (Hydrology and Water Quality), and Section 4.13 (Noise). However, construction-related impacts related to air quality would not be able to be reduced to a less-than-significant level because, based on the information available, it is not known what facilities would be constructed and where they would be located. Therefore, the proposed Specific Plan would result in an adverse physical effect on the environment due to the construction of new recreational facilities. This would be considered a significant and unavoidable impact.

Level of Significance With Mitigation: Significant and unavoidable. Implementation of Mitigation Measure AIR-3.1 would reduce potential impacts resulting from construction-related air quality impacts; however, without quantification of potential health consequences to guarantee a less than significant finding, this impact would be considered significant and unavoidable.

4.15.2.3 Cumulative Impacts

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to public services and recreation.

Fire Protection

The cumulative setting for fire protection includes the Madera City Fire Department's service area and the Specific Plan Area.

Implementation of the proposed Specific Plan, as well as growth anticipated under the City of Madera General Plan would require additional fire-related services and equipment to adequately serve the anticipated population and employment growth. As discussed above, General Plan polices CI-47 and CI-51 require that public facilities be identified and financed and that public services and facilities be available on time to maintain desired service levels. In addition, Policy HS-33 requires that adequate first response capabilities be maintained as the city continues to develop and the proposed Specific Plan is implemented.

Furthermore, General Plan Policies LU-14, LU-15, and LU-16 require that financing plans be in place to ensure public services, including fire, will be available in conjunction with new development and annexation. The environmental effects of the development of additional fire protection facilities in the City of Madera have been programmatically considered in the EIR of the City's General Plan as part of overall development identified during build out of the General Plan. However, because construction of fire protection facilities could occur within the Specific Plan Area, and mitigation measures identified in this EIR would not reduce all potential construction-related impacts (Impact AIR-1 and Impact NOI-1) to a less-than-significant level, the proposed Specific Plan would contribute to cumulative impacts related to fire protection.

Level of Significance With Mitigation: Significant and unavoidable. Implementation of mitigation measures related to Biological Resources (Mitigation Measures BIO-1.1, BIO-1.2, BIO-1.3, and BIO-3) and Cultural Resources (Mitigation Measure CUL-1, CUL-2.1, CUL-2.2 and CUL-3) included in this EIR would reduce potential impacts related to construction and operation of the proposed Specific Plan. However, mitigation measures related to Air Quality and Noise impacts would not fully mitigate the potential impacts given the extent of the buildout of the proposed Specific Plan. Impacts related to Air Quality and Noise, in combination with other projects, would result in impacts that cannot be fully mitigated.

Police Protection

The cumulative setting for police protection includes the Police Department's service area and the Specific Plan Area.

Implementation of the proposed Specific Plan, as well as growth anticipated under the City of Madera General Plan would require additional police protection services and equipment to adequately serve the anticipated population and employment growth. As discussed in relation to fire protection above, General Plan Polices CI-47 and CI-51 require that public facilities be identified and financed and that public services and facilities be available on time to maintain desired service levels. In addition, Policy HS-33 requires that adequate first response capabilities be maintained as the City continues to develop and the proposed Specific Plan is implemented. Furthermore, General Plan Policies LU-14, LU-15, and LU-16 require that financing plans be in place to ensure public services, including police protection, will be available in conjunction with new development and annexation. The environmental effects of the development of additional police protection facilities

in the City of Madera have been programmatically considered in the EIR of the City's General Plan as part of overall development identified during build out of the General Plan. However, because construction of fire protection facilities could occur within the Specific Plan area and mitigation measures identified in this EIR (Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-2.3, and AIR-3.1) would not reduce potential impacts to a less-than-significant level, the proposed Specific Plan would contribute to cumulative impacts related to police protection.

Level of Significance With Mitigation: Significant and unavoidable. Implementation of mitigation measures included in this EIR would reduce potential impacts but would not fully mitigated potential impacts related to construction and operation of the proposed Specific Plan. As a result, the proposed Specific Plan, in combination with other projects, construction of police protection facilities would result in cumulatively considerable impacts.

Public Schools

The cumulative setting for public schools is the MUSD school boundaries throughout the City and County of Madera.

The development associated with implementation of the proposed Specific Plan, as well as development associated with buildout of the City's General Plan would result in population increases that would contribute to a cumulative impact on schools and related facilities within MUSD. Buildout of the proposed Specific Plan would result in an incremental cumulative demand in the Specific Plan Area in combination with increased enrollment of students throughout MUSD. As demand for new schools is met with new or expanded public schools environmental impacts associated with development of new school facilities would be evaluated individually by MUSD for immediate and cumulative impacts as required by the State Board of Education and CEQA. In addition, compliance with General Plan Policies SUS-1, SUS-2, Government Code 65995, and SB 50 would ensure that the City will assist MUSD by requiring payment of development fees to provide full and complete school facilities mitigation. Therefore, implementation of the proposed Specific Plan would not contribute to cumulative public school impacts, and this impact is considered less than cumulatively considerable.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Parks and Recreation

The cumulative setting for parks and recreation consists of the City of Madera Parks and Recreation Department service area established by the City's General Plan which includes the Specific Plan Area. Implementation of the proposed Specific Plan in combination with growth anticipated in the City of Madera through buildout of the City's General Plan would increase demand for park and recreation facilities. As discussed above, implementation of the proposed Specific Plan would include the provision of 164 acres of parks and recreation facilities throughout the Specific Plan Area. Based on the anticipated population of 38,280 new residents within the Specific Plan Area at time of buildout in Year 2049, the proposed acreage of parks and recreation facilities (164 acres) would address increased demand generated by the proposed Specific Plan, and would not combine with buildout of the City's General Plan to result in a cumulatively considerable impact. As a result, the proposed Specific Plan would result in cumulatively considerable impacts.

Level of Significance With Mitigation: Significant and unavoidable. Implementation of mitigation measures included in this EIR would reduce potential impacts related to construction and operation of the proposed Specific Plan. However, there are some impacts related to Aesthetics, Air Quality, and Noise that would not be reduced to less-than-significant levels even with implementation of the mitigation measures included in this EIR. These mitigation measures include Mitigation Measure AES-4, AIR-2.1, AIR-2.2, AIR-2.3, AIR-3.1, NOI-1.1, NOI-1.2, NOI-1.3, and NOI-2.1. As a result, implementation of the proposed Specific Plan, in combination with other projects, would result cumulatively considerable construction impacts related to parks and recreation that cannot be reduced to less-than-significant levels, even with mitigation.

Other Public Facilities

The cumulative setting for related to other public facilities, such as hospitals and libraries, includes the Planning Area established by the City's General Plan, which includes the Specific Plan Area.

Implementation of the proposed Specific Plan would result in an estimated buildout population of 38,280 new residents. As a result, demand for public facilities would increase, and in combination with population increases resulting from buildout of the City's General Plan, a potentially significant cumulative impact to public facilities could result.

General Plan Policies CI-47 and CI-51 specifically require that public facilities be identified and financed and that public services and facilities be available on time to maintain desired service levels. Throughout the 30-year buildout of the proposed Specific Plan, the City, County, and operators of local hospitals would continually evaluate acceptable service ratios and performance objectives for individual facilities, and the City would ensure that available capacity is available as buildout of the proposed Specific Plan occurs. However, because construction of public facilities could occur within the Specific Plan, and mitigation measures identified in this EIR related to construction would not reduce potential impacts to a less-than-significant level, a significant cumulative impact could occur when impacts resulting from other projects combine with potential impacts resulting from implementation of the proposed Specific Plan. Mitigation measures in this EIR would address impacts related to Aesthetics, Air Quality, and Noise. However, due to changes in land use and the overall development that would occur as a result of the proposed Specific Plan, mitigation measures such as AIR-2.1, AIR-2.2, AIR-2.3, and AIR-3.1 can be implemented, but would not fully mitigate potential impacts. As a result, cumulative impacts to public facilities would be considered significant.

Level of Significance With Mitigation: Significant and unavoidable. Implementation of mitigation measures included in this EIR would reduce potential impacts related to construction and operation of the proposed Specific Plan. However, there are some impacts related to Aesthetics, Air Quality, and Noise that would not be reduced to less-than-significant levels even with implementation of the mitigation measures included in this EIR. These measures include Mitigation Measures AES-4, AIR-2.1, AIR-2.2, AIR-2.3, AIR-3.1, NOI-1.1, NOI-1.2, NOI-1.3, and NOI-2.1. As a result, implementation of the proposed Specific Plan, in combination with other projects, would result in cumulatively considerable construction impacts related to public facilities that cannot be reduced to less-than-significant levels.

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4.16 TRANSPORTATION

This section describes the existing transportation network of the Specific Plan Area and evaluates the potential impacts associated with the proposed Specific Plan, both at the individual and cumulative levels. The analysis in this section is based in part on the City's General Plan, and on the Traffic Impact Analysis (TIA) prepared by LSA included in Appendix K of this Environmental Impact Report (EIR).

4.16.1 Environmental Setting

4.16.1.1 Specific Plan Area

The Specific Plan Area is located at the western edge of the City and is bounded by the Fresno River to the south, Road 24 and the Madera Municipal Golf Course to the east, Avenue 17 to the north, and Road 22 to the west, as shown in Figure 3-1 of the Project Description.

Roadway Network. Within the City of Madera, all major roadways are classified based on the City's General Plan Circulation Master Plan. Following is a brief description of the roadways located within the Specific Plan Area:

- **Road 23.** Road 23 is a north-south rural road within the City of Madera. Within the study area, Road 23 is currently an undivided rural road with two lanes. In the City's Circulation Master Plan, Road 23 is designated as "Rural Road" under existing conditions. Under the General Plan, Road 23 is designated as a six-lane "Loop Road" between Avenue 17 and Sunset Avenue and as a four-lane "Urban Arterial" between Avenue 13 and Avenue 12. The "Loop Road" is also an arterial roadway with more restrictive access (i.e., less driveways and traffic signals) compared to other arterials.
- **Avenue 17.** Avenue 17 is an east-west undivided arterial within the City of Madera. Within the study area, the number of lanes varies from two to four. In the City's Circulation Master Plan, Avenue 17 is designated as "Urban Arterial" under existing conditions. Under the General Plan, Avenue 17 is designated as a six-lane "Loop Road" between State Route (SR) 99 and Country Club Drive, and between Road 23 and SR 99, and as a four-lane "Loop Road" between Country Club Drive and Lake Street. The "Loop Road" is also an arterial roadway with more restrictive access (i.e., less driveways and traffic signals) compared to other arterials.
- **Avenue 16.** Avenue 16 is an east-west arterial within the City of Madera. Within the study area, Avenue 16 is an undivided arterial with two lanes. In the City's Circulation Master Plan, Avenue 16 is designated as "Urban Arterial" under the General Plan.
- **Cleveland Avenue.** Cleveland Avenue is an east-west divided arterial within the City of Madera. Within the study area, the number of lanes varies from two to six. In the City's Circulation Master Plan, Cleveland Avenue is designated as "Urban Arterial" under existing conditions. Under the General Plan, Cleveland Avenue is designated as a six-lane "Urban Arterial" between Schnoor Avenue and SR 99, and as a four-lane "Urban Arterial" between Granada Drive and Schnoor Street and between Sharon Road and D Street.

The following roadways are located near the Specific Plan Area and are included within the study area of the TIA:

- **Westberry Boulevard.** Westberry Boulevard is a north-south divided arterial within the City of Madera. Within the study area, the number of lanes varies between two and three. In the City's Circulation Master Plan, Westberry Boulevard is designated as "Urban Arterial" under existing conditions. Under the General Plan, Westberry Boulevard is designated as a four-lane "Urban Arterial" between Sunset Avenue and Howard Road.
- **Granada Drive.** Granada Drive is a north-south undivided collector within the City of Madera. Within the study area, the number of lanes varies between two and three. In the City's Circulation Master Plan, Granada Avenue is designated as "Urban Collector" under existing conditions. Under the General Plan, Granada Drive is designated as a four-lane "Urban Collector" between Howard Road and Avenue 13, between Cleveland Avenue and Fresno River, and between Sunset Avenue and Avenue 14.
- **Sunset Avenue.** Sunset Avenue is an east-west undivided collector within the City of Madera. Within the study area, the number of lanes varies from two to four. In the City's Circulation Master Plan, Sunset Avenue is designated as "Urban Collector" under existing conditions. Under the General Plan, Sunset Avenue is designated as a four-lane "Urban Arterial" between Granada Drive and Schnoor Avenue.
- **Howard Road.** Howard Road is an east-west divided arterial within the City of Madera. Within the study area, the number of lanes varies between four and five. In the City's Circulation Master Plan, Howard Road is designated as "Urban Arterial" under existing conditions. Under the General Plan Year 2030 conditions, Howard Road is designated as a six-lane "Urban Arterial" between Schnoor Street and Pine Street and as a four-lane "Urban Arterial" between Granada Drive and Schnoor Street.
- **Olive Avenue.** Olive Avenue is an east-west divided arterial within the City of Madera. Within the study area, the number of lanes varies between four and five. In the City's Circulation Master Plan, Olive Avenue is designated as "Urban Arterial" under existing conditions. Under the General Plan, Olive Avenue is designated as a four-lane "Urban Arterial" between Yosemite Avenue and Madera Avenue (SR 145).
- **SR 99.** SR 99 is a north-south state highway in California, which stretches almost the entire length of the Central Valley. The segment of SR 99 within the study area currently has four lanes (two northbound and two southbound lanes). However, the freeway is currently being widened from four to six lanes south of the Avenue 18½ interchange. Therefore, the freeway has been analyzed as a four-lane facility under existing conditions, but as a six-lane facility, for all other analysis scenarios.

Bikeways and Trails. Several trails are located within the City, which include bikeways and multiuse trails readily available and planned for both pedestrian and cyclist usage. The existing bicycle facilities within the City include Class I, Class II, and Class III facilities:

- Class I bike facilities provide completely separate right-of-way (ROW) and are designated for the exclusive use of bicycles and pedestrians with minimal vehicle and pedestrian cross-flow.
- Class II bike facilities provide restricted ROW and are designated for the use of bicycles with a striped lane on a street or highway.
- Class III bike facilities provide for a ROW designated by signs or pavement markings (sharrows) for shared use with pedestrian or motor vehicles.

The Specific Plan Area currently does not include any bikeways or multiuse trails.

Transit. Public transportation in the City includes bus and rail service. The Specific Plan Area is serviced by the Madera Area Express System and the Madera County Connection System. The City has an Amtrak station on Road 26 and there are plans to add a possible High-Speed Rail stop in the City in the future. There are plans to relocate the Amtrak station from Road 26 to Avenue 12, east of the Madera Community College.

4.16.1.2 Regulatory Context

Federal Regulations

Federal Highway Administration. The Federal Highway Administration (FHWA) is a major agency of the United States Department of Transportation. In partnership with State and local agencies, the FHWA carries out federal highway programs to meet the nation's transportation needs. The FHWA administers and oversees federal highway programs to ensure that federal funds are used efficiently.

Americans with Disabilities Act of 1990. Titles I, II, III, IV, and V of the ADA have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in "places of public accommodation" (businesses and nonprofit agencies that serve the public) and "commercial facilities" (other businesses). The regulation includes Standards for Accessible Design, which establish minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility.

Federal Transit Administration. The Federal Transit Administration (FTA) is an authority that provides financial and technical assistance to local public transit systems, including buses, subways, light rail, commuter rail, trolleys, and ferries. The FTA is funded by Title 49 of the United States Code, which states the FTA's interest in fostering the development and revitalization of public transportation systems. The FTA invests approximately \$12 billion annually to support and expand public transit.

State Regulations

Assembly Bill 32 (Global Warming Act of 2006) and Senate Bill 375. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (Act), requires California to reduce its greenhouse gas (GHG) emissions to levels presented in the year 1990 by 2020. In response, the California Air Resources Board (CARB) is responsible for creating guidelines for this Act. In 2008,

CARB adopted its proposed Scoping Plan, which included the approval of Senate Bill (SB) 375 as a means of achieving regional transportation-related GHG targets. SB 375 provides guidance on how curbing emissions from cars and light trucks helps the State comply with AB 32.

Established through CARB, SB 375 lists four major components and requirements: 1) it requires regional GHG emissions targets; 2) it requires creating a Sustainable Communities Strategy (SCS) that provides a plan for meeting the regional targets; 3) it requires that regional housing elements and transportation plans be synchronized on 8-year schedules; and 4) it requires transportation and air pollutant emissions modeling techniques consistent with guidelines prepared by the California Transportation Commission (CTC).

California Air Resources Board. As previously described, as part of SB 375 compliance, CARB was required to set targets for GHG reductions for each Metropolitan Planning Organization (MPO) within California. CARB provides targets and thresholds for MPOs and assists with regional efforts to achieve the GHG emission reductions contained in each MPO's SCS. It should be noted that CARB does not provide a threshold for reducing Vehicle Miles Traveled (VMT); however, reducing VMT is a strategy for achieving CARB GHG reduction targets.

Assembly Bill 1358 (Complete Streets). The California Complete Streets Act (Act) requires general plans updated after January 30, 2011, to include Complete Streets policies so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, the elderly, and persons with disabilities, as well as motorists. The goal of this Act is to encourage cities to rethink policies that emphasize automobile circulation and prioritize motor vehicle improvements and come up with creative solutions that emphasize all modes of transportation. Complete Streets roadways allow for more transportation options, more non-single-occupancy vehicles, and less traffic congestion. Additionally, increased transit ridership, walking, and biking can reduce air pollution while improving the overall travel experience for road users.

While there is no standard for a Complete Streets design, it generally includes one or more of the following features: bicycle lanes, wide shoulders, well-designed and well-placed crosswalks, crossing islands in appropriate mid-block locations, bus pullouts or special bus lanes, audible and accessible pedestrian signals, sidewalk bulb-outs, center medians, street trees, planter strips, and groundcover. The City's General Plan includes a policy that requires the incorporation of "complete streets" concepts to safely accommodate vehicles, cyclists, pedestrians, diverse and disabled users, and transit.

Senate Bill (SB) 743. On September 27, 2013, Governor Jerry Brown signed SB 743 into law and codified a process that changed transportation impact analysis as part of California Environmental Quality Act (CEQA) compliance. SB 743 directs the California Office of Planning and Research (OPR) to administer new CEQA guidance for jurisdictions that removes automobile vehicle delay and Level of Service (LOS) or other similar measures of vehicular capacity or traffic congestions from CEQA transportation analysis. Rather, it requires the analysis of VMT or other measures that "promote the reduction of greenhouse gas emissions, the development of multi-modal transportation networks, and a diversity of land uses," to be used as a basis for determining significant impacts to circulation in California. The goal of SB 743 is to appropriately

balance the needs of congestion management with statewide goals related to reducing GHG emissions, encourage infill development, and promote public health through active transportation.

Regional Regulations

Your Madera 2042 Regional Transportation Plan/Sustainable Communities Strategy. In 2018, Madera County Transportation Commission (MCTC) updated the Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) to reflect the existing and future regional transportation system in Madera County. The 2018 update reflects the horizon or “planning” year of 2042, ensuring that the region’s transportation system and implementation policies/ programs will safely and efficiently accommodate growth envisioned in the Land Use Elements of the Cities of Chowchilla and Madera and Madera County, in the RTP and in the SCS. As the RTPA and MPO for Madera County, MCTC is responsible for development of the RTP and the SCS.

Local Policies

County of Madera General Plan. The County of Madera General Plan is the County’s primary policy planning document. The County’s General Plan includes seven elements that provide an overall framework for development of the county and protection of its natural and cultural resources. The goals and policies contained in the General Plan are applicable throughout the county, except to the extent that County authority is preempted by cities within their corporate limits. The General Plan includes goals, policies, standards, implementation programs, the Land Use Diagram, and the Circulation Plan Diagram, which constitute Madera County's formal policies for land use, development, and environmental quality. Table 4.16.A lists the County’s General Plan policies related to transportation applicable to the proposed Specific Plan.

Table 4.16.A: Madera County General Plan Policies Related to Transportation

Policy/Action Item Number	Policy/Action Item
Policy 2.C.1.	The County shall provide for improvements to street and highway facilities as necessary to serve new development and to meet the traffic demands of the county.
Policy 2.C.2.	The County shall develop and manage its roadway system to maintain a minimum Level of Service D on all State and County Roadways. For planning applications, Level of Service shall be measured for roadway segments and shall be based on the capacities shown in Table 2.A.8. The facility classification in this table shall correspond to Table I-3 and Figure I-1, the Circulation Plan Diagram. The County may also require analysis of specific intersections when intersections are deemed to be critical for specific projects or locations; in those cases, Level of Service shall be computed according to the planning methodology as documented in the Transportation Research Board Highway Capacity Manual.

Source: County of Madera General Plan (October 1995).

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. Through its 10 elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera's quality of life and implement the community's shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City's operations and decisions. Table 4.16.B lists General Plan policies related to transportation applicable to the proposed Specific Plan.

4.16.2 Proposed Specific Plan Circulation

As described in Section 3.3.3 of the Project Description in this EIR, the proposed Specific Plan includes a Circulation Plan that includes vehicles, pedestrians, cyclists, and public transit. As described in the proposed Specific Plan, the minimum design speeds to be used for centerline curve radii, super elevation, corner and approach site distances, vertical and horizontal alignment, and sight distances for the Circulation Plan of streets would comply with City standards. The locations and construction of bus turnouts and transit stops may be required within the Specific Plan Area to meet the requirements of the City and MCTC.

The proposed pedestrian circulation system would utilize sidewalks and paseos throughout the Specific Plan Area. Sidewalks would be provided along all streets in the Specific Plan Area and would vary from a minimum width of 5 feet up to 12 feet depending on the street classification. Sidewalks would be constructed of concrete as part of the roadway improvements. Paseos, which will have varying widths from a minimum width of 10 feet up to 15 feet, would be incorporated as part of the open space improvements and would lead to connections throughout the Specific Plan Area.

The Vernon McCullough Fresno River Trail, a multi-purpose pedestrian and bicycle trail, would be extended along the Specific Plan Area's frontage with Fresno River. The proposed Specific Plan would include trail connections to link the multi-purpose trail along the river with the larger on-street bicycle network proposed within the Specific Plan Area. Bicycle paths would provide linkages to the City's master planned bike path system.

4.16.3 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to transportation and traffic that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Cumulative impacts are also addressed.

Table 4.16.B: General Plan Policies Related to Transportation

Policy/Action Item Number	Policy/Action Item
Policy CI-1	<p>Figure CI-1 shows the Circulation Master Plan of the City of Madera. The City will implement this Master Plan through the policies contained in this and other Elements of the Madera General Plan.</p> <p>Action Item CI-1.1 Require the dedication of right of way and the installation of roadway improvements as part of the review and approval of development projects including requests for changes of land use designations.</p> <p>Action Item CI-1.2 Prepare and adopt a comprehensive transit plan to complement the development of Village Centers and provide transit service throughout Madera. The plan should include:</p> <ul style="list-style-type: none"> • Feasibility of BRT facilities and guidelines for system development as appropriate; • Residential, retail and employment thresholds and service targets for BRT and pedestrian village cores; • Other transit use enhancements such as additional buses, new routes, longer hours, greater headways, real-time boarding information, bus turn out lanes, queue jump lanes, exclusive transit lane improvement alignment, mixed flow/exclusive lane use, and "Express Bus" service for commuters.
Policy CI-6	<p>The City shall protect future right-of-way needed for freeways, arterial and collector streets, and interchanges and railroad corridors and crossings from encroachment by development or other incompatible uses or structures.</p>
Policy CI-9	<p>The City will work cooperatively with Caltrans to implement improvements to the state highway system in Madera.</p> <p>Action Item CI-9.1 Review proposed development projects with Caltrans to facilitate the acquisition of right of way for ultimate improvements and to avoid and/or minimize potential traffic conflicts between State facilities, city streets, and private drives.</p>
Policy CI-10	<p>The City will maintain a high level of coordination with the County of Madera and Caltrans, through the Madera County Transportation Commission, in implementing the Circulation Master Plan. The City will participate in the planning of regional roadway and transportation facilities, particularly those that indirectly or directly affect Madera, including the State Route 152-East/Freeway 65 corridor.</p>
Policy CI-11	<p>Development projects shall be required to provide funding or to construct roadway/intersection improvements to implement the City's Circulation Master Plan. The payment of established traffic impact or similar fees shall be considered to provide compliance with the requirements of this policy with regard to those facilities included in the fee program, provided that the City finds that the fee adequately funds all required roadway and intersection improvements. If payment of established fees is used to provide compliance with this policy, the City may also require the payment of additional fees if necessary to cover the fair share cost of facilities not included in the fee program.</p>
Policy CI-12	<p>New development shall provide funding acceptable to the City for the construction and permanent maintenance of all roadway facilities. Potential funding mechanisms may include assessment districts, community facility districts, or other methods.</p>
Policy CI-13	<p>Where the installation of a single-loaded street cannot be avoided (such as in locations where lands on one side of a roadway are not planned to be developed), the City will include funding in its impact fees to provide for the construction of the portion of the roadway located on lands which are not being developed.</p>
Policy CI-15	<p>To the extent possible, major traffic routes for residential areas should be separate from those used by the city's industrial areas, with the purpose of avoiding traffic conflicts and potential safety problems. Residential areas should not be accessed primarily through an industrial area, even if residential and industrial traffic are not in conflict.</p>

Table 4.16.B: General Plan Policies Related to Transportation

Policy/Action Item Number	Policy/Action Item
Policy CI-16	Proposals to allow left turn lanes from collector and arterial streets shall be evaluated on a case-by-case basis and allowed only where an engineering analysis confirms that traffic operations and safety conditions are not negatively impacted.
Policy CI-17	Shared driveways, driveway consolidation, reciprocal access easements, and cross access easements to commercial centers shall be required along arterials and collector roads in new development projects and in the redevelopment or redesign of existing development to minimize traffic hazards associated with driveways and curb cuts.
Policy CI-18	Direct access from a residential lot onto an arterial, collector, or local/branch collector is allowed only where there is no feasible alternative. Back out driveways onto arterial, collector, and local/branch collector streets are prohibited even if access is allowed.
Policy CI-21	Installation and maintenance of curb, gutter, sidewalk and paving on Local streets shall be the responsibility of affected property owners.
Policy CI-22	<p>The City shall seek to maintain Level of Service (LOS) C at all times on all roadways and intersections in Madera, with the following exceptions:</p> <ul style="list-style-type: none"> a) On arterial roadways or roadways with at-grade, railroad crossings that were experiencing congestion exceeding LOS C during peak hour travel times as of the date this General Plan Update is adopted the City shall seek to maintain LOS D or better. b) This policy does not extend to freeways (where Caltrans policies apply) or to private roadways. c) In the Downtown District (as defined in the Land Use Element of this General Plan), the City shall seek to maintain LOS D. <p>Action Item CI-22.1 Consider, during the review of proposed development projects, how to shift travel demand away from the peak period, especially in those situations where peak traffic problems result from a few major generators (e.g., outlying employment locations).</p> <p>Action Item CI-22.2 Perform routine, ongoing evaluation of the efficiency of the urban street traffic control system, with emphasis on traffic signal timing, phasing and coordination to optimize traffic flow along arterial corridors. Use traffic control systems to balance arterial street utilization (e.g., timing and phasing for turn movements, peak period and off-peak signal timing plans).</p> <p>Action Item CI-22.3 As funding allows, expand traffic signal timing and synchronization programs where emission reduction benefits can be demonstrated.</p>
Policy CI-23	Projects contributing traffic to roadways exceeding the desired level of service per Policy CI-22 may be required to fund system wide traffic improvements, including cumulative traffic mitigation at off-site locations (as applicable), and to assist in promoting non-vehicular transportation as a condition of project approval.
Policy CI-24	<p>The City shall seek to use a modified grid system for the roadway network, particularly in new development. The City defines a “modified grid” road system as follows:</p> <ul style="list-style-type: none"> • The roadway system shall have a system of arterial roadways in the form of a grid of arterials that will distribute traffic evenly and will avoid excessive concentrations of traffic in any given area. • Arterials should be generally spaced at one (1) mile increments and collector roads generally at one-half (½) mile increments. • Collector and smaller roadways shall be designed to encourage access to retail centers from residential areas. • Residential blocks shall be designed to limit traffic speeds and encourage pedestrian and bicycle safety through the design of the roadways or the use traffic calming measures (such as narrower streets).

Table 4.16.B: General Plan Policies Related to Transportation

Policy/Action Item Number	Policy/Action Item
	<ul style="list-style-type: none"> The grid system may be modified as necessary to adjust for topography, watercourses, existing development, or other factors as deemed appropriate by the City.
Policy CI-27	<p>The City shall encourage pedestrian circulation and access around the City and at the neighborhood level through the design of roadways and pedestrian facilities.</p> <p>Action Item CI-27.1 Expand the availability and visibility of bicycle infrastructure such as bike racks and bike storage facilities.</p> <p>Action Item CI-27.2 Consider opportunities for lower-income individuals to have access to bicycles, through community-sponsored programs such as “bicycle sharing” or bicycle giveaways to children.</p>
Policy CI-28	<p>New development areas shall include pedestrian and bicycle facilities and connections to public transit systems, commercial centers, schools, employment centers, community centers, parks, senior centers, and high-density residential areas.</p> <p>Action Item CI-28.1 Establish a transit and/or multimodal impact fee to be applied to new development to fund public transit infrastructure and other multimodal accommodations.</p>
Policy CI-29	<p>The City shall create a connected system of on- and off-street trails and paths for pedestrians and bicycles throughout Madera in both existing and new development areas, with a focus on on-street bike trails on collector roads, and off-street trails in parkways and along the Fresno River and other waterways.</p>
Policy CI-30	<p>Where it deems appropriate, the City may require the dedication of additional right of way to accommodate pedestrian, bicycle, alternative transportation (transit), additional travel lanes, safety or efficiency-related improvements, or other similar uses.</p>
Policy CI-31	<p>The City’s roadway cross-sections shall incorporate “complete streets” concepts and be designed to safely accommodate vehicles, cyclists, pedestrians, diverse and disabled users, and transit. “Complete streets” are defined as streets that are designed for a variety of users rather than having a focus on the automobile.</p> <p>Action Item CI-31.1 Develop “Complete Street” standards for new arterial, collector, and local street construction. “Complete street” standards should include options for narrower travel way widths (on existing streets only, where needed to fit all uses into the existing right of way) and curb return radii, bike lanes, landscape strips, sidewalks that complement adjacent land uses, bus turnouts, and similar features. Note: Proposed narrower travel way widths may not apply to State Highways.</p>
Policy CI-32	<p>To maintain walkability and pedestrian safety, the City shall consider roadway width and roadway design features such as islands, pedestrian refuges, count down timers, and other such mechanisms. This policy applies to new roadway construction and existing roadways where pedestrian hazards may occur due to roadway design or width.</p> <p>Action Item CI-32.1 Update the City’s Standards and Specifications to include the items in Policy CI-32.</p>
Policy CI-33	<p>The needs of pedestrians and bicyclists shall be routinely considered and, where practical, accommodated in all roadway construction and renovation projects.</p>

Table 4.16.B: General Plan Policies Related to Transportation

Policy/Action Item Number	Policy/Action Item
Policy CI-34	<p>Where sufficient right-of-way is available, bicycle lanes should be added to City roadways when repaving or upgrading of the roadway occurs, provided that the bicycle facility would implement the City’s Bicycle Master Plan. The City shall encourage Caltrans to follow these same guidelines on state highways in Madera.</p> <p>Action Item CI-34.1 The City shall implement the Bicycle Master Plan through repaving, restriping, providing additional paving for bicycle lanes, or other methods as appropriate.</p>
Policy CI-35	The City shall encourage grade-separated crossings or enhanced at grade crossings where Class I bicycle facilities intersect arterial roadways at key locations to maximize the safety and attractiveness of bicycling and walking routes. Underpasses are preferable to overpasses in new development areas.
Policy CI-36	The City shall encourage an increase in bicycle ridership and pedestrian trips over automobile traffic, as a way to improve traffic safety, air quality and the health of Madera residents.
Policy CI-37	The City encourages the use of ridesharing and other Transportation Demand Management (TDM) tactics for reducing area traffic congestion and improving air quality.
Policy CI-41	Circulation planning for all modes of travel (vehicle, transit, bicycle, pedestrian, etc.) shall be coordinated with efforts to reduce air pollution and greenhouse gases.
Policy CI-42	<p>The City will facilitate employment opportunities that minimize the need for private vehicle trips, including:</p> <p>Incorporating provisions for live/work sites and satellite work centers in appropriate locations in the zoning ordinance; and</p> <p>Encouraging telecommuting options with new and existing employers through project review and incentives, as appropriate</p>
Policy CI-44	Public facilities should be phased in a logical manner, which avoids “leapfrog” development and encourages the orderly development of roadways, water and sewer, and other public facilities. The City shall not provide public financing or assistance for projects that do not comply with City master plans.
Policy CI-45	The City will assist developers who construct facilities consistent with this General Plan and with the City’s Master Plans and policies with seeking a fair share reimbursement from later developments when they connect to, and/or benefit from, those facilities.
Policy CI-46	Interim infrastructure facilities may be used only if specifically approved by the City Council. No City funds will be used to construct interim facilities, nor will such facilities be eligible for reimbursement by the City.
Policy CI-47	All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.
Policy CI-49	<p>The City shall require secure financing for all components of the transportation system through the use of special taxes, assessment districts, developer dedications, or other appropriate mechanisms in order to provide for the completion of required major public facilities at their full planned widths or capacities in one phase. For the purposes of this policy, “major” facilities shall include the following:</p> <p>Any roadway of a collector size or above, including any roadway shown on the Circulation Plan in this General Plan;</p> <p>Wells, water transmission lines, treatment facilities, and storage tanks;</p> <p>All sewer trunk and interceptor lines and treatment plants or treatment plant capacity;</p> <p>Reclaimed water distribution lines;</p> <p>Ongoing maintenance.</p> <p>The City shall use its financial capacity to facilitate implementation of this policy if necessary, including, but not limited to:</p> <p>Issuing bonds or other forms of municipal financing as it deems appropriate;</p>

Table 4.16.B: General Plan Policies Related to Transportation

Policy/Action Item Number	Policy/Action Item
	Using City funds directly, with repayment from future development fees; Creating special assessment districts, Mello-Roos Community Facility Districts, etc.; Fee programs; Developer financing.
Policy CI-50	The City shall establish a transit and/or multimodal impact fee to be applied to new development to fund public transportation infrastructure and other multimodal accommodations.
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Policy CI-52	All new residential development shall be required to annex into City of Madera Community Facilities District 2005-01, or any subsequent CFD created in its place. The purpose of the CFD is to collect special assessments from new residential development to offset the cost of providing eligible municipal services to that development.

Source: City of Madera General Plan (October 2009).

4.16.3.1 Significance Criteria

The thresholds for impacts related to transportation and traffic used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to transportation if it would:

- Threshold 4.16.1** **Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;**
- Threshold 4.16.2** **Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);**
- Threshold 4.16.3** **Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or**
- Threshold 4.16.4** **Result in inadequate emergency access;**

4.16.3.2 Project Impacts

The following discussion describes the potential impacts related to transportation and traffic that could result from implementation of the proposed Specific Plan.

- Threshold 4.16.1** **Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?**

The Specific Plan Area would continue to be accessible via the surrounding roadways described in Section 4.16.1.1, and the proposed Specific Plan would continue to utilize the existing roadway network. The proposed Specific Plan’s reasonably anticipated development as analyzed in this EIR

would include up to 10,783 dwelling units composed of single-family detached and attached homes multifamily dwelling units, approximately 260,000 square feet (sq. ft.) of business park uses, approximately 1.2 million sq. ft. square feet of village mixed use, and 3 elementary schools serving 2,100 students to the Specific Plan Area.¹

The proposed Specific Plan would replace existing (mostly agricultural) uses and is anticipated to be built in three phases. Phase I would consist of the southeastern quadrant of the Specific Plan Area and is anticipated to be completed by 2029. Phase I includes the Links Ranch Subdivision Project, a 214-unit residential project approved by the City in 2021. Phase II would consist of the northwestern quadrant of the Specific Plan Area and is anticipated to be completed by 2039. Phase III would consist of the southwestern quadrant of the Specific Plan Area and is anticipated to be completed by 2049. Under the full build-out (Phase III) condition, the proposed Specific Plan would generate 89,647 net daily trips, with 6,841 net trips occurring during the a.m. peak hour and 7,597 net trips occurring during the p.m. peak hour.

Transit. There are no existing dedicated transit facilities within the Specific Plan Area or in the immediate vicinity of the Specific Plan Area. As identified in the proposed Specific Plan, accessibility and mobility within the Specific Plan would accommodate future transit facilities including expansions of transit routes and new transit stops, and implementation of the proposed Specific Plan would not substantially conflict with plans or policies supporting public transit or transit facilities. In addition, Action Item CI-1.2 of the City's General Plan requires the City to prepare and adopt a comprehensive transit plan to complement the development of Village Centers, which includes the proposed Specific Plan Area. The proposed Specific Plan includes a Circulation Plan to facilitate public transit and multi-modal transportation in the Specific Plan Area. As a result, a less-than-significant impact would occur. No mitigation is required.

Bicycles. There are no existing dedicated bicycle facilities within the Specific Plan Area, in the immediate vicinity of the Specific Plan Area, or along the surrounding roadways. As identified in the proposed Specific Plan, bicycle lanes and off-street trails would be included within the Specific Plan Area that would create accessibility and mobility within the Specific Plan Area and increase the overall accessibility within the City. In addition, a multi-purpose pedestrian and bicycle trail would be provided along the Fresno River area along the southern boundary of the Specific Plan Area. The proposed Specific Plan would construct trail connections to link the multi-purpose trail along the Fresno River with the larger on-street bicycle network within the Specific Plan Area and the Vern McCullough Fresno River trail located along the Fresno River, east of the Specific Plan Area. The bicycle paths would provide linkages to the City's master planned bike path system. As a result, the proposed Specific Plan would accommodate bicyclists, and implementation of the proposed Specific Plan would not substantially conflict with plans or policies supporting bicycles or bicycle facilities. As a result, a less-than-significant impact would occur. No mitigation is required.

Pedestrian Facilities. There are no existing dedicated pedestrian facilities within the Specific Plan Area, in the immediate vicinity of the Specific Plan Area, or along the surrounding roadways. The proposed Specific Plan would include a pedestrian circulation system utilizing sidewalks and paseos

¹ The number of students within the Specific Plan Area was developed using rates from ITE Trip Generation Manual (10th Edition). Land Use 520, "Elementary School" was used.

throughout the Specific Plan Area. Sidewalks would be provided along all streets in the Specific Plan Area and would be a minimum of five feet in width. Sidewalks would be constructed as part of roadway improvements that are constructed, and paseos, a minimum of 10 feet in width and accommodating pedestrians, would be incorporated as part of open space improvements. The sidewalks and paseos would provide pedestrian connections throughout the Specific Plan Area. In addition, the proposed Specific Plan would include trail connections to link the multi-purpose trail along the Fresno River with the larger on-street pedestrian network within the Specific Plan Area and the Vern McCullough Fresno River trail located along the Fresno River, east of the Specific Plan Area. The proposed Specific Plan would not conflict with plans or policies of the General Plan and listed above in Section 4.16.1.2. As a result, a less-than-significant impact would occur. No mitigation is required.

Roadways. Study intersections and roadway segments analyzed in the TIA are within the jurisdictions of the City of Madera and the County of Madera. Intersections located at freeway on-ramps and off-ramps are under the jurisdiction of Caltrans.

The City of Madera uses LOS C as its minimum LOS criteria for intersections and roadway segments. As stated in the Circulation and Infrastructure Element of the City of Madera General Plan, LOS D is applicable to arterial roadways, or roadway segments with at-grade railroad crossings that were experiencing congestion exceeding LOS C during peak hour travel times as of the date the General Plan Update is adopted. LOS D is also applicable to intersections and roadway segments in the Downtown District as defined in the Land Use Element of the City's General Plan. The County of Madera uses LOS D as the minimum LOS criteria for all State and County roadways.

At study intersections and roadway segments under the jurisdiction of the City of Madera, a significant impact occurs when the LOS falls below the target LOS of C or D with the addition of project traffic or when a project contributes to an unsatisfactory condition (LOS D, E, or F). Caltrans considers an acceptable LOS to be between LOS C and D at all intersections under its jurisdiction (delay of 45 seconds at signalized intersections and delay of 30 seconds at unsignalized intersections). However, for freeway segments and ramp merge/diverge areas, the Caltrans Guide for the Preparation of Traffic Impact Studies (2002) states that transition between LOS C and D may not be feasible and allows the local jurisdictions to set the LOS threshold based on local conditions. Caltrans does not have significant impact criteria for study intersections, freeway segments, and freeway merge/diverge areas. Therefore, a significant impact occurs when a project causes an unsatisfactory condition or when the project contributes to an existing deficiency.

As identified in the TIA, upon completion of Phase I in 2029, the proposed Specific Plan would conflict with LOS standards at 17 intersections and 4 roadway segments. With the implementation of the improvements listed in the TIA (see Tables 9-C and 9-H in the TIA), most of the intersections and roadway segments are forecast to operate at a satisfactory LOS, while the LOS at one intersection cannot be improved due to right-of-way constraints and because the intersection is located in Caltrans' jurisdiction.

Upon completion of Phase II in 2039, the proposed Specific Plan would conflict with LOS standards at 24 intersections and 12 roadway segments. With the implementation of the improvements listed in the TIA (see Tables 9-D and 9-I in the TIA), most of the intersections and roadway segments are

forecast to operate at a satisfactory LOS, while the impacts to one intersection cannot be improved due to right-of-way constraints and because the intersection is located in Caltrans' jurisdiction.

Upon completion of Phase III in 2049, the proposed Specific Plan would result in deficiencies in LOS at 37 intersections and 16 roadway segments. With the implementation of the improvements listed in the TIA (see Tables 9-E and 9-J in the TIA), most of the intersections and roadway segments are forecast to operate at a satisfactory LOS, while the impacts to two intersections cannot be improved due to right-of-way constraints and because the intersections are located in Caltrans' jurisdiction.

Table 9-A of the TIA summarizes the recommended improvements for study intersections under all scenarios. Tables 9-B through 9-E of the TIA illustrate the post-improvement intersection levels of service for the different scenarios. Table 9-F of the TIA summarizes the recommended improvements for roadway segments under all scenarios. As shown in these tables, some of the intersections in some scenarios cannot be fully improved to meet the LOS standards because of right-of-way constraints. Where such physical improvements were identified, the intersection and roadway segments were also reviewed to determine whether physical improvements would require significant encroachments on existing adjacent development or other improvements. Based on the results of this review and analysis, improvements have been recommended for impacted study intersections and roadway segments where consistent with the General Plan and existing adjacent development.

Tables 9-G through 9-J of the TIA illustrate the proposed roadway segment improvements and the corresponding levels of service for the different scenarios. As shown in these tables, multiple roadway segments are either currently built out or additional improvements are infeasible. The feasibility of the recommended improvements is based on the City's General Plan classification, as stated in the Measure "T" Strategic Plan (adopted July 20, 2016), the City's Capital Improvement Plan (CIP) (for the fiscal years 2018–2019 to 2022–2023), or the City's Development Impact Fee (DIF) Program, and also considers availability of right-of-way. As such, many of these segments which have either already been built to the General Plan classification or do not have adequate right-of-way would continue to operate at a deficient LOS as no further mitigations are feasible. As a result, the proposed Specific Plan would conflict with established standards for LOS, and a significant impact would occur.

Impact TRA-1: The Specific Plan would generate vehicle trips that would result in roadway facilities operating in a deficient level of service (LOS) and, as a result, would conflict with established standards.

Mitigation Measure TRA-1.1: As a condition of future project entitlements approved for projects within the Specific Plan Area, improvements identified in Table 9-A of the Traffic Impact Analysis (TIA) shall be implemented by the City.

Level of Significance Without Mitigation: Significant and unavoidable. The TIA prepared for the proposed Specific Plan identifies potential conflicts to the City's established LOS standards for roadways in Madera. Where feasible, the proposed Specific Plan would improve or contribute a fair share allotment to improve the deficient roadway to meet roadway standards of the City, County, and Caltrans. The improvements identified by the TIA would be implemented as a condition of

project approval and consistent with the likely Development Agreements agreed upon by the City and the Project Applicant as well as future development agreements. However, some roadways would not be able to be improved due to right-of-way constraints. As a result, implementation of the proposed Specific Plan would conflict with adopted policies that cannot be addressed, and a significant and unavoidable impact would occur.

Threshold 4.16.2 Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

On December 28, 2018, the California Office of Administrative Law cleared the revised CEQA Guidelines for use. Among the changes to the guidelines was removal of vehicle delay and LOS from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT, not LOS. VMT is calculated by multiplying the number of vehicle trips by the estimated number of miles driven per trip. Projects that create a significant impact based on VMT would be required to mitigate their impacts through Transportation Demand Measures (TDMs) such as car sharing, improved transit, and enhanced bicycle infrastructure. Lead agencies are allowed to opt in to the revised transportation guidelines, but the new guidelines must be used starting July 1, 2020.

In accordance to updated guidelines, local jurisdictions throughout California have begun a departure from considering LOS as the only measure of a transportation system's effectiveness. However, the City has not yet established thresholds related to VMT. Once VMT thresholds are established by the City, project impacts will be evaluated against established thresholds to determine the significance and identify mitigation measures, similar to LOS methodology. Specific details about thresholds and methodologies for project impact evaluation and mitigations will be identified by the City in the near future.

In the absence of adopted thresholds, the State law provides guidance to evaluate the impacts related to vehicles miles traveled. California Public Resources Code Section 15064.3(b)(4) states (in part) that:

A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household, or in any other measure.

To provide an abundance of information on the effects of the proposed Specific Plan, this analysis includes Total Population VMT, Total Employment VMT, VMT per capita (population), VMT per employee and VMT per service population. For context, the VMT resulting from the proposed Specific Plan is compared to the larger Madera County.

VMT calculations for the countywide baseline conditions (2019) were derived from the MCTC Travel Demand Forecasting (TDF) model. The data are presented in terms of daily VMT per capita, VMT per employee and VMT per service population for the entire County for the existing (2019) conditions and project VMT per capita, VMT per employee and VMT per service population under the model horizon year (2042) conditions.

OPR guidance has provided direction on the treatment of CEQA traffic analyses for land use plans in the Technical Advisory (TA). The TA reiterates previous direction regarding individual land use assessments:

- Analyze the VMT outcomes over the full area over which the plan may substantively affect travel patterns (the definition of region).
- VMT should be counted in full rather than split between origins and destinations (the full impact of the project VMT).

The TA also states, “A general plan, area plan, or community plan may have a significant impact on transportation if proposed new residential, office or retail land uses would in aggregate exceed the respective thresholds recommended above.” This recommendation refers to 85 percent of the existing city or regional average, and no net gain for residential, office, and retail land uses.

However, OPR is recommending a focus on specific trip purposes (i.e., home-based trips for residential projects and work-based trips for office projects). Depending on the modeling platform, at least four other trip types are recognized as contributors to large-scale plan-level analyses. Homebased origins would have interactions with other non-work-based destinations. Therefore, if homebased trips are the focus of a plan-level assessment, a great deal of VMT would not be accounted for in the estimation of total VMT. Therefore, to assess a land plan, the total VMT for the plan should be identified for all trip types and all potential VMT contributors within the plan area.

The SB 375 process and the Regional Targets Advisory Committee (RTAC) GHG goal setting has established a baseline GHG emissions reduction that local Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) can achieve.

These achievements are provided in the integration of land use planning and transportation, not solely through the imposition of regulation on passenger cars and light-duty trucks. The CARB reviews the GHG reduction strategies and has approved the most recent round of GHG emission reductions for MPOs and RTPAs around the State. Therefore, the recommended methodology for conducting VMT assessments for land plans is to compare the existing VMT per capita, VMT per employee and VMT per service population for the region with the expected horizon year VMT per capita, VMT per employee and VMT per service population for the land plan area. The recommended target is to achieve a lower VMT per capita, VMT per employee and VMT per service population in the horizon year with the proposed land plan than occurs for the existing condition.

As mentioned above, the TA recommends analyzing the effect of a land use plan over the area where the plan substantially affects the travel pattern. It is estimated that the effect of the proposed Specific Plan would mostly be contained within Madera County. Therefore, for purposes of this analysis, the County has been considered as the region.

For the proposed Specific Plan, VMT per capita, VMT per service population and VMT per employee within the Specific Plan Area under horizon year (2042) were compared with corresponding values for the existing (2019) regional VMT per capita, VMT per service population and VMT per employee respectively. Table 4.16.C shows the proposed Specific Plan’s VMT per capita, VMT per service

Table 4.16.C: Existing (2019) Regional and Horizon Year (2042) VMT Comparison

Metric	Existing (2019) Regional Average	Horizon Year (2042) Average of the proposed Specific Plan	Percentage Difference
VMT per Capita	14.64	11.04	-24.6
VMT per Service Population	23.18	18.52	-20.1
VMT per Employee	24.92	16.04	-35.6

Source: Travel Demand Forecasting Model (MCTC 2018).

population and VMT per employee estimates under the horizon year (2042), and corresponding values for the region under existing (2019) conditions. As shown in Table 4.16.C, horizon year (2042) proposed Specific Plan’s VMT per capita is 24.6 percent lower than the existing (2019) regional average. Similarly, horizon year VMT per service population for the proposed Specific Plan is 20.1 percent lower than the existing (2019) regional average. The proposed Specific Plan’s horizon year VMT per employee is 35.6 percent lower than existing (2019) regional average. This lower VMT per employee results from the mix of land uses proposed within the Specific Plan Area as well as employment opportunities that are provided in the Specific Plan Area.

Although the City is yet to adopt thresholds for VMT impacts, the proposed Specific Plan would not have a significant transportation impact based on the OPR TA. The proposed Specific Plan would have a lower VMT per capita, VMT per service population and VMT per employee when compared to the regional average and therefore would not have a significant VMT impact.

For additional information regarding the methodology of the VMT analysis as well as detailed VMT calculation worksheets, please refer to Section 11.0 of the TIA (included as Appendix K of this Draft EIR).

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.16.3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Implementation of the proposed Specific Plan would increase the amount of vehicle traffic, which would require the improvement and expansion of the roadway network in the Specific Plan Area. The proposed Specific Plan identifies a circulation plan composed of a system of roadways, bikeways, trails, and sidewalks that would be constructed along with policy direction to facilitate transportation in the Specific Plan Area. New transportation facilities would be designed according to applicable federal, State, and local design standards, which would minimize traffic hazards.

Additionally, the proposed Specific Plan’s Circulation Plan would efficiently and safely move vehicles, pedestrians, cyclists, and public transit through and around the Specific Plan Area. Existing agricultural uses are located within and directly adjacent to the Specific Plan Area. Improvements to the roadways within the Specific Plan Area, including the minimum design speeds to be used for centerline curve radii, super elevation, corner and approach site distances, vertical and horizontal

alignment, and sight distances for the Circulation Plan of streets would be required to comply with City standards. As a result, the design of transportation facilities would improve safety and reduce conflicts by encouraging reduced vehicle speeds on roadways and would not result in an increase in hazards due to incompatible uses (such as agricultural operations). Further, design of all circulation improvements would be reviewed by the City's Engineering and Planning Departments for consistency with standards as part of the approval process. As a result, implementation of the proposed Specific Plan would not increase hazards due to design features or incompatible uses, and a less-than-significant impact would occur. No mitigation is required.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.16.4 Would the project result in inadequate emergency access?

Implementation of the proposed Specific Plan would increase the amount of vehicle traffic, which would require the improvement of the City's roadway system within the Specific Plan Area and the surrounding area. An enhanced roadway network that accommodates forecasted travel demand, through improvements identified in the TIA, would also provide adequate emergency access. The proposed Specific Plan includes land uses that could be used for public services, such as police and fire facilities. In addition, emergency access would be reviewed by the City's Engineering and Planning Departments for adequacy as part of the approval process. As a result, implementation of the proposed Specific Plan would result in a less-than-significant impact related to emergency access. No mitigation is required.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.16.3.3 Cumulative Impacts

A proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to transportation. The cumulative impact analysis for transportation considers the larger context of future development of the City of Madera as envisioned by the General Plan and relied upon the projections of the General Plan and General Plan EIR. Cumulative impacts on transportation would be those impacts that result from continued buildout of the General Plan.

The proposed Specific Plan includes objectives and design guidelines intended to enhance the transportation network within the Specific Plan Area and thereby extending the City's overall accessibility. The proposed Specific Plan would be consistent with the plans and policies of existing documents as it relates to transit, bicycles, and pedestrian facilities, as described in Section 4.16.1.2. The proposed Specific Plan would increase opportunities for enhanced transit, bicycles, and pedestrian facilities that would increase the connectivity of the City and further implement the City's General Plan policies.

The TIA identifies roadways that would conflict with LOS standards of the City, County, and Caltrans with implementation of the proposed Specific Plan. In most cases, in combination with cumulative conditions, the roadways and segments would be improved to meet the standards of the City, County, and Caltrans. However, four intersections in Caltrans' jurisdiction cannot be improved to

meet Caltrans' standards due to right-of-way constraints. As discussed above, implementation of the proposed Specific Plan would result conflicts to policies related to LOS standards that would not be able to be improved due to limited right-of-way or existing constraints. As a result, a significant and unavoidable cumulative impact would occur.

The proposed Specific Plan would increase vehicle trips within the Specific Plan Area and within the Planning Area of the General Plan. However, implementation the proposed Specific Plan would be required to meet the City's standards regarding emergency access. Additionally, improvements identified in the TIA would be implemented to the extent feasible to reduce potential cumulative impacts related to emergency access.

Level of Significance Without Mitigation: Significant and unavoidable. The proposed Specific Plan would result in LOS deficiencies of roadways that would conflict with policies that establish LOS standards. Although improvements would be made to many intersections and roadway segments to reduce potential LOS deficiencies, due to the lack of available roadway right-of-way, the proposed Specific Plan would result in continued conflicts with adopted roadways.

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4.17 UTILITIES AND SERVICE SYSTEMS

This section describes the existing utilities and service systems of the Specific Plan Area and evaluates the potential impacts associated with the proposed Specific Plan, both at the individual and cumulative levels. The analysis in this section is based in part on the City's General Plan, the Infrastructure Master Plan¹ prepared by Precision Civil Engineering, Inc., included in Appendix C of this Environmental Impact Report (EIR), and the Water Supply Assessment² prepared by MKN Associates, Inc., included in Appendix I of this EIR.

4.17.1 Environmental Setting

4.17.1.1 Water Supply

Potable water is currently provided to the existing residential units and agriculture-related land uses within the Specific Plan Area by private groundwater wells and water deliveries from the Madera Irrigation District (MID).

The City of Madera provides potable water to existing development within the City through the use of 18 active groundwater wells. The active groundwater wells pump water from the Madera Subbasin, which is located within the San Joaquin River Hydrologic (groundwater basin). The City's active wells all pump from the regional groundwater basin directly into the City's distribution system to meet the City's demands. The City has a total pumping capacity of 20,931 gallons per minute (gpm), and the City's distribution system is comprised of 187 miles of pipeline and one one-million-gallon elevated storage tank. The distribution mains are typically 16-inches and smaller. The quality of the water pumped currently meets all California Code of Regulations primary and secondary drinking water standards.

The City's 2015 Urban Water Management Plan identified that in 2011 the City pumped 11,396-acre feet per year (AFY) from the Madera Subbasin, and that the amount of groundwater pumping decreased to 9,314 AFY in 2015. In 2019, the Madera Subbasin Joint Groundwater Sustainability Plan (GSP)³ stated that groundwater pumping decreased to 8,275 AFY.

4.17.1.2 Wastewater

Wastewater Collection System. There are no existing wastewater collection pipelines located within the Specific Plan Area. The City's Sanitary Sewer System Master Plan identifies five sewer basins, trunk lines, and gravity sewer mains located throughout the City that collect wastewater generated within the City and convey it to the wastewater treatment plant (WWTP) located southwest of the City (and described below).

The City's Sanitary Sewer System Master Plan identifies a future trunk line (Road 23 Trunk) within the Specific Plan Area. The Road 23 Trunk is planned to be located within the right-of-way (ROW) of

¹ Precision Engineering. 2020. Specific Plan Infrastructure Master Plan. January 16.

² MKN & Associates. 2021. Village D Specific Plan Project SB 610 Water Supply Assessment. February.

³ Davids Engineering, Inc., et. al. 2020. Madera Subbasin Sustainable Groundwater Management Act, *Joint Groundwater Sustainability Plan*. Available online at: www.maderacountywater.com/wp-content/uploads/2020/02/Madera_GSP_2020_FinalReport.pdf (accessed April 28, 2020).

Road 23 and would range in size from 15 inches to 30 inches. In addition, a lift station is planned to be located near the intersection of Road 23 and Avenue 16.

Wastewater Treatment and Disposal. Wastewater generated within the Specific Plan Area is currently treated by private septic systems.

Wastewater generated in the city of Madera is conveyed to the existing WWTP located at Road 21 ½ and Avenue 13.

The WWTP is a 10.1 million gallons per day (MGD) primary and secondary treatment facility. The Madera WWTP has a design capacity of 10.1 MGD and can accommodate a design peak dry weather flow of up to 15.1 MGD. The plant is currently operating at an average flow of 5.7 MGD. The original treatment plant and disposal facilities were constructed in 1972. The plant was expanded in 1990 with the addition of a third primary clarifier and then upgraded in 2007 with the installation of three oxidation ditches and four secondary clarifiers, which replaced the original trickling filters. The influent mechanical screens at the headworks were replaced in 2011.

The WWTP operates under Waste Discharge Requirements (WDRs) Order No. 95-046 of the California Regional Water Quality Control Board (RWQCB), Central Valley Region, which was adopted in 1989. The treated effluent from the existing WWTP is discharged to existing evaporation/percolation ponds.

4.17.1.3 Stormwater

Stormwater drainage in the City is typically directed to street curbs and gutters where it is conveyed to inlets and the City's storm drain pipeline and retention basin system. There are no existing stormwater collection facilities within the Specific Plan Area.

4.17.1.4 Solid Waste

Solid Waste Collection and Disposal. Mid Valley Disposal provides solid waste removal services for the City of Madera. Mid Valley Disposal operates a curbside solid waste, a green waste collection program, and a mandatory blue-can recycling program for Madera. In unincorporated Madera County, residential collection in the Specific Plan Area is provided by Red Rock Environmental Group.

Landfill Facilities. There is currently one active, permitted landfill that services available to the City of Madera. The Fairmead Solid Waste Disposal Site (Solid Waste Information System [SWIS] Number: 20-AA-0002) is a Class III landfill located at 21739 Avenue 22 At Road 19 south of the City of Chowchilla. The Fairmead Solid Waste Disposal site is owned by the County of Madera and operated by Madera County Public Works Division. It is located on approximately 120 acres with a total permitted disposal area of 77 acres surrounded by agricultural, open space, residential, and rural land uses. This landfill accepts wood waste, dead animals, agricultural, construction/demolition, green materials, industrial, tires, asbestos, and mixed municipal wastes with a maximum of 1,100 tons accepted per day. The estimated permitted capacity of the landfill is 9.4 million cubic yards, with approximately 5,552,894 cubic yards of capacity remaining. As of 2020, the estimated closure date of the landfill is 2028.

4.17.1.5 Energy, Natural Gas, and Telecommunications

Electric Power. Madera receives its electricity from Pacific Gas and Electric Company (PG&E). PG&E provides electrical service to business and residents throughout the City and the Specific Plan Area via underground and above-ground service lines. PG&E owns and maintains all service and transmission lines and electrical substations throughout City.

Natural Gas. PG&E is the natural gas service provider for the City and the Specific Plan Area. PG&E owns and maintain several natural gas transmission lines in the City that feed local distribution lines that connect to individual service lines.

Telecommunications. Several providers provide telecommunication services to the City. AT&T is the largest provider of cellular and fixed telephone services.

4.17.1.6 Regulatory Context

Water Supply

Sustainable Groundwater Management Act. California legislature passed the Sustainable Groundwater Management Act (SGMA) in September 2014 to establish new measures for groundwater management and regulation statewide by providing sustainable local control of groundwater resources. Under SGMA, local agencies must establish governance of their subbasin by forming Groundwater Sustainable Agencies (GSAs) that have been given the authority to develop, adopt, and implement a Groundwater Sustainability Plan (GSP) for the subbasin. GSAs must define and monitor groundwater conditions in the subbasin and set and achieve sustainable groundwater management within 20 years of adopting the GSP.⁴

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. The General Plan establishes a number of goals and policies that identify the importance of managing natural resources and infrastructure, such as stormwater. Table 4.17.A lists the General Plan policies related to potable water.

Wastewater

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. The General Plan includes goals and policies that address physical systems, such as the City's water supply, so that they can be managed to ensure sustainability. Table 4.17.B lists the General Plan policies related to wastewater.

⁴ Davids Engineering, Inc., et. al. 2020. Madera Subbasin Sustainable Groundwater Management Act, *Joint Groundwater Sustainability Plan*. Available online at: www.maderacountywater.com/wp-content/uploads/2020/02/Madera_GSP_2020_FinalReport.pdf (accessed April 28, 2020).

Table 4.17.A: General Plan Policies Related to Wastewater

Policy/Action Item Number	Policy/Action Item
Circulation and Infrastructure Element	
Policy CI-44	Public facilities should be phased in a logical manner which avoids “leapfrog” development and encourages the orderly development of roadways, water and sewer, and other public facilities. The City shall not provide public financing or assistance for projects that do not comply with City master plans.
Policy CI-47	All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Policy CI-53	<p>Water supply and delivery systems shall be available in time to meet the demand created by new development, or shall be assured through the use of bonds or other sureties to the City’s satisfaction.</p> <p>Action Item CI-53.1 The following shall be required for all development projects, excluding subdivisions:</p> <ul style="list-style-type: none"> • An assured water supply and delivery system shall be available at the time of project approval. If a choice of alternative methods of supply and/or delivery is selected, each shall be capable individually of providing water to the project. • All required water infrastructure for the project shall be in place at the time of project approval, or shall be assured through the use of bonds or other sureties to the City’s satisfaction. Water infrastructure may be phased to coincide with the phased development of large-scale projects. <p>Action Item CI-53.2 The following shall be required for all subdivisions to the extent permitted by state law:</p> <ul style="list-style-type: none"> • Proposed water supply and delivery systems shall be identified at the time of tentative map approval to the satisfaction of the City. Alternative methods of supply and/or delivery may be proposed, provided that each is capable individually of providing water to the project. • Prior to the approval of a final map by the City, sufficient capacity shall be available to accommodate the subdivision plus existing development, and other approved projects in the same service area, and other projects which have received commitments for water service. • Offsite and onsite water infrastructure sufficient to provide adequate water to the subdivision shall be in place prior to the approval of a final map or their financing shall be assured to the satisfaction of the City, consistent with the requirements of the Subdivision Map Act. • Offsite and onsite water distribution systems required to serve the subdivision shall be in place and contain water at sufficient quantity and pressure prior to the issuance of any building permits. Model homes may be exempted from this policy as determined appropriate by the City, and subject to approval by the City.
Policy CI-56	The City shall require that water flow and pressure be provided at sufficient levels to meet domestic, commercial, industrial, and firefighting needs.

Source: City of Madera General Plan (October 2009).

Table 4.17.B: General Plan Policies Related to Wastewater

Policy/Action Item Number	Policy/Action Item
Circulation and Infrastructure Element	
Policy CI-44	Public facilities should be phased in a logical manner which avoids “leapfrog” development and encourages the orderly development of roadways, water and sewer, and other public facilities. The City shall not provide public financing or assistance for projects that do not comply with City master plans.
Policy CI-47	All major development projects shall identify the size and cost of all infrastructure and public facilities and identify how the installation and long-term maintenance of infrastructure will be financed consistent with the policies in this General Plan.
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Policy CI-58	<p>Sewage conveyance and treatment capacity shall be available in time to meet the demand created by new development, or shall be assured through the use of bonds or other sureties to the City’s satisfaction.</p> <p>Action Item CI-55.1 The following shall be required for all development projects, excluding subdivisions:</p> <ul style="list-style-type: none"> • Sewer/wastewater treatment capacity shall be available at the time of project approval. • All required sewer/wastewater infrastructure for the project shall be in place at the time of project approval, or shall be assured through the use of bonds or other sureties to the City’s satisfaction. <p>Action Item CI-55.2 Require the following for all subdivisions to the extent permitted by state law:</p> <ul style="list-style-type: none"> • Sewage/wastewater treatment capacity shall be available at the time of tentative map approval. • Sewer service to the subdivision shall be demonstrated prior to the approval of the Final Map by the City. Sufficient capacity shall be available to accommodate the subdivision plus existing development, and other approved projects using the same conveyance lines, and projects which have received sewage treatment capacity commitment. • Onsite and offsite sewage conveyance systems required to serve the subdivision shall be in place prior to the approval of the Final Map, or their financing shall be assured to the satisfaction of the City, consistent with the requirements of the Subdivision Map Act. • Sewage conveyance systems inside the subdivision shall be in place and connected to the sewage disposal system prior to the issuance of any building permits. Model homes may be exempted from this policy as determined appropriate by the City, and subject to approval by the City.
Policy CI-59	Development along corridors identified as locations of future sewerage conveyance facilities shall incorporate appropriate easements as a condition of approval.

Source: City of Madera General Plan (October 2009).

Stormwater

City of Madera General Plan. The City of Madera General Plan is the City’s primary policy planning document. The General Plan establishes a number of goals and policies that identify the importance of managing natural resources and infrastructure, such as stormwater. Table 4.17.C lists the General Plan policies related to stormwater.

Table 4.17.C: General Plan Policies Related to Stormwater

Policy/Action Item Number	Policy/Action Item
Conservation Element	
Policy CON-3	<p>The City supports natural groundwater recharge and new groundwater recharge opportunities through means such as:</p> <ul style="list-style-type: none"> • Developing a comprehensive groundwater recharge program to be applied in conjunction with new development. • Increasing the area on developed sites into which rainwater can percolate. • Providing areas where rainwater and other water can collect and percolate into the ground. • Providing for groundwater recharge in storm drainage facilities. <p>The use of reclaimed water to recharge the groundwater table.</p>
Policy CON-8	<p>The City encourages Low Impact Development practices in all residential, commercial, office, and mixed-use discretionary projects and land division projects to reduce, treat, infiltrate, and manage runoff flows caused by storms, urban runoff, and impervious surfaces. Low impact development practices may include:</p> <ul style="list-style-type: none"> • Use of small scale stormwater controls such as bioretention, grass swales and channels, vegetated rooftops, rain barrels and cisterns. • Reduction of impervious surfaces through site design and use of pervious paving materials. • Retention of natural features such as trees and ponds on site. • The use of drought tolerant plant materials and/or water-conserving irrigation systems.
Policy CON-12	<p>The City shall seek to minimize toxic runoff from such sources as homes, golf courses, and roadways. Examples of potential programs include:</p> <ul style="list-style-type: none"> • The use of “bioswales” and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants; • Installation of grease/oil separators to keep these contaminants out of storm runoff; • Regular street sweeping programs to prevent the buildup of oil, grease, and other contaminants and keep them from being swept into creeks and rivers; • Minimizing pesticide use and promoting the use of natural pest controls; • Encouraging the installation of “gray water” systems; • The development of new storm drain runoff retention ponds for sediment and pollutant removal based on the updated storm water master plan.
Policy CON-14	<p>The relocation of natural stream courses is discouraged. Where flood protection is a necessity, the City supports leaving existing natural stream courses and adjoining land in a natural state and creating new storm drainage capacity in parallel above- or below-ground facilities.</p>

Source: City of Madera General Plan (October 2009).

Solid Waste

Assembly Bill (AB) 939. The California Integrated Waste Management Act, referred to as AB 939, required all California cities, counties, and approved regional solid waste management agencies to be responsible for enacting plans and implementing programs to divert 25 percent of their solid waste by 1995 and 50 percent by year 2000. Later legislation mandates the 50 percent diversion requirement be achieved every year. The City of Madera’s achieved a diversion rate of 50 percent (based on the most recent data available from 2007).⁵

⁵ Madera, City of. 2019. City of Madera General Plan EIR.

City of Madera Municipal Code. Section 5-3.30 requires that construction and demolition debris generated under a City issued building, renovation, or demolition permit and eight cubic yards or more of material by volume shall have necessary mixed and/or source separated C&D recycling bin(s) or roll-off boxes for the removal and recycling of all construction and demolition debris from the project site.

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. The General Plan established a number of goals and policies that identify management of infrastructure and service systems, include solid waste, to ensure long-term viability. Table 4.17.D lists the General Plan policies related to solid waste.

Table 4.17.D: General Plan Policies Related to Solid Waste

Policy/Action Item Number	Policy/Action Item
Circulation and Infrastructure Element	
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Policy CI-62	The City will promote solid waste source reduction, reuse, recycling, composting and environmentally safe transformation of waste. The City will seek to comply with the requirements of AB 939 with regard to meeting state-mandated targets for reductions in the amount of solid waste generated in Madera. Action Item CI-62.1 The City shall provide information to businesses and residents on available options to implement waste reduction targets. Other actions may include: <ul style="list-style-type: none"> • Actively promoting a comprehensive, consistent, and effective recycled materials procurement effort among other governmental agencies and local businesses. • Encouraging all companies that do business in Madera to recycle and reuse construction scraps, demolition materials, concrete, industrial waste, and green waste.

Source: City of Madera General Plan (October 2009).

Energy, Natural Gas, and Telecommunications

City of Madera General Plan. The City of Madera General Plan is the City's primary policy planning document. The General Plan established policies to direct implementation of infrastructure to meet future demand for services. Table 4.17.E lists the General Plan policies related energy, natural gas, and telecommunications.

4.17.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to utilities and service systems that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to a less-than-significant level. Cumulative impacts are also addressed.

Table 4.17.E: General Plan Policies Related to Energy, Natural Gas, and Telecommunications

Policy/Action Item Number	Policy/Action Item
Circulation and Infrastructure Element	
Policy CI-51	Except when prohibited by state law, the City shall require that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.
Conservation Element	
Policy CON-40	All public and private development—including homes, commercial, and industrial—should be designed to be energy-efficient. Action Item CON-40.3 City buildings and facilities will be operated in the most energy efficient manner without endangering public health and safety and without reducing public safety or service levels.

Source: City of Madera General Plan (October 2009).

4.17.2.1 Significance Criteria

The thresholds for impacts related to utilities and service systems used in this analysis are consistent with Appendix G of the State CEQA Guidelines. Development of the proposed Specific Plan would result in a significant impact related to utilities and service systems if it would:

- Threshold 4.17.1** **Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;**
- Threshold 4.17.2** **Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;**
- Threshold 4.17.3** **Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments;**
- Threshold 4.17.4** **Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or**
- Threshold 4.17.5** **Not comply with federal, State, and local management and reduction statutes and regulations related to solid waste.**

4.17.2.2 Project Impacts

The following discussion describes the potential impacts related to utilities and service systems that could result from implementation of the proposed Specific Plan.

Threshold 4.17.1 **Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

Water Facilities. Water demand generated by implementation of the proposed Specific Plan is discussed in detail under the discussion of Threshold 4.17.2. As discussed below, the proposed Specific Plan's estimated annual average indoor water demand at full buildout is approximately 2,254 acre-foot per year (AFY). In order to convey water to and throughout the Specific Plan Area, a Conceptual Water Master Plan is included as part of the proposed Specific Plan and is shown as Figure 3-9 of the Project Description. The Conceptual Water Master Plan shows the major water facilities to be constructed as part of the proposed Specific Plan. The Conceptual Water Master Plan, distribution system, and pipe sizes, were developed based upon the proposed Land Use Plan (refer to Figure 3-6 and Tables 3.A through 3.D of the Project Description) and the City's Water System Master Plan (WSMP). Adjustments to the proposed land uses would require modifications to the WSMP based on approval of subsequent development entitlements that finalize residential densities, neighborhood commercial, recreational and office use. Per the proposed Specific Plan's Infrastructure Master Plan, all in-tract water facilities are intended to be designed at the time of each subdivision approval and shall be adequate to meet these pressure and fire flow requirements throughout each individual development. As shown in the Water Master Plan for the proposed Specific Plan, the proposed Specific Plan would include construction and operation of eight wells to provide potable water to the Specific Plan Area. In addition, the proposed Specific Plan would include a series of 12-inch, 18-inch, and 24-inch water distribution mains throughout the Specific Plan Area.

Construction of the proposed water facilities would be subject to the mitigation measures for construction- and operational-period impacts. Construction of water facilities related to implementation of the proposed Specific Plan would be required to comply with mitigation measures identified in this Draft EIR, including AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, GEO-6.1, GHG-1.1, HAZ-1, NOI-1.1, NOI-2.1, Regulatory Compliance Measure HYD-1 and Standard Condition of Approval GEO-1.

Mitigation Measure UTL-1.1 Prior to the issuance of each grading permit for projects within the Specific Plan Area, the City shall ensure that the Infrastructure Master Plan for the Specific Plan is implemented and that General Plan policies requiring capacity analyses of service systems are completed.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation measures identified throughout this EIR would address and reduce construction impacts related to water facilities, potential impacts related to air quality and noise as a result of such construction cannot be reduced to a less-than-significant level.

Wastewater Facilities. The City's 2014 Sanitary Sewer System Master Plan (SSSMP) identified the need for an additional sewer trunk line located within Road 23 (referred to as the Road 23 Trunk) to

connect the Specific Plan Area, and areas to the north of the Specific Plan Area to the City's existing Waste Water Treatment Plant (WWTP). The existing Westberry Trunkline has capacity to accommodate 214 residential units within the Specific Plan Area.

The Wastewater System Master Plan, shown on Figure 3-10 in the Project Description, shows the wastewater master planned sewer mains and preliminary elevations for proposed Specific Plan. The Road 23 Trunk would be a 30-inch pipeline that would connect to a 48-inch pipeline running parallel to an existing 48-inch pipeline that connects to the existing WWTP. The 30-inch pipeline would be approximately 15,900 linear feet and the parallel 48-inch pipeline would be approximately 8,000 linear feet. A lift station would be required to be installed west of the intersection of Avenue 16 and Road 23. As shown on Figure 3-10, a second lift station would also be required within the Specific Plan Area just north of the Fresno River crossing on Road 23.

The wastewater generated within the Specific Plan Area would be conveyed to the existing WWTP located on Road 21 ½ and Avenue 13. Wastewater would be collected in a system of sewer mains using primarily gravity flow. The collection system would generally follow topographical features or roads and require one or more lift stations. In addition, a separate distribution system would be constructed for delivery of treated effluent from the WWTP for irrigation of landscaped areas.

The Madera WWTP would be expanded to treat effluent to meet tertiary levels, consistent with Title 22 requirements for landscaping and irrigation uses. Funding for this upgrade as well as the distribution system would deliver treated effluent would be provided through a Community Facilities District (CFD).

Incremental development of wastewater collection facilities and infrastructure shall be designed in accordance with the Infrastructure Master Plan as needed for each phase of the proposed Specific Plan. Wastewater collection pipes shall be constructed in conformance with the wastewater system master plan.

Construction of new pipelines and expansion of the existing WWTP could result in potential environmental impacts related to air quality, biological resources, cultural resources, and noise. Because specific information related to the alignment of wastewater pipelines and construction plans for the WWTP have not yet been prepared and would be subject to phasing of implementation of the proposed Specific Plan, future analysis would be required at the time those plans are developed. Mitigation Measure LU-2.1 requires that the proposed Specific Plan complete a Public Facilities Financing Plan (PFFP) prior to adoption. Implementation of Mitigation Measure UTL-1.2 would address on-site construction impacts, however, without specific information currently available related to the size and locations of the facilities, a significant impact would occur. Construction of wastewater facilities related to implementation of the proposed Specific Plan would be required to comply mitigation measures identified in this Draft EIR, including AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, GEO-6.1, GHG-1.1, HAZ-1, NOI-1.1, NOI-2.1, Regulatory Compliance Measure HYD-1, and Standard Condition of Approval GEO-1. However, implementation of the proposed Specific Plan would still result in construction-period air quality and noise impacts that would be considered significant and adverse. In addition, impacts associated with any off-site wastewater treatment facilities shall be evaluated at the time those projects are proposed, as required in Mitigation Measure UTL-1.2.a.

Mitigation Measure UTL-1.2 Prior to the issuance of each grading permit for projects within the Specific Plan Area, and consistent with policies of the General Plan, the City shall review the City’s wastewater facility capacity and shall prepare environmental review, consistent with the California Environmental Quality Act, and analysis for any future off-site wastewater facility expansions and improvements required to support development of the Specific Plan. The CEQA analysis shall be completed prior to approval of each development project.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation measures identified throughout this EIR would address construction impacts related to wastewater facilities, potential impacts related to air quality and noise as a result of such construction cannot be reduced to a less-than-significant level.

Stormwater Drainage Facilities. The proposed storm water collection system would be comprised of roadway curb and gutter, inlets, pipelines, and retention basins, and grading would be consistent with City standards. In addition, the proposed Specific Plan includes two on-site stormwater runoff retentions to hold stormwater.

Per the City of Madera Storm Drainage Master Plan (SDMP) all future conveyance facilities shall be designed to convey a design storm with a ten percent probability of occurrence, which is also known as a ten (10) year return interval. Retention basins would be designed to meet stormwater runoff retention of a 100-year storm event for 10 days (referred to as a 100-year, 10-day stormwater runoff designs). Streets are to convey the difference in peak runoff volume generated between the 100-year 24-hour design storm and the 10-year 24-hour design storm. Rainfall precipitation intensity for the design storm event shall be based upon data and graphs found in the National Oceanic and Atmospheric Administration (NOAA), per the SDMP.

Construction of stormwater facilities would occur concurrently with development of the proposed Specific Plan and would be constructed to convey stormwater flows as the proposed Specific Plan is implemented. Construction of stormwater drainage facilities would comply with Mitigation Measures AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, GEO-6.1, GHG-1.1, HAZ-1, NOI-1.1, NOI-2.1, Regulatory Compliance Measure HYD-1, and Standard Condition of Approval GEO-1. However, implementation of the proposed Specific Plan would still result in construction-period air quality and noise impacts that would be considered significant and adverse.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation measures identified throughout this EIR would address construction impacts related to stormwater drainage facilities, potential impacts related to air quality and noise as a result of such construction cannot be reduced to a less-than-significant level.

Electric, Natural Gas, and Telecommunications facilities. PG&E would provide natural gas and electric to the Specific Plan area. PG&E would install gas mains to the Specific Plan area as necessary. All new electric lines and all existing lines within the Specific Plan area shall be installed according to City of Madera requirements.

Proposed on-site communication facilities would be installed underground within a duct and structure system to be installed by the developer during implementation of the proposed Specific Plan. Subject to the Public Facilities Financing Plan (PFFP), which is required by General Plan Policy LU-14 and Mitigation Measure LS-2.1 of this EIR for adoption of the proposed Specific Plan, maintenance of the installed system would be the responsibility of the City and/or Special District fiber optic entity. Development of the proposed Specific Plan requires the installation of all fiber optic infrastructure necessary to service the project as a standalone development.

Construction of electric, natural gas, and telecommunications facilities would occur concurrently with development of the proposed Specific Plan and would be constructed to provide connections to development as the proposed Specific Plan is implemented. Construction of electric, natural gas, and telecommunications facilities would comply with Mitigation Measures AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, GEO-6.1, GHG-1.1, HAZ-1, NOI-1.1, NOI-2.1, and Regulatory Compliance Measure HYD-1, and Standard Condition of Approval GEO-1. However, implementation of the proposed Specific Plan would still result in construction-period air quality and noise impacts that would be considered significant and adverse.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation measures identified throughout this EIR would address construction impacts related to electric, natural gas, and telecommunications facilities, potential impacts related to air quality and noise as a result of such construction cannot be reduced to a less-than-significant level.

Threshold 4.17.2 Would the project have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

A Water Supply Assessment (included in Appendix I of this EIR) was prepared for the proposed Specific Plan to determine if existing water supply entitlements, water rights, or water service contracts would be sufficient to meet future water supply demand of the proposed Specific Plan.

The proposed Specific Plan would result in a maximum of 10,783 residential units and, for the purpose of providing a conservative analysis, buildout of the proposed Specific Plan is estimated to occur through the year 2035.

The proposed Specific Plan's estimated annual average indoor water demand at full buildout is approximately 2,254 AFY, as shown in Table 4.17.F. As discussed in the Water Supply Assessment (WSA), the water use coefficient values for the various land use categories are based on water demands in the Infrastructure Master Plan (IMP) and are representative of indoor water usage only. The proposed Specific Plan, as identified in the Infrastructure Master Plan (included as Appendix C of this EIR), intends to use reclaimed water to meet outdoor irrigation demands and would not utilize the City's groundwater wells to supply irrigation demands.

Table 4.17.F: Project Water Demands at Full Buildout

Land Use Type	Land Use District	Units	Annual Water Demand (AFY)	Annual Water Demand (gpm)	Maximum Day Demand (gpm) ¹
Village Country Estates	V-CE	54 DU	10.3	6.4	12.7
Village Low Density	V-LDR	4,784 DU	857.4	531.6	1,063.1
Village Medium Density	V-MDR	3,579 DU	641.4	397.7	795.3
Village High Density	V-HDR	2,366	355.1	220.2	440.3
Village Mixed Use	V-MU	120 acres	94.1	58.3	116.7
Village Business Park	V-BP	1,293,454 sf	115.9	71.9	143.7
Elementary School Sites	V-ES	3,656 students	32.8	12.3	40.6
Unaccounted for Water ²	-	-	147.5	91.4	182.9
Total Water Demand	-	-	2,254.5	1,397.7	2,795.4

Source: Water Supply Assessment, MKN & Associates (February 2021).

¹ Assumes the 2014 WMP maximum day to average day demand factor of 2.0

² Assumes 7% of total system water demand

AFY = annual feet per year

DU = dwelling units

gpm = gallons per minute

sf = square feet

Table 4.17.G shows the estimated indoor water demand during the planned buildout of the Specific Plan in 5-year increments through 2040. Buildout of the Specific Plan will be dictated by market conditions. For the purposes of this EIR assessment, buildout demands were allocated based on the three neighborhoods of the proposed Specific Plan (Southeast, Northwest, and Southwest) and tentative tract maps outlined in the Infrastructure Master Plan, and each neighborhood would be constructed over five-year periods. Occupancy of the Southeast Neighborhood is assumed to occur at the end of 2025 and is projected to be completed in 2030.

Table 4.17.G: Project Water Demands Through 2040¹

Year	Estimated Water Demand (AF)
2020	0
2025	0
2030	776.6
2035	1,562.8
2040 ²	2,254.4

¹ Buildout demands were allocated based on three sections of development outlined in the Infrastructure Master Plan. The Southeast Neighborhood is estimated to be completed in 2030; the Northwest Neighborhood is estimated to be completed in 2035.

² Water demands for the completed Southwest Neighborhood are captured in year 2040 until construction-phasing information becomes available.

AF = acre-feet

The proposed Specific Plan intends to use reclaimed wastewater for outdoor irrigation. Based on the Infrastructure Master Plan, approximately 1.9 MGD, or 2,128 AFY, of the daily treated wastewater effluent would be available for reclaimed uses. About 1.84 MGD, or 2,065 AFY, is needed to satisfy irrigation demands at average day. Maximum day- and peak-hour demands would be met by utilizing storage structures such as on- and off-site tanks or reservoirs, consistent with the

Infrastructure Master Plan. Therefore, reclaimed wastewater can be used to meet the entire irrigation demand of the proposed Specific Plan.

SB 610 requires that all existing and projected water demand for the next 20 years be considered when analyzing the sufficiency of the water supply to meet existing and future demand, not just Project demand. SB 610 also requires the water supplier to analyze and compare water supplies in water short years (dry years) with current and projected water demand. However, as previously discussed in Section 4.17.1.1, the City relies solely on groundwater to meet demands within the City, and as determined by the WSA, the groundwater supply (availability) has been determined to be sufficient to meet the demand of the City for at least the next 20 years in all water year types, including normal, single dry years and multiple dry years.

Table 4.17.H compares the projected water demand City and the water demand of the proposed Specific Plan through 2040. Table 4.17.H also shows the percentage of the City’s total projected increase in water demand represented by the water demand of the proposed Specific Plan in 5-year increments. The Project water demand represents approximately 4.1 to 9.6 percent of the City’s total projected water demands, depending on the year.

Table 4.17.H: Comparison of the Water Demand and Project Water Demand

	2015 ¹	2020	2025	2030	2035	2040 ³
Total City water demand (AF)	9,314	10,100 ⁴	17,400	19,200	21,100	23,400
Project related water demand served by City (AF) ²	0	0	0	776.6	1,562.8	2,254.5
Project demand as percentage of total City demand (%)	0	0	0	4.1	7.4	9.6

¹ 2015 water usage is the actual production measured by the City as recorded in the 2015 Madera UMWP.

² Buildout demands were allocated based on projections outlined in the Infrastructure Master Plan. Buildout is projected to be completed in year 2030. Occupancy of the Southeast section is assumed to occur at the end of 2025.

³ Water demands for the completed Southwest section are captured in year 2040 until construction phasing information becomes available.

⁴ Groundwater pumping estimate provided by City.

AF = acre feet

Typically, municipal water systems are designed such that the minimum water supply capacity (pumping capacity) is capable of meeting the maximum day demand (MDD) with the primary supply offline. MDD is calculated by applying a peaking factor to the average day demand (ADD). ADD is defined as the average of the total water used throughout the year. The City of Madera applies a peaking factor of 2.0 to its ADD to determine its MDD. Peak instantaneous demand is usually met through the use of additional wells and/or storage tanks. The City’s WMP utilizes these criteria in analyzing the City’s water system and in determining pipeline sizes and storage tank requirements.

The current pumping capacity for the City’s active wells is 20,931 gpm. Based on data provided in the 2014 City of Madera WMP, the largest ADD between 2005 and 2010 occurred in 2007 and was

approximately 8,710 gpm. Based on the peaking factor criteria stated in the 2014 WMP, the 2007 MDD is approximately 17,420 gpm. The estimated total MDD of the completed Specific Plan Project is about 2,795 gpm, as shown in Table 4.17.F. Table 4.17.I presents the estimated MDD of the proposed Specific Plan and the existing and projected MDD for the City’s water system. The City’s firm capacity is based on future improvements recommended in the 2014 WMP. The 2014 WMP includes the proposed Specific Plan demand in its analysis. The Project MDD is included in the projections for the system MDD.

Table 4.17.I: Maximum Day Demands and System Capacity (Gallons Per Minute)

	2015	2020	2025	2030	2035	2040 ³
Project MDD to be Served by City	0	0	0	1,252.7	2,520.8	3,636.5
City MDD	11,549	19,467	21,575	23,806	26,162	29,014
City MDD Plus Project MDD ¹	11,549	19,467	21,575	25,058.7	28,682.8	32,650.5
City System Firm Capacity ²	25,140	20,931 ⁴	54,583	57,708	75,278	80,833

¹ System MDD assumes a peaking factor of 2.0 as stated in the 2014 WMP.

² Based on existing and proposed infrastructure improvements identified within all planning villages listed in the 2014 City of Madera WMP recommended capital improvement program. (except for 2020)

³ Water demands for the completed Southwest Neighborhood are captured in year 2040 until construction phasing information becomes available.

⁴ Based on the City of Madera Imminent Development Supply Analysis 2020 found in Appendix E of the WSA

The 2020 Groundwater Sustainability Plan concluded that the groundwater basin is capable of supplying the water required to meet the City’s water demands through 2040. However, the City’s existing water distribution system is not capable of supplying the water required to meet the demand of both the City and the proposed Specific Plan through 2040. However, the master planned waster system infrastructure identified in Infrastructure Master Plan for the proposed Specific Plan does provide the City with the ability to meet the demands of the City and proposed Specific Plan through 2040 assuming the following:

- The City will be supplying water to the Project area.
- The City will continue to utilize groundwater as their sole source of water.
- The City will continue to construct required groundwater facilities as outlined in current and future Water Master Plans.
- The City will replace or deepen wells as necessary and provide wellhead treatment on wells that develop water quality problems.
- The Specific Plan will utilize reclaimed water to meet irrigation demands and lower groundwater pumping.

As stated in the WSA, the Madera Subbasin is in a state of overdraft and measures and programs as identified in the WSA and the referenced documents must be implemented in order to ensure the long-term viability of the groundwater resources in the Madera subbasin. It is anticipated that the

City of Madera GSA and joint GSAs in the Madera Subbasin will continue work together in order to meet the requirements and goals of reaching sustainable groundwater supply by 2040 as laid out in the GSP. Implementation of Mitigation Measure UTL-2 would ensure that sufficient water supplies are available to serve development occurring under the proposed Specific Plan, and would reduce the potential impact to a less-than-significant level.

Mitigation Measure UTL-2 Prior to the issuance of each grading permit for projects within the Specific Plan Area, the City shall review water supplies available at the time and ensure that the required groundwater facilities, including replacing and increasing depth of groundwater wells, and the use of reclaimed water as identified in the City's Water Master Plan are adequate to serve the project.

Level of Significance With Mitigation: Less than significant.

Threshold 4.17.3 **Would the result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

The IMP provides sewer generations calculated based on water demands, with the assumption that all indoor water generated within the Specific Plan Area is collected by the wastewater collection system. The estimated sewer generation rate for single family residential land uses is 160 gpd per DU. For high-density residential units only, a lower per DU rate of 134 gallons per day has been used. For VCE a higher rate of 170 gpd per DU was used. The planned Elementary Schools are expected to have approximately 3,656 students that would generate wastewater at a rate of 8 gpd per student, which would produce about 29,248 gpd. The inflow and infiltration (I&I) is the storm water flow entering the waste water system through manholes, and joints in the sewer collection system. The I&I is estimated to be approximately 7% of total flows, which is generally acceptable for new wastewater collection systems. Table 4.17.J provides a summary of the sewer generation rates used for the proposed land uses in the Specific Plan and sewer system master planning. As shown, the Average Daily Flow is approximately 2.0 MGD.

As discussed above in section 4.17.1.2, the WWTP has a design capacity of 10.1 MGD and can accommodate a design peak dry weather flow of up to 15.1 MGD. The plant is currently operating at an average flow of 5.1 MGD, and has experienced maximum daily flows of approximately 8.20 MGD during wet weather seasons and 6.4 MGD during dry weather seasons.⁶ With the Average Daily Flow (ADF) of approximately 2.0 MGD, the WWTP has capacity to treat wastewater generated by buildout of the proposed Specific Plan.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

⁶ Madera, City of. 2014. City of Madera Sanitary Sewer System Master Plan. September.

Table 4.17.J: Sewer Generation Rates

Land Use Type	Land Use District	Units	gpd per unit	gpd
Very Low Residential	VLD	54 Dwelling Units (DU)	170 gpd per dwelling unit	9,180
Low Density Residential	LDR	4,784 DU	160 gpd per dwelling unit	765,467
Medium Density Residential	MDR	3,579 DU	160 gpd per dwelling unit	572,706
High Density	HDR	2,366	134 gpd per dwelling unit	317,027
Village Mixed Use	VMU	120 Acres	700 gpd per acre	84,049
Industrial	I	1,293,454 Square Feet	0.08 gpd per square foot	103,476
Elementary School Sites	P&SP	3,656 Students	8 gpd per student	29,249
Inflow and Infiltration ¹	-	-	-	131,681
Total				2,012,835

Source: Specific Plan Infrastructure Master Plan, Precision Civil Engineering (January 16, 2020).

¹ Assumes 7% of the total sewer flows is Inflow and Infiltration.

DU = dwelling unit

gpd = gallons per minute

Threshold 4.17.4 Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

To determine the amount of solid waste that could be generated through implementation of the proposed Specific Plan, the analysis uses information provided by CalRecycle, as shown in Table 4.17.K.

Table 4.17.K: Estimated Waste Generation of Proposed Specific Plan

Land Use	Buildout of proposed Specific Plan (2049)	Solid Waste Generation Rate ¹	Estimated Solid Waste Generated at Buildout of Proposed Specific Plan	
			lbs/day	Tons/day
Single-Family Residential	8,417 units	10 lbs/unit/day	84,170	42.1
Multi-Family Residential	2,366 units	7 lbs/unit/day	16,562	8.2
Mixed Use	1,830,587 sq ft	6 lbs/1,000 sq ft/day	10,983.5	5.5
Industrial	2,58,659 sq ft	6 lbs/1,000 sq ft/day	1,551.9	0.8
Education	3,656 students	0.5 lbs/student/day	1,828	0.9
Total			115,095.4	57.5

Source: LSA (2020).

¹ Source: CalRecycle, Waste Characterization, Residential Sector Generation Rates: Estimated Solid Waste Generation Rates, 2020

sq ft = square feet

units = dwelling units

lbs = pounds

New residential, mixed use, industrial and educational land uses in the Specific Plan Area would increase the amount of solid waste generated by residents, businesses, and students. The increase in growth and development as a result of the implementation of the proposed Specific Plan would

result in an increase of solid waste to landfills, and would contribute to an increased demand for solid waste services throughout the Specific Plan Area.

As shown on Table 4.17.K, above, implementation of the proposed Specific Plan would result in the generation of approximately 57.5 tons of solid waste per day. Based on the estimated closure date of the Fairmead Landfill in 2028, before buildout of the proposed Specific Plan in 2049, there is a potential for additional landfill capacity needed to accommodate the proposed Specific Plan. Pending on the timing, type and quantity of development within the Specific Plan, the increase of solid waste generated by the development could potential accelerate the projected closure timeline of the Fairmead Landfill. Therefore, development under the Proposed Specific Plan could result in a significant impact on landfill capacity.

With the remaining capacity and lifespan at the Fairmead Landfill, the increase in solid waste generated by development under the proposed Specific Plan would exceed capacity of the landfills if the estimated waste streams above occur in the future. However, AB 939 mandates the reduction of solid waste disposal in landfills, and the City is currently achieving a 50 percent diversion rate (based on the most recent data available from 2007). In addition, the City of Clovis Landfill (SWIS Number: 10-AA-0004) is also a Class III facility with 7.740,000 cubic yards of capacity remaining and an estimated closure date of April 2047. The anticipated 57.5 tons of solid waste generated per day assumes a worst-case scenario and does not factor in the diversion rate. General Plan Policy CI-62 states that the City will seek to comply with the requirements of AB 939 with regard to meeting state-mandated targets for reductions in the amount of solid waste generated in the City and the Specific Plan Area, and would provide residents and business with information regarding options to implement waste reduction targets. In addition, General Plan Policy CI-51 requires the City to require that sufficient capacity in all public services levels to avoid capacity shortages. With continued improvements in diversion rates and existing sufficient capacity at the current landfill (Fairmead Landfill) and continued sufficient capacity at an alternative landfill (Clovis Landfill) as confirmed by the CalRecycle,⁷ solid waste impacts resulting from the proposed Specific Plan would be considered less than significant.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.17.5 Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Construction and operation of the proposed Specific Plan would generate solid waste that would be disposed of in accordance with applicable federal, State, and local regulations pertaining to municipal waste. Throughout the buildout of the proposed Specific Plan, solid waste would continue to be handled, transported, and disposed of according to all applicable federal, State, and local regulation pertaining to municipal waste disposal.

As shown in Table 4.17.K, the anticipated long-term generation of solid waste from continued implementation of the proposed Specific Plan could result in the generation of approximately 57.5

⁷ CalRecycle. Solid Waste Information System. Fairmead Solid Waste Disposal Site (20-AA-0002). Website: <https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/1701> (accessed on July 20, 2020).

tons per day within the Specific Plan Area. The City's General Plan requires the City to promote recycling and waste reduction, and the City's Municipal Code requires that 65 percent of construction and demolition debris to be recycled or reused. As a result, implementation of the proposed Specific Plan would comply with existing statutes and regulations related to solid waste, and a less than significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.17.2.3 Cumulative Impacts

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to utilities and service systems. The cumulative impact analysis for utilities and service systems considers the larger-context of future development of the City of Madera as envisioned by the General Plan and relied upon the projections of the General Plan and General Plan EIR. Cumulative impacts related to utilities and service systems would be those impacts that result from incremental changes that combine with other development within the City of Madera.

Facility Construction. The proposed Specific Plan would require construction of new or expanded facilities related to potable water, wastewater, stormwater and electric, natural gas, and telecommunications facilities. Construction of these facilities would be subject to mitigation measures identified in this EIR. The proposed Specific Plan would require construction of these facilities to occur incrementally as development occurs. The City's General Plan EIR identified growth areas, including the Specific Plan Area, that would require expansion of existing facilities and construction of new facilities.

The General Plan identifies several policies, including Policies CI-47, CI-51, CI-53, CI-56, CI-58, CI-59, and CI-62, that require the City to assess capacity of utilities and service systems to ensure that sufficient capacity is available to maintain service levels. As discussed above, a PFFP will be approved with the proposed Specific Plan, as required by Mitigation Measure LU-2.1 of this EIR. The PFFP will establish the financing for improvements to the utilities and service systems that serve the Specific Plan Area. Improvements identified within the Specific Plan Area would be subject to mitigation measures identified in this Draft EIR, including Mitigation Measures AIR-2.1, AIR-2.2, AIR-3.1, BIO-1.1, BIO-1.2, BIO-1.3, BIO-3, CUL-1, CUL-2.1, CUL-2.2, CUL-3, GEO-6.1, GHG-1.1, HAZ-1, NOI-1.1, NOI-2.1, Regulatory Compliance Measure HYD-1 and Standard Condition of Approval GEO-1. In addition, as required by Mitigation Measure UTL-1.2 further analysis would be required for future off-site improvements for which no information is currently available. Therefore, because the potential impacts resulting from construction of new facilities cannot be reduced to less-than-significant levels, the proposed Specific Plan would combine with other development identified in the General Plan to result in a significant cumulative impact.

Level of Significance With Mitigation: Significant and unavoidable. Although mitigation measures identified throughout this Draft EIR would address construction impacts related to water facilities, potential impacts related to air quality and noise as a result of such construction cannot be reduced to a less-than-significant level and would combine with other development to result in cumulative construction impacts that cannot be reduced to a less than cumulatively-significant level.

Water Supply. The 2020 Groundwater Sustainability Plan concluded that the groundwater basin is capable of supplying the water required to meet the City’s water demands through 2040. With implementation of the recommendations identified in the Infrastructure Master Plan as required by Mitigation Measure UTL-2, the City would be able to provide water to the Specific Plan Area, as well as to the City. However, as stated in the WSA, the Madera Subbasin is in a state of overdraft and measures and programs identified in the WSA and the referenced documents must be implemented in order to ensure the long-term viability of the groundwater resources in the Madera subbasin. It is anticipated that the City of Madera GSA and joint GSAs in the Madera Subbasin will work together in order to meet the requirements and goals of reaching sustainable groundwater supply by 2040 as laid out in the GSP. According to the WSA, the proposed Specific Plan in combination with buildout of the General Plan would have sufficient water supplies, and as a result, a less-than-significant cumulative impact would occur.

4.18 WILDFIRE

This section describes the existing conditions related to wildfire within the Specific Plan Area and evaluates the potential impacts associated with the proposed Specific Plan, both at the individual project and cumulative levels. The potential project-related impacts related to wildfire were evaluated on a qualitative basis due to the programmatic nature of this EIR. Qualitative impacts were assessed by evaluating the project's potential for impacting wildfire within the Specific Plan Area based on California Department of Forestry and Fire Protection (CAL Fire) maps.

4.18.1 Environmental Setting

Fire protection and emergency medical services within the Specific Plan Area are provided by the Madera City Fire Department, which is administered by the CAL Fire through a cooperative fire protection agreement. Services include fire prevention and suppression, emergency medical assistance, rescue, public assistance, fire menace standby, safety inspections, and review of building plans for compliance with applicable codes and ordinances.

The Fire Department City operates three fire stations: Fire Station 56, located at 317 North Lake Street; Fire Station 57 located at 200 South Schnoor Avenue and Fire Station 58 at 2558 Condor Drive. The Fire Department staffs two fire engines and one mini-pumper. One of the engines features a 50-foot tele-squirt aerial ladder. Fire Station 58 is less than one mile east of the Specific Plan Area. Fire Station 58 is the closest station servicing the Specific Plan Area.

4.18.1.1 Specific Plan Area

The Specific Plan Area is located within the Central Valley and is relatively flat. The majority of the Specific Plan Area is comprised of agricultural lands with single-family residential units interspersed. Similar uses surround the Specific Plan Area to the north, west, and south. The Madera Municipal Airport is located to the west and north of the Specific Plan Area. The Sierra Nevada foothills are located to the east of the Specific Plan Area and provide the nearest areas where large expanses of undeveloped properties occur.

According to the CAL Fire, Fire and Resource Assessment Program (FRAP), the Specific Plan Area does not contain any lands within the State Responsibility Area (SRA) and the Specific Plan Area does not contain any lands classified as Very High Fire Hazard Severity Zone (VHFHSZ) within the Local Responsibility Area (LRA).¹ Some areas along the Fresno Review along the southern boundary of the Specific Plan Area are classified by CAL Fire as Moderate Fire Hazard Severity Zone within the LRA.

¹ California Department of Forestry and Fire Protection. 2007. Fire Hazard Severity Zone Maps, Draft Fire Hazard Severity Zones in LRA – Madera. Website: osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps (accessed March 31, 2020).

4.18.1.2 Regulatory Context

Applicable State and local agencies and programs are briefly summarized below.

State Regulations

Executive Order N-05-19. On January 9, 2019, Governor Gavin Newsom announced an Executive Order (EO) that requires CAL Fire and other State agencies to compile policy and regulatory recommendations concerning wildfire mitigation, emphasizing environmental sustainability and public health. The EO requires the incorporation of socioeconomic analysis when conducting risk management of wildfires and mandates that agencies identify geographic areas with populations that are more vulnerable to the impacts of wildfires.

California Department of Forestry and Fire Protection. CAL Fire publishes maps that predict the threat of fire for each county within the State. Local Responsibility Areas and State or Federal Responsibility Areas are classified as either VHFHSZ or non-VHFHSZ based on factors including fuel availability, topography, fire history, and climate. The 2012 Strategic Fire Plan for California was generated by CAL Fire to provide guidelines and objectives in order to account for associated fire impacts.

California Fire Code. The California Code of Regulations (CCR), Title 24, Part 9, of the California Building Code (CBC) California Fire Code includes regulations for emergency planning, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Several fire safety requirements include: installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

California Building Code. The CCR, Title 24, Part 2, of the CBC provides minimum standards for building design in the State. Local codes are permitted to be more restrictive than Title 24, but not less restrictive. The procedures and limitations for the design of structures are based on site characteristics, occupancy type, configuration, structural system height, and seismic zoning. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching and specified in California Occupational Safety and Health Administration (CalOSHA) regulations (CCR, Title 8).

California Health and Safety Code §13000 et seq. and California Building Code. State fire regulations are set forth in Section (§)13000 et seq. of the California Health and Safety Code, which is divided into “Fires and Fire Protection” and “Buildings Used by the Public.” The regulations provide for the enforcement of the CBC and mandate the abatement of fire hazards.

Emergency Response/Evacuation Plans. State law authorizes the Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Noncompliance with SEMS could result in the State withholding disaster relief from the noncomplying jurisdiction in the event of an emergency disaster. The preservation of life, property, and the environment is an inherent responsibility of local, state, and federal government. OES coordinates the responses of

other agencies including the California Highway Patrol (CHP) and the City of Madera Police and Fire departments.

Regional Agencies and Regulations

Madera County Sheriff's Office of Emergency Services. Madera's lead agency for all local emergency response efforts is managed by Madera County's Director of Emergency Services and the Sheriff's Office of Emergency Services (Sheriff's OES)². The Sheriff's OES is responsible for "day-to-day administration of the County's disaster preparedness and response program", "maintaining the County's Emergency Operations Center (EOC)," and "coordinating EOC activities during a disaster." The Sheriff's OES serves as an agent between State, federal, and local agencies involved in emergency response operations.

The Sheriff's OES currently manages the following County emergency plans:

- Emergency Operations Plan (EOP) which outlines how the County will respond to an emergency and sets guidelines to manage a disaster;
- Local Hazard Mitigation Plan (LHMP) which identifies hazards (man-made and natural) within the County, develops mitigation strategies, and is in line with the Disaster Mitigation Act of 2000;
- Community Wildfire Protection Plan (CWPP) helps the community plan how to reduce the risk of wildfire by identifying strategic sites and methods for fuel reduction projects;
- Continuity of Operations Plan (COOP) is an effort within individual executive departments and agencies to ensure that Primary Mission Essential Functions (PMEFs) continue to be performed during a wide range of emergencies, including localized acts of nature, accidents and technological or attack-related emergencies; and
- Mass Fatalities Response Plan serves as a framework for responders faced with the unthinkable mass fatality incident.

Local Policies

Zoning Ordinance. Goals and policies listed in the General Plan are implemented through the City of Madera Zoning Ordinance. Zoning districts are established under the zoning law to guide development and land use in Madera by setting allowable land uses within each district. City zoning ordinances regulate allowable land use, parking, signage and other land use and development specifications enacted under zoning law. The Zoning Ordinance must be consistent with the adopted General Plan. When the City of Madera adopts a General Plan, the City must update the Zoning Ordinance accordingly.

² Madera County. Emergency Info, Madera County Office of Emergency Services. Website: www.maderacounty.com/government/public-health/emergency-info (accessed March 31, 2020).

City of Madera General Plan. The City of Madera General Plan is the City’s primary policy planning document. Through its 10 elements, the General Plan provides the framework for the management and utilization of the City’s physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City. The General Plan strives to maintain and improve Madera’s quality of life and implement the community’s shared vision for the future. The General Plan is the official policy statement of the City Council to guide development (both public and private), as well as the City’s operations and decisions. Table 4.18.A lists the General Plan policies related to wildfire.

4.18.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to wildfire that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine if an impact is significant. The latter part of this section presents the impacts associated with implementation of the proposed Specific Plan and the recommended mitigation measures, if required. Mitigation measures are recommended, as appropriate, to eliminate or reduce significant impacts to a less-than-significant level. Cumulative impacts are also addressed.

4.18.2.1 Significance Criteria

The thresholds for impacts related to wildfire used in this analysis are consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Development of the proposed Specific Plan would result in a significant impact related to agriculture and forestry resources if it would:

- | | |
|-------------------------|--|
| Threshold 4.18.1 | Substantially impair an adopted emergency response plan or emergency evacuation plan. |
| Threshold 4.18.2 | Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. |
| Threshold 4.18.3 | Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. |
| Threshold 4.18.4 | Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. |

4.18.2.2 Project Impacts

The following discussion describes the potential impacts related to wildfires that could result from implementation of the proposed Specific Plan.

- | | |
|-------------------------|--|
| Threshold 4.18.1 | Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? |
|-------------------------|--|

Table 4.18.A: General Plan Policies Related to Wildfire

Policy/Action Item No.	Policy
Policy HS-8	<p>The City shall seek to ensure that new structures are protected from damage caused by earthquakes, geologic conditions, or soil conditions.</p> <p>Action Item HS-8.1: Adopt an All Hazards (natural and manmade) Disaster Plan. The Plan should be sufficiently broad in scope to include the designation of evacuation routes, staging areas, shelters, PODs (points of distribution), and protocols for coordinating all local government and volunteer agencies in assisting local residents in the event of a major earthquake, largescale fire or explosion, or hazardous chemical spill or release of hazardous airborne gas.</p>
Policy HS-11	<p>The City will work with responsible agencies to ensure that all industrial facilities are constructed and operated in accordance with the most current safety and environmental protection standards.</p>
Policy LU-35	<p>Figure LU-3 depicts the Village and District areas as defined by the City of Madera. This map shall be used to implement other policies in this General Plan which refer to villages and village centers. Although shown as defined lines, the exact boundaries of a village may be adjusted at the City's discretion to reflect conditions on the ground, ownership boundaries, or other conditions. Such a change shall not be considered an amendment to this General Plan.</p> <p>VILLAGE D: SPECIFIC POLICIES</p> <p>The following policies are intended to identify some of the unique issues for this area which will need to be addressed, and to guide development, as the area transitions to urban use.</p> <ul style="list-style-type: none"> • All future development in this Village shall conform to the Building Blocks principles as described in this General Plan. • In conjunction with village and neighborhood planning, a mechanism shall be established which creates a permanent agricultural buffer where the westerly edge of the Village abuts the Growth Boundary. This buffer shall average at least 400' in depth, with a minimum depth of 250', and must run continuously along westerly edge of the Village. No habitable structures are to be located within this buffer, although passive recreational opportunities (such as trails and community gardens) may be allowed. Alternative methods and designs to establish the buffer may be proposed, and including placing the buffer on either side of the Growth Boundary. Physical maintenance of the buffer shall be provided consistent with the design and function of the space. • The Village core area shall provide for an integrated mix of uses, including park and open space uses, along the river. • Future development along the Fresno River should be designed to take advantage of the river frontage, including orienting development to front the river where not otherwise prohibited by site conditions. • Village and neighborhood planning shall provide for the alignment of the designated arterial which runs through the Village east and west (Cleveland Avenue), to bend to the south to provide circulation to the proposed village core located along the Fresno River. • All development proposals within Village D shall comply with the provisions of the Airport Land Use Master Plan. The establishment of land use designations at the village and neighborhood levels, as well as the layouts of individual projects, shall reflect the allowable uses and densities in the Airport Land Use Master Plan.
Policy HS-33	<p>The City shall ensure the safety and protection of Madera and its community members by providing adequate first response capabilities to emergencies and by maintaining sufficient resources to expand protection as the community grows.</p>
Policy HS-34	<p>The City shall continue to maintain and update emergency service plans, including the Madera City Fire Department Emergency Operations Plan and the Hazardous Material Spills Emergency Response Plan.</p>
Policy HS-35	<p>The City shall ensure the safety and protection of Madera and its community members by providing appropriate first response to emergencies and ensure that sufficient resources are available to expand protection as the community grows.</p>
Policy HS-36	<p>The City will maintain and enhance community safety through coordinated regional emergency, law-enforcement and protective services systems.</p>

Source: City of Madera General Plan (October 2009).

Implementation of the proposed Specific Plan would alter the land use pattern in the Specific Plan Area and would add additional vehicle traffic and residences requiring evacuation in case of an emergency. Implementation of the proposed Specific Plan would not conflict with the City's emergency response and/or evacuation plans because major arterial roads adjacent to the Specific Plan Area (Road 23, Avenue 15 ½, Avenue 16, and Avenue 17) would be improved to support the Plan Area. In addition, new roadways constructed within the Specific Plan Area would provide roadway connectivity, allowing for better emergency vehicle access to residences as well as evacuation routes for area residents. Finally, the proposed Specific Plan would be reviewed by the Madera City Fire Department in order to ensure compliance with all emergency evacuation plans. As a result, a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.18.2 **Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?**

According to CAL Fire, the Specific Plan Area does not contain any lands within the SRA or lands classified as VHFHSZ within the LRA.³ Although the proposed Specific Plan would change the types of land uses within the Specific Plan Area from agriculture to primarily residential and commercial uses, given the low risk of wildfires in the vicinity of the Specific Plan Area due to the presence of existing agriculture and urban uses adjacent to the project site, this change in land uses would not exacerbate existing wildfire risks. Therefore, implementation of the proposed Specific Plan would not exacerbate wildfire risks due to slope, prevailing winds, or other factors. Furthermore, implementation of the General Plan policies listed above in Table 4.18.A would ensure potential impacts from wildfire would remain less than significant. Therefore, impacts associated with the exacerbation of wildfire risks, including exposure of residents residing within the Specific Plan Area to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, would be less than significant.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.18.3 **Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

³ California Department of Forestry and Fire Protection. 2007. Fire Hazard Severity Zone Maps, Draft Fire Hazard Severity Zones in LRA – Madera. Website: osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps (accessed March 31, 2020).

According to CAL Fire, the Specific Plan Area does not contain any lands within the SRA or lands classified as VHFHSZ within the LRA.⁴ Implementation of the proposed Specific Plan would result in the installation of new infrastructure such as roads, power lines and other utilities. However, because the Specific Plan Area is not in a high fire hazard zone, implementation of the proposed Specific Plan would not exacerbate fire risk or result in ongoing impacts to the environment that would increase fire risk. Further, the required infrastructure would not be located within a high fire hazard area and fire risk would therefore not be exacerbated. As a result, impacts related to installation or maintenance of associated infrastructure would not exacerbate fire risk or result in temporary or ongoing impacts to the environment, therefore a less than significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

Threshold 4.18.4 **Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

According to CAL Fire, the Specific Plan Area does not contain any lands within the SRA or lands classified as VHFHSZ within the LRA.⁵ In addition to the low fire risk, the topography of the proposed Specific Plan is relatively flat. In addition, grading for development to occur under the proposed Specific Plan would be in accordance with the City of Madera Grading Ordinance, the current building code, and any recommendations provided in the Infrastructure Master Plan to ensure that drainage within the Specific Plan Area meets the requirements of the City of Madera. As a result, implementation of the proposed Specific Plan would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes, and a less-than-significant impact would occur.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

4.18.2.3 Cumulative Impacts

The proposed Specific Plan would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to wildfire. The cumulative study area for wildfire impacts includes the Specific Plan Area and immediately adjacent lands.

Implementation of the proposed Specific Plan would result in an increase in population in the Specific Plan Area. In addition, installation of new infrastructure would be required to implement the Specific Plan. However, the Specific Plan Area is not located within a VHFHSZ within the LRA and therefore wildfire risk is considered low. Further, none of the immediately adjacent lands are within a VHFHSZ. In addition, implementation of the proposed Specific Plan would not alter existing roadways or accesses in a way that would substantially impair an emergency evacuation plan or the

⁴ California Department of Forestry and Fire Protection. 2007. Fire Hazard Severity Zone Maps, Draft Fire Hazard Severity Zones in LRA – Madera. Website: osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps (accessed March 31, 2020).

⁵ Ibid.

LHMP. Since the Specific Plan Area and surrounding areas do not contain any lands classified as VHFHSZ, and because no potentially significant impacts related to wildfires have been identified, wildfire impacts would be less than cumulatively significant.

Level of Significance Without Mitigation: Less than significant. No mitigation is required.

5.0 ALTERNATIVES

In accordance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines (Section 15126.6), an Environmental Impact Report (EIR) must describe a range of reasonable alternatives to the project, or to the location of the project, that would “feasibly attain most of the project's basic objectives, while avoiding or substantially lessening any of the significantly adverse environmental effects of the project.” An EIR does not need to consider every conceivable alternative to a project; rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The range of alternatives required in an EIR is governed by a “rule of reason.”

The proposed project involves the implementation of the proposed Specific Plan, which would be implemented over 30 years and would result in the addition of approximately 10,800 residential units in Madera. The potential environmental effects of implementing the proposed project are analyzed in Chapter 4.0, Setting, Impacts, and Mitigation Measures. The proposed project has been described and analyzed in Chapter 4.0 with an emphasis on determining and evaluating potential significant impacts resulting from the project and identifying mitigation measures to avoid or reduce these impacts to a less-than-significant level. The following identifies and discusses three feasible alternatives to the proposed project, compares the impacts of each alternative to the impacts of the project, and determines whether the alternatives meet the basic project objectives and avoid or reduce project-related significant impacts.

SELECTION OF ALTERNATIVES

Section 21100 of the Public Resources Code and Section 15126.6 of the CEQA Guidelines require an EIR to identify and discuss a No Project Alternative and a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the proposed project and that would avoid or substantially lessen any of the significant environmental impacts. When selecting a set of alternatives to analyze, Section 15126.6(f) of the CEQA Guidelines also discusses the consideration of alternative locations and determining whether any of the significant effects of a proposed project would be avoided or substantially lessened by putting the project in another location. In the case of the proposed Specific Plan, no alternative locations were considered because the City of Madera designated the Specific Plan Area for development of a specific plan as part of “Village D” in the General Plan.

Based on the criteria listed above, three alternatives have been selected to avoid or substantially lessen the significant impacts of the proposed project. Therefore, the alternatives considered in this Draft EIR include the following:

- **Alternative 1: No Project Alternative.** This alternative assumes the Specific Plan Area would remain in its current state and the area would stay under the existing County zoning, but within the City's sphere of influence.

- **Alternative 2: Low Density Residential Alternative.** This alternative would reduce the overall density of housing to be developed in the Specific Plan Area to be consistent with the City's typical low density housing ratio of five residential units per acre. This alternative would result in a total buildout of approximately 7,600 residential units.
- **Alternative 3: Reduced Project Alternative.** This alternative would result in approximately 1,080 acres of low and medium density residential land uses and 500 acres of agricultural land. Additional land uses would include school sites, parks and recreation, natural areas, and major roadways.

Table 5.A provides a summary of the anticipated impacts and feasibility of each alternative. A complete discussion of each alternative is provided below.

For each alternative, the analysis provides the following:

- Description of the alternative;
- Environmental analysis of the potential impacts of the alternative and the significance of those impacts (per the *State CEQA Guidelines*, significant effects of an alternative shall be discussed but in less detail than those of the proposed project);
- Overview of the potential impacts of the alternative and the significance of those impacts; and
- Summary comparison of the alternative relative to the proposed project's impacts, specifically addressing whether the alternative would meet the project's objectives; whether it would eliminate or reduce impacts compared to the project; and its other comparative merits.

5.1 PROPOSED PROJECT

5.1.1 Project Characteristics

As described earlier in Chapter 3.0, Project Description, the proposed project would implement a proposed Specific Plan that would result in approximately 10,800 residential units, approximately 2.1 million square feet of commercial and office space, approximately 165 acres of parks and recreational area, and approximately 55 acres of public facilities including schools. The proposed Specific Plan would also include infrastructure improvements including roadways and utilities to facilitate buildout. As each phase of development is proposed, improvements would include site grading and the demolition of on-site existing vegetation and structures.

5.1.2 Project Objectives

Each alternative is analyzed to determine whether it achieves the basic objectives of the proposed project. As stated in Chapter 3.0, Project Description, the City has established the following intended specific objectives for the proposed Specific Plan that would serve to aid decision-makers in their review of the proposed project and its associated environmental impacts:

Table 5.A: Summary of Project Alternatives

Alternative	Description	Basis for Selection and Summary Analysis
Proposed Project	<ul style="list-style-type: none"> • 10,783 residential units of various densities within 1,371 acres • 1.83 million square feet of Village Mixed Use within 120 acres • 164 acres of parks and recreational facilities • 17 acres of natural areas • 258,600 square feet of industrial development within approximately 30 acres • 54 acres for elementary school sites • 128 acres of major roadways 	<ul style="list-style-type: none"> • Meets all Project Objectives • Requires certification of this EIR; General Plan Amendment; Specific Plan approval; Neighborhood Plan approvals; Municipal Code Amendments/Prezoning; and parcel and tentative map approvals • Requires annexation
Alternative 1: No Project Alternative	<ul style="list-style-type: none"> • No changes to land use designations • Does not provide new housing opportunities to facilitate fulfillment of the City’s Regional Housing Needs Assessment (RHNA) requirements 	<ul style="list-style-type: none"> • Required by CEQA • Reduced impacts for all topic areas, including air quality, GHG, noise, and traffic impacts • Does not meet any Project Objectives
Alternative 2: Low Density Residential Alternative	<ul style="list-style-type: none"> • 1,520 acres of low density residential use, totaling approximately 7,600 residential units • 164 acres of parks and recreational facilities (same as proposed Specific Plan) • 17 acres of natural areas (same as proposed Specific Plan) • 54 acres for elementary school sites (same as proposed Specific Plan) • 128 acres of major roadways (same as proposed Specific Plan) • No Village Mixed Use land uses • No Industrial land uses 	<ul style="list-style-type: none"> • Requires certification of this EIR; General Plan Amendment, Specific Plan approval; Neighborhood Plan approval; Municipal Code Amendments/Prezoning; and parcel and tentative map approvals. • Requires annexation • Reduced air quality, GHG, noise, and traffic impacts due to reductions in land use intensity • Consistent with some of the Project Objectives
Alternative 3: Reduced Project Alternative	<ul style="list-style-type: none"> • 1,084 acres of low and medium density residential use, totaling approximately 7,600 residential units • 500 acres of agricultural use • 100 acres of parks and recreational facilities • 17 acres of natural areas (same as proposed Specific Plan) • 54 acres for elementary school sites (same as proposed Specific Plan) • 128 acres of major roadways (same as proposed Specific Plan) • No Village Mixed Use land uses • No Industrial land uses 	<ul style="list-style-type: none"> • Requires certification of this EIR; General Plan Amendment; Specific Plan approval; Neighborhood Plan approval; Municipal Code Amendments/Prezoning; and parcel and tentative map approvals. • Requires annexation • Reduced air quality, GHG, noise, and traffic impacts due to reductions in land use intensity • Consistent with some of the Project Objectives

Source: LSA (September 2020)

- Address the City of Madera’s current and projected housing needs for all segments of the community by providing a range of single- and multi-family homes.
- Promote high quality retail and mixed-use development to attract an array of businesses and employment opportunities.
- Establish a mix of land uses and local-serving activities that meet the General Plan’s objectives concerning community character and pedestrian-friendly design.
- Implement the City’s General Plan Land Use Element goal to facilitate annexation of large areas of land that are governed by a specific plan, which provides for compatibility of land uses, fiscal balance, recreation, and resource protection.
- Establish a transportation network that will fulfill the policies of the Madera General Plan’s Circulation Element by allowing residents to live within proximity to schools, recreational opportunities, retail centers, and commercial development, and minimize vehicle trips through utilizing access to a variety of transportation opportunities, including pedestrian pathways, bikeways, regional arterials, and transit.
- Promote opportunities for water efficiency in Plan Area architecture and landscaping to promote water conservation.
- Incorporate green and sustainable practices, as practicable, in developing buildings and infrastructure.
- Undertake development of the Plan Area in a manner that is economically feasible and balanced to address the City’s economic interests.

5.1.3 Significant Unavoidable Impacts of the Proposed Project

As described in Chapter 4.0, Evaluation of Environmental Impacts, the proposed Specific Plan would result in less than significant impacts related to the following topics: biological resources, cultural resources and tribal cultural resources, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, and wildfire. The proposed project would result in significant unavoidable impacts related to aesthetics, agricultural resources, air quality, noise, public services and recreation, transportation, and utilities and service systems.

For the purpose of this analysis, it is assumed that all of the alternatives would comply with applicable federal, State, and local regulations, policies, and ordinances. It is also assumed that all mitigation measures required for implementation of the proposed Specific Plan would apply to the project alternatives and similar corresponding reductions in impacts would be achieved through such mitigation. Therefore, the following discussion focuses on the ability of the alternatives to reduce project impacts and the potential impacts of the project alternatives related to these issues.

5.2 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

5.2.1 Description

Under this alternative, no development identified in the proposed Specific Plan would occur, and the Specific Plan Area would continue to be used for agricultural production within an unincorporated area of Madera County. Although the City includes the proposed Specific Plan Area within the Urban Growth Boundary, the proposed Specific Plan Area is located outside of the City limits. Under this Alternative no construction activities or long term operations associated with the proposed Specific Plan would occur.

5.2.2 Environmental Analysis

5.2.2.1 Aesthetics

Under this alternative, no changes to the Specific Plan Area would occur, and the existing agricultural character of the Specific Plan Area would not change. Increase in lighting and glare would not occur and views to and across the Specific Plan Area would not change. Because the No Project Alternative would not result in any physical changes, this alternative would not alter the Specific Plan Area. Impacts to aesthetics would not occur and would therefore be less than the proposed project.

5.2.2.2 Agriculture and Forestry Resources

This alternative would not change the existing land uses within the Specific Plan Area. The entire Specific Plan is comprised of agricultural resources, including Williamson Act Contract lands in the Southwest portion of the Specific Plan Area. No forestry resources are located within the Specific Plan Area. With no changes to the land uses included under this alternative, this alternative would not impact agricultural resources and would result in fewer impacts related to the conversion of agricultural resources when compared to the proposed Specific Plan, which was determined to have significant and unavoidable impacts to such resources.

5.2.2.3 Air Quality

Under this alternative, construction of approximately 10,800 residential units as well as commercial and industrial land uses would not occur within the approximately 1,900-acre Specific Plan Area. Although agricultural operations would continue to occur within the Specific Plan Area, compared to construction and operation of development under the proposed Specific Plan, this alternative would result in substantially fewer emissions when compared to the proposed Specific Plan. Therefore, this Alternative would avoid the significant and unavoidable air quality impacts associated with the proposed project.

5.2.2.4 Biological Resources

Under this alternative, the existing biological resources located within the Specific Plan Area would not be affected because the existing land uses would not change, and construction and operation of development under the proposed Specific Plan would not occur. As a result, this alternative would result in fewer impacts to such resources when compared to the proposed Specific Plan.

5.2.2.5 Cultural Resources and Tribal Cultural Resources

Although no known cultural resources are located within the Specific Plan Area, there are areas that have a higher likelihood of containing unrecorded sensitive cultural resources. Under this alternative, no development would occur and no cultural resources would potentially be affected. As a result, this alternative would result in fewer impacts to cultural resources and tribal cultural resources when compared to the proposed Specific Plan.

5.2.2.6 Energy

Under this alternative, construction of approximately 10,800 residential units as well as commercial and industrial land uses would not occur. As a result, electricity and natural gas usage, as well as energy used for the construction of the development proposed under the proposed Specific Plan would not occur. The existing energy demand of the existing agricultural uses and the few ancillary residential uses would be substantially less than the proposed Specific Plan. As a result, this alternative would result in fewer impacts related to energy use when compared to the proposed Specific Plan.

5.2.2.7 Geology and Soils

Under this alternative no physical changes would occur within the Specific Plan Area and no changes to geology or soils would occur outside of the effects of existing agricultural operations. In addition, the likelihood of discovering paleontological resources or unique geologic features would not increase under this alternative as no physical disturbance would occur under this alternative. As a result, this alternative would result in fewer impacts related to geology and soils and unknown paleontological resources.

5.2.2.8 Greenhouse Gas Emissions

Under this alternative, construction of approximately 10,800 residential units as well as commercial and industrial land uses would not occur. As a result, the greenhouse gas emissions occurring under the proposed Specific Plan would not occur. This alternative would not result in new greenhouse gas emissions and existing emissions would remain unchanged because no changes in land uses would occur. As a result, this alternative would result in fewer impacts resulting from greenhouse gas emissions when compared to the proposed Specific Plan.

5.2.2.9 Hazards and Hazardous Materials

Under this alternative, changes in land use would not occur and the existing conditions related to the accidental release of, or exposure to, hazardous materials would remain the same. Although the existing agricultural operations would continue to utilize fertilizers within the Specific Plan Area, no new land uses requiring clearers, solvents, or fuels would be implemented. Therefore, this alternative would result in fewer impacts when compared to the proposed Specific Plan.

5.2.2.10 Hydrology and Water Quality

Under this alternative, the existing pervious surfaces and agricultural land would not be altered. With no physical changes occurring within the Specific Plan Area, the existing drainage patterns would not be altered. In addition, this alternative would not create a potential to violate any water

quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality, because this alternative would not change the existing conditions within the Specific Plan Area. As a result, this alternative would result in fewer impacts related to hydrology and water quality when compared to the proposed Specific Plan.

5.2.2.11 Land Use and Planning

Under this alternative, the Specific Plan Area would not be annexed into the City, and no land use changes would occur. Similar to the proposed Specific Plan, this Alternative would not divide an established community. The City's General Plan establishes the Specific Plan Area, as well as other "villages" throughout the Planning Area of the General Plan, to be developed as an urban growth area. Although this alternative would not require a General Plan Amendment, annexation or rezoning, it would not result in development as envisioned under the General Plan. As a result, this alternative would result in greater impact when compared to the proposed Specific Plan.

5.2.2.12 Mineral Resources

There are no mineral resources located within the Specific Plan Area, and no mineral resources would be adversely affected under this alternative or the proposed Specific Plan. As a result, this alternative would similarly result in no impacts like the proposed Specific Plan.

5.2.2.13 Noise

Under this alternative, construction of approximately 10,800 residential units as well as commercial and industrial land uses would not occur within the approximately 1,900-acre Specific Plan Area. Although agricultural operations would continue to occur within the Specific Plan Area and would generate noise, compared to construction noise generated by the proposed development under the proposed Specific Plan, under this alternative would not result in noise generated from construction activities or vehicle noise. Noise generated during operational phases would increase as a result of vehicle traffic. As a result, this alternative would result in fewer noise impacts and would avoid significant and unavoidable noise impacts when compared to the proposed Specific Plan.

5.2.2.14 Population and Housing

Under this alternative the population and housing units within the Specific Plan Area would not change. In addition, under this alternative no housing units or people would be displaced. The proposed Specific Plan would substantially increase the number of residential units and population within the Specific Plan Area. Although the proposed Specific Plan would increase the overall population within the Specific Plan Area, because the proposed Specific Plan is identified in the City's General Plan as an area designated for future growth, it would not induce substantial unplanned population growth. Similarly to the proposed Specific Plan, this alternative would not induce substantial unplanned population growth. However, it would not provide housing as needed for the City to meet its regional housing need allocation (RHNA) goals. Overall, this alternative would result in similar impacts as the proposed Specific Plan, but greater impacts related to the provision of needed housing units.

5.2.2.15 Public Services and Recreation

Under this alternative, the population of the Specific Plan Area would not change and there would be no increased demand for public services, including fire protection, police protection, public schools, parks and recreational facilities. The proposed Specific Plan would substantially increase the population of the Specific Plan Area and would increase the demand for public services. In addition, the proposed Specific Plan would result in significant and unavoidable impacts related to construction of public facilities. As a result, this alternative would result in fewer impacts to public services when compared to the proposed Specific Plan.

5.2.2.16 Transportation

Under this alternative no land uses would change and no development would occur in the Specific Plan area. As a result, potential impacts related to transportation resulting from implementation of the proposed Specific Plan would not occur. The proposed Specific Plan would result in a significant impact resulting from increased levels of service that would conflict with established policies addressing roadways. Under this alternative, no increases in vehicle trips would occur and no conflicts with such policies would occur. As a result, this alternative would result in fewer impacts related to transportation when compared to the proposed Specific Plan, and would avoid significant and unavoidable transportation impacts.

5.2.2.17 Utilities and Service Systems

Under this alternative, no land uses or physical changes would occur within the Specific Plan Area, and therefore, no increased demand for utilities and service systems, including water supply, wastewater, stormwater, and electricity, natural gas, and telecommunications would occur. The proposed Specific Plan would result in a substantial increase in demand for utilities due to the proposed residential units, commercial space, and industrial uses. Although sufficient capacity to accommodate future development under the Specific Plan would be ensured by the City through implementation of the General Plan and infrastructure master plans, potential impacts would occur during construction of new and expanded facilities. This alternative would not increase demand for utilities because no population increase or development would occur. Because the Specific Plan would result in significant and unavoidable impacts related to utilities and service systems, this alternative would result in fewer impacts related to utilities and service systems when compared to the proposed Specific Plan. In addition, physical impacts resulting from construction-period impacts would not occur under this alternative. As a result, this alternative would result in fewer construction-related impacts.

5.2.2.18 Wildfire

The Specific Plan Area does not contain any lands classified as a Very High Fire Hazard Severity Zone. The proposed Specific Plan would result in less-than-significant impacts related to the impairment of an adopted emergency response plan or evacuation plan, and would not exacerbate wildfire risks or expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. Because this alternative would not increase the population of the Specific Plan Area or change land uses in a fire hazard zone, when compared to the proposed Specific Plan, this alternative would result in similar, less than significant impacts related to wildfire.

5.2.3 Overview of Potential Impact/Comparison to Proposed Project

Under the No Project Alternative, no development would occur in the Specific Plan Area. As a result, significant and unavoidable impacts to aesthetics, agricultural resources, air quality, land use, noise, transportation, and utilities and service systems, would not occur. Overall, potential impacts under the No Project Alternative would be fewer when compared to the proposed Specific Plan as no physical impacts would occur.

5.2.4 Project Objectives

The No Project Alternative would not achieve any of the Project Objectives. The No Project Alternative would not include any development, and would not address the City's current or projected housing needs, would not create a mixed-use development to attract businesses and employment opportunities; achieve the goals related to community character and pedestrian-friendly design envisioned in the General Plan, or facilitate the annexation of the Specific Plan Area. In addition, without any development, the No Project Alternative would not create a transportation network as identified in the General Plan, promote opportunities for water efficiency and incorporate sustainable building and operating practices, incorporate sustainable practices, as practicable, in developing buildings and infrastructure; or result in an economically feasible and balanced development.

5.3 ALTERNATIVE 2: LOW DENSITY RESIDENTIAL ALTERNATIVE

5.3.1 Description

Under this alternative, the proposed Specific Plan would be implemented with residential zoning and densities that would be consistent with the City's residential zoning for low density. The City's residential zoning densities for low density range from 3 units to 7 units per acre. For the purpose of this analysis, an average of five units per acre was used to provide a reasonable estimate of development that could occur within the Specific Plan Area. In addition, the acreages identified in the proposed Specific Plan as Village Mixed Use (120 acres) and Village Business Park (30 acres), would be reallocated to low density residential, for a total of approximately 1,521 acres of low density residential acres with a total buildout of approximately 7,600 residential units. Acreages for Parks and Recreation, Natural Areas along the Fresno River, Elementary School Sites, and Major Roadways would be the same as the proposed Specific Plan.

5.3.2 Environmental Analysis

5.3.2.1 Aesthetics

Under this alternative, development would occur throughout all of the approximately 1,900 acres of the Specific Plan Area. Although the Low Density Residential Alternative would result in approximately 3,000 less housing units than the proposed Specific Plan, the total area would be developed and the character of the Specific Plan Area would be substantially altered. In addition, when compared to the proposed Specific Plan, views to and across the Specific Plan Area would be similar as both the proposed Specific Plan and this alternative would result in a change from agricultural uses to urbanized land uses. Under this alternative, the change resulting from existing farmland with no nighttime lighting to urban uses would result in a significant increase in both

daytime glare and nighttime light. As a result, when compared to the proposed Specific Plan, this alternative would result in similar significant and unavoidable impacts to aesthetics.

5.3.2.2 Agriculture and Forestry Resources

Under this alternative, development would occur throughout all of the approximately 1,900 acres of the Specific Plan Area. As a result, the existing agriculture land uses in the Specific Plan would be converted to non-agricultural land uses. Although the Specific Plan Area does not include forestry resources, Williamson Act Contract lands are located in the Southwest area of the Specific Plan. Because both this alternative and the proposed Specific Plan would result in conversion of the Specific Plan Area from agricultural land to non-agricultural land, the potential impacts would be similar, and considered significant and unavoidable.

5.3.2.3 Air Quality

Under this alternative, construction of approximately 7,600 residential units would occur. Construction impacts related to air quality would occur, but due to the reduced number of residential numbers, the overall emissions would not be as significant as the proposed Specific Plan. In addition, with no commercial or industrial land uses included under this alternative, the balance of housing and employment within the Specific Plan Area would result in greater vehicle miles travel (VMT) impacts, thereby increasing operational air quality emissions. As a result, construction-period impacts would be less than the proposed Specific Plan, but operational-period air quality impacts related to vehicle emissions would be greater than the proposed Specific Plan. On balance, this alternative would result in similar significant and unavoidable impacts when compared to the proposed Specific Plan.

5.3.2.4 Biological Resources

Under this alternative, development of the approximate 1,900-acre Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan. Because the same overall project area would be disturbed under this alternative, the potential impacts to biological resources, including potential impacts to sensitive species and habitat, would be similar when compared to the proposed Specific Plan. With implementation of the same mitigation identified in this EIR for the proposed project, both this alternative and the proposed project would result in less-than-significant impacts related to biological resources.

5.3.2.5 Cultural Resources and Tribal Cultural Resources

Under this alternative, development of the proposed Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan. Because the same overall project area would be disturbed under this alternative, the potential impacts to cultural resources and tribal cultural resources, including potential impacts related to the discovery of previously-unknown historic resources, would be similar to the proposed Specific Plan. With implementation of the same mitigation identified in this EIR for the proposed project, both this alternative and the proposed project would result in less-than-significant impacts related to cultural and tribal resources.

5.3.2.6 Energy

Under this alternative, approximately 3,000 fewer residential units would be developed when compared to the proposed Specific Plan. In addition, no commercial or industrial land uses would be included under this alternative. As a result, less electricity and natural gas, as well as energy used for the construction of the development would be used when compared to the proposed Specific Plan. Although the proposed Specific Plan would result in less-than-significant impacts with the implementation of mitigation measures to reduce potential energy impacts, this alternative would result in fewer impacts related to energy use when compared to the proposed Specific Plan. Overall, impacts would resulting from this alternative would be considered less than significant.

5.3.2.7 Geology and Soils

Under this alternative, development of the proposed Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan. Under this alternative, potential impacts related to geological hazards, including seismic ground shaking, ground failure, landslides, soil erosion, and unstable geologic unit would be considered less-than-significant because a Standard Condition of Approval would be incorporated to require future geotechnical analyses to be complete prior to issuance of building permits. Impacts would be similar to that of the proposed Specific Plan because ground disturbance would occur within the same project area. Potential impacts related to the discovery of as yet unknown paleontological resources or unique geologic feature would also be similar to the proposed Specific Plan due to the same disturbance area. With implementation of the same mitigation identified in this EIR for the proposed project, this alternative would result in similar impacts related to geology and soils and paleontological resources as the proposed Specific Plan.

5.3.2.8 Greenhouse Gas Emissions

Under this alternative, approximately 3,000 fewer residential units would be developed when compared to the proposed Specific Plan. In addition, no commercial or industrial land uses would be included under this alternative. Less overall development would occur under this alternative and greenhouse gas (GHG) emissions associated with the operation of the proposed Specific Plan. However, under this alternative employment opportunities associated with commercial or industrial land uses would not occur when compared to the proposed Specific Plan. As a result, the balance of housing and employment within the Specific Plan Area would result in greater VMT impacts, thereby increasing GHG emissions generated by vehicles. This alternative and the proposed Specific Plan would be required to prepare a Greenhouse Gas Reduction Plan referencing details of construction plans and specifications to document implementation and compliance with the City's Climate Action Plan (CAP). With implementation of this mitigation, this alternative would result in less-than-significant impacts. As a result, this alternative would result in similar impacts when compared to the proposed Specific Plan.

5.3.2.9 Hazards and Hazardous Materials

Under this alternative, development of the proposed Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan. No commercial and industrial development would be included in this alternative. As a result, the potential impacts related to the accidental release of, or exposure to, hazardous materials would be limited to typical

household cleaners and solvents, but not in the quantities that would result in substantial impacts. Potential impacts resulting from demolition of existing structures may result in the release of hazardous materials such as asbestos and lead based paint. Both this alternative and the proposed Specific Plan would require mitigation to prepare site-specific surveys and remove any hazardous materials consistent with applicable standards. Although there is a potential for airport hazards to substantially increase due to the proximity of the Specific Plan Area to the Madera Municipal Airport and safety zones, development would be required to be consistent with the General Plan and the Madera County Airport Land Use Compatibility Plan (ALUCP), similar to the proposed Specific Plan. As a result, this alternative would be similar to the proposed Specific Plan and would have less-than-significant impacts related to hazards and hazardous materials.

5.3.2.10 Hydrology and Water Quality

Under this alternative, development of the entire Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan. As a result, the entire Specific Plan Area would be altered and drainage features would be altered to the same degree as the proposed Specific Plan. With the lower density housing proposed under this alternative, it is likely that more pervious surfaces would be located within the Specific Plan Area when compared to the proposed Specific Plan because less density and hardscape (impervious area) would be constructed as a result of this alternative. As a result, this alternative would likely allow for more water to percolate into the Madera Subbasin. In addition, with less residential units included under this alternative, the groundwater supplies of the Madera Subbasin would be affected to a lesser effect when compared to the proposed Specific Plan. Similar to the proposed Specific Plan, this alternative would implement Regulatory Compliance Measure HYD-1 to ensure that grading plans for future projects would be completed to meet regulatory requirements, such as Best Management Practices (BMPs), to minimize pollution of stormwater runoff. As a result, this alternative would result in less-than-significant impacts to hydrology and water quality, and would be similar when compared to the proposed Specific Plan.

5.3.2.11 Land Use and Planning

Under this alternative, the overall buildout would result in fewer residential units when compared to the proposed Specific Plan, and no commercial and industrial development would be developed. Due to the existing agricultural land uses within the Specific Plan Area and the surrounding land uses, this alternative would not divide an existing community. In addition, this alternative would be consistent with the General Plan by developing an urban growth area. However, fewer residential units would be constructed and, when compared to the proposed Specific Plan, potential impacts related to conflicts with existing plans and ordinances would be fewer and would result in less-than-significant impacts. Implementation of this alternative would include a General Plan Amendment establishing the specific land uses and zoning applicable to the Specific Plan Area. As a result, both the proposed Specific Plan and this alternative would result in similar, less-than-significant impacts.

5.3.2.12 Mineral Resources

There are no mineral resources located within the Specific Plan Area, and no mineral resources would be adversely affected under this alternative or the proposed Specific Plan. As a result, when

compared to the proposed Specific Plan, this alternative would result in similar, less-than-significant impacts related to mineral resources.

5.3.2.13 Noise

Under this alternative, construction of approximately 3,000 fewer residential units would occur within the approximately 1,900-acre Specific Plan Area. The proposed Specific Plan would result in significant and unavoidable noise impacts resulting from temporary construction noise. Under this alternative, noise generated during construction of residential units, school facilities or parks and recreational facilities would still occur, but to a lesser degree as compared to the proposed Specific Plan because less construction would occur overall. In addition, traffic noise generated under this alternative would be less than the proposed Specific Plan, because fewer vehicle trips would be generated by fewer residential units. Commercial and industrial land uses would not be developed, which would also reduce noise generated under this alternative when compared to the proposed Specific Plan. Impacts related to groundborne vibration would occur under both the proposed Specific Plan and this alternative and would be mitigated to less-than-significant levels with the proposed mitigation in this Draft EIR. The proposed Specific Plan would result in significant and unavoidable impacts related to noise, as a result, when compared to the proposed Specific Plan, this alternative would result in fewer impacts related to noise.

5.3.2.14 Population and Housing

Under this alternative, the entire Specific Plan Area would be developed, but with 3,000 fewer residential units when compared to the proposed Specific Plan. Both the proposed Specific Plan and this alternative would result in similar, less-than-significant impacts related to the displacement of existing housing and population. Assuming the same household size as the proposed Specific Plan (3.55 resident per household), this alternative would result in a total population of approximately 26,980 residents, or approximately 11,300 fewer residents than the proposed Specific Plan. Because buildout of the Plan Area was identified and anticipated in the City's General Plan, buildout of either this alternative or the proposed Specific Plan would not induce substantial unplanned population growth. As a result, this alternative would result in similar, less-than-significant impacts related to population and housing when compared to the proposed Specific Plan.

5.3.2.15 Public Services and Recreation

Under this alternative, construction of approximately 7,600 residential units would occur within the approximately 1,900-acre Specific Plan Area. As a result, the demand for public services, including fire protection, police protection, public schools, parks and recreational facilities would increase over the existing demand. This alternative would result in approximately 11,300 fewer residents when compared to the proposed Specific Plan, representing a reduced impact when compared to the proposed Specific Plan. The proposed Specific Plan would result in significant and unavoidable impacts resulting from construction of public facilities. This alternative would also result in similar, significant and unavoidable impacts to public services when compared to the proposed Specific Plan.

5.3.2.16 Transportation

Under this alternative, construction of approximately 7,600 residential units would occur within the Specific Plan Area. As a result, the impacts related to transportation would increase when compared to existing conditions. However, when compared to the proposed Specific Plan, this alternative would result in approximately 3,000 fewer residential units and 11,300 fewer residents. The proposed project would result in a less-than-significant impact related to VMT impacts. A reduction in residents in the Specific Plan Area would represent fewer impacts to transportation impacts, including conflicts with existing policies. However, under this alternative, a mix of land uses would not occur, and residents would need to travel further for employment, thus increasing potential VMT impacts when compared to the proposed Specific Plan. Under this alternative, and similar to the proposed Specific Plan, impacts related to bicycle facilities, transit facilities, pedestrian facilities, hazards related to design features, and emergency access would be less-than-significant. However, overall, this alternative would result in greater impacts to transportation when compared to the proposed Specific Plan due to increased VMT.

5.3.2.17 Utilities and Service Systems

Under this alternative, construction of approximately 7,600 residential units would occur within the approximately 1,900-acre Specific Plan Area. As a result, the demand for utilities and service systems, including water, wastewater, stormwater and electricity, natural gas and telecommunications would increase over the existing demand. However, this alternative would result in approximately 11,300 fewer residents when compared to the proposed Specific Plan, representing reduced impacts related to public services when compared to the proposed Specific Plan. Although the proposed Specific Plan would result in less-than-significant impacts to public services in terms of capacities of facilities (water, wastewater, stormwater, and electricity, natural gas, and telecommunication facilities), the proposed Specific Plan would result in potential environmental impacts resulting from construction activities for those facilities. Mitigation measures required for the proposed Specific Plan would also be required for this alternative to assess available capacities of facilities when future development projects are proposed and would require the establishment of financing mechanism to fund future improvements. Although the General Plan requires confirmation of adequate public facilities prior to approval of construction, similar to the proposed Specific Plan, this alternative would also require future confirmation of adequacy of public facilities. As a result, this alternative would result in similar, significant and unavoidable impacts related to utilities and service systems when compared to the proposed Specific Plan.

5.3.2.18 Wildfire

The Specific Plan Area does not contain any lands classified as a Very High Fire Hazard Severity Zone. This alternative would be constructed within the same project area as the proposed Specific Plan. Therefore, both the proposed Specific Plan and this alternative would result in less-than-significant impacts related to the impairment of adopted emergency response plan or evacuation plan, exacerbate wildfire risks, or expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. Similarly, because this alternative would be constructed within the same Specific Plan Area which is not designated as a Very High Fire Hazard Severity Zone, this alternative would result in similar, less-than-significant impacts related to wildfire when compared to the proposed Specific Plan.

5.3.3 Overview of Potential Impact/Comparison to Proposed Project

Under the Low Density Residential Alternative, development would occur, but the residential density would be lower than the proposed Specific Plan, and no commercial or industrial land uses would be included. Because the entire Specific Plan Area would be developed fully under both the proposed Specific Plan and this Alternative, impacts related to construction and site disturbance related to air quality and noise would be similar. In addition, construction-related impacts related to the provision of adequate capacity for public services and utilities and service systems would be similar to the proposed Specific Plan. Transportation impacts under this alternative would be fewer than the proposed Specific Plan, because less residential units would be included, and potential conflicts with existing plans would not occur to the same degree as the proposed Specific Plan. This alternative would also be able to potentially include an agriculture buffer, which the proposed Specific Plan does not include. Additionally, when compared to the proposed Specific Plan, fewer overall residents would reside within the Specific Plan Area, and fewer operational impacts related to energy, hydrology and water quality, and noise would occur.

5.3.4 Project Objectives

The Low Density Residential Alternative would achieve most of the Project Objectives, but with a limited set of land uses, this alternative would not create mixed-use development or result in community character and pedestrian-friendly design that would be facilitated by a mix of land uses. With development of the Specific Plan Area, this alternative would help address the City's current and projected housing needs, facilitate annexation of the Specific Plan area, and create a transportation network to meet objectives of the General Plan. Additionally, this alternative would promote opportunities for water efficiency and incorporate sustainable building and operating practices, incorporate sustainable practices, as practicable, in developing buildings and infrastructure; and result in an economically feasible and balanced development. However, overall this alternative would not achieve all of the objectives of the proposed Specific Plan to the same extent because the level of residential density and mix of land uses would not allow for sustainable development that balances housing and employment. Without the same level of residential development, this alternative would not address the City's current and project housing needs to the same level as the proposed Specific Plan.

5.4 ALTERNATIVE 3: REDUCED PROJECT ALTERNATIVE

5.4.1 Description

Under this alternative approximately 7,600 residential units would be constructed but the mixed-use development occurring within the Specific Plan Area would be removed to reduce potential significant and adverse environmental impacts related to air quality resulting from construction, greenhouse gas emissions, vehicle-generated noise, and conflicts with roadway policies. In addition, 500 acres of agricultural land would be preserved within the Specific Plan Area site to reduce significant and unavoidable impacts related agricultural conversion that would result from implementation of the proposed Specific Plan. This alternative would likely preserve agricultural land uses in the Southwest Neighborhood area where Williamson Act Contracts are still in place and in the Northwest Neighborhood to ensure that compatibility with the Madera County ALUCP. This

alternative was selected to allow for a mix of residential densities within the Specific Plan Area, and to preserve agricultural land uses that would be developed under the propose Specific Plan.

For the purpose of this analysis, acreages identified for the Village Mixed Use district (120 acres), Village Business Park (30 acres), Village Parks and Recreation (64 acres), Village Country Estates (36 acres), Village Low Density (145 acres), and Village High Density (105 acres) would be reallocated to agriculture land uses. This would result in a total of 500 acres of agriculture land uses and a total buildout of 7,601 residential units in the Specific Plan Area. Land uses designated Village Medium Density, Village Natural Open Space, Village Public Facilities, and Major Roadways would be the same as the proposed Specific Plan.

5.4.2 Environmental Analysis

5.4.2.1 Aesthetics

Under this alternative, development would occur throughout approximately 1,300 acres of the Specific Plan Area, and 500 acres would be preserved for agricultural uses. Although this alternative would result in approximately 3,000 less housing units than the proposed Specific Plan and would retain 500 acres of agricultural uses, the character of the Specific Plan Area would be substantially altered. In addition, when compared to the proposed Specific Plan, views to and across the Specific Plan Area would be similar as both the proposed Specific Plan and this alternative would result in a change from almost entirely agricultural uses to urbanized land uses. Although a portion of the project area would remain in agricultural production, the overall visual character of the Specific Plan Area would be developed, resulting in similar impacts as the proposed project. In addition, and similar to the proposed Specific Plan, the introduction of new light and glare that would result from the development of urban uses within an agricultural areas would result in significant and unavoidable impacts. As a result, when compared to the proposed Specific Plan, this alternative would result in similar impacts to aesthetics.

5.4.2.2 Agriculture and Forestry Resources

Under this alternative, development would occur within the Specific Plan Area, however, this alternative would preserve approximately 500 acres of agricultural land. Although the Specific Plan Area does not include forestry resources, Williamson Act Contract lands are located in the Southwest area of the Specific Plan. Because the proposed Specific Plan would result in the conversion of all agricultural land within the Specific Plan Area, this alternative would result in fewer impacts related to agricultural resources when compared to the proposed Specific Plan. Therefore, although this alternative would not eliminate all significant and adverse impacts related to agricultural resources, it would result in fewer acres being developed, and fewer impacts.

5.4.2.3 Air Quality

Under this alternative, construction of approximately 7,600 residential units would occur. Construction impacts related to air quality would occur, but due to the reduced number of residential numbers, the overall emissions would not be as significant as the proposed Specific Plan. In addition, with no commercial or industrial land uses included under this alternative, the balance of housing and employment within the Specific Plan Area would result in greater VMT impacts, thereby increasing air quality emissions. The proposed Specific Plan mitigation measures related to

construction-period air quality impacts would also apply to this alternative. As a result, construction-period impacts would be less than the proposed Specific Plan because less construction would occur under this alternative. However, similar to the proposed Specific Plan, construction air quality impacts would not be reduced to less-than-significant levels because the full extent and timing of all construction activities is not known at this time. Operational-period air quality impacts related to vehicle emissions and agricultural equipment would be greater than the proposed Specific Plan because vehicle miles related to residents commuting further for employment would increase as a result of this alternative. Mitigation measures related to air quality would still apply to this alternative, and similar air quality impacts would result. Overall, this alternative would result in fewer emissions but similar impacts when compared to the proposed Specific Plan.

5.4.2.4 Biological Resources

Under this alternative, development of the Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan and 500 acres of agricultural land would be preserved. Overall, because the same general areas would be disturbed under this alternative, mitigation measures requiring preconstruction surveys for special-status species, delineation of jurisdictional wetlands, and prescriptive measures required by the proposed Specific Plan would also apply to this alternative. As a result, impacts to biological resources under either the Specific Plan or this alternative would be less-than-significant after mitigation is implemented. Impacts resulting from this alternative would therefore be similar to the proposed Specific Plan.

5.4.2.5 Cultural Resources and Tribal Cultural Resources

Under this alternative, development of the Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan and 500 acres of agricultural land would be preserved. Overall, because the same general areas would be disturbed under this alternative and the proposed Specific Plan, the proposed mitigation measures required for the proposed Specific Plan related to the discovery of cultural and historic resources during construction activities would still apply to this alternative. As a result, after mitigation, this alternative would result in similar, less-than-significant impacts when compared to the proposed Specific Plan.

5.4.2.6 Energy

Under this alternative, approximately 3,000 fewer residential units would be developed when compared to the proposed Specific Plan. Although, no commercial or industrial land uses would be included under this alternative, 500 acres of agricultural land would be preserved. As a result, less operational electricity and natural gas, as well as less energy used for the construction of the development would be used when compared to the proposed Specific Plan. Although the proposed Specific Plan would result in less-than-significant impacts related to energy, this alternative would result in fewer impacts related to energy use when compared to the proposed Specific Plan because this alternative would preserve 500 acres of agricultural land.

5.4.2.7 Geology and Soils

Under this alternative, development of the Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan, and this alternative would include the preservation of 500 acres of agricultural land. Under this alternative, potential impacts related to geological hazards, including seismic ground shaking, ground failure, landslides, soil erosion, and unstable geologic unit would be considered less-than-significant because a Standard Condition of Approval would be incorporated to require future geotechnical analyses to be complete prior to issuance of building permits. Impacts would be similar to that of the proposed Specific Plan given the overall area of ground disturbance would be similar. Potential impacts related to the discovery of as yet unknown paleontological resources or unique geologic features would also be similar to the proposed Specific Plan given the overall area of ground disturbance within the Specific Plan Area. As a result, when compared to the proposed Specific Plan, this alternative would result in similar impacts related to geology and soils and paleontological resources.

5.4.2.8 Greenhouse Gas Emissions

Under this alternative, approximately 3,000 fewer residential units would be developed when compared to the proposed Specific Plan, and this alternative would include the preservation of 500 acres of agricultural land. In addition, no commercial or industrial land uses would be included under this alternative. Less overall development would occur under this alternative and fewer greenhouse gas emissions associated with the construction of the proposed Specific Plan. However, even with the preservation of agricultural uses, the balance of housing and employment within the Specific Plan Area would result in greater VMT impacts, thereby increasing GHG emissions generated by vehicles. But, this alternative, and the proposed Specific Plan, would be required to prepare a Greenhouse Gas Reduction Plan referencing details of construction plans and specifications to document implementation and compliance with the City's CAP. With implementation of this mitigation, this alternative would result in less-than-significant impacts. As a result, this alternative would result in similar impacts when compared to the proposed Specific Plan.

5.4.2.9 Hazards and Hazardous Materials

Under this alternative, development of the Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan and this alternative would include the preservation of 500 acres of agricultural land. As a result, the potential impacts related to the accidental release of, or exposure to, hazardous materials would be limited to typical household cleaners and solvents and fertilizers for agricultural uses but not in the quantities that would result in substantial impacts, similar to the proposed project. Potential impacts resulting from demolition of existing structures may result in the release of hazardous materials such as asbestos and lead based paint. Both this alternative and the proposed Specific Plan would require mitigation to prepare site-specific surveys and remove any hazardous materials consistent with applicable standards. There is a potential for airport hazards to substantially increase due to the proximity of the Specific Plan Area to the Madera Municipal Airport and safety zones, however, development would be required to be consistent with the General Plan and the Madera County Airport Land Use Compatibility Plan (ALUCP). These impacts are similar to the proposed Specific Plan and are

considered less than significant. As a result, this alternative would result in similar impacts related to hazards and hazardous materials when compared to the proposed Specific Plan.

5.4.2.10 Hydrology and Water Quality

Under this alternative, development of the Specific Plan Area would occur, but the density of residential development would be less than that of the proposed Specific Plan, and this alternative would include 500 acres of agricultural land uses. As a result, the Specific Plan Area would be altered and drainage features would be altered to a similar degree as the proposed Specific Plan. With the lower density housing and agricultural uses proposed under this alternative, it is likely that more pervious surfaces would be located within the Specific Plan Area when compared to the proposed Specific Plan. As a result, this alternative would allow for more water to percolate into the Madera Subbasin. In addition, with less residential units included under this alternative, the groundwater supplies of the Madera Subbasin would be affected to a lesser effect when compared to the proposed Specific Plan. Similar to the proposed Specific Plan, this alternative would implement Regulatory Compliance Measure HYD-1 to ensure that grading plans for future projects would be completed to meet regulatory requirements, such as BMPs, to minimize pollution of stormwater runoff. As a result, this alternative would result in less-than-significant impacts to hydrology and water quality, and would result in fewer impacts to hydrology and water quality when compared to the proposed Specific Plan.

5.4.2.11 Land Use and Planning

Under this alternative, although a Specific Plan would be implemented within the Specific Plan Area, the overall buildout would result in fewer residential units and no commercial or industrial land uses when compared to the proposed Specific Plan. No commercial and industrial development would be constructed under this alternative, but this alternative would include 500 acres of agricultural land. Due to the existing agricultural land uses within the Specific Plan Area and the surrounding land uses, this alternative would not divide an existing community. In addition, this alternative would be consistent with the General Plan by developing an urban growth area and establishing an agriculture buffer. However, fewer residential units would be constructed and, when compared to the proposed Specific Plan, potential impacts related to conflicts with existing plans and ordinances would be similar and would result in less-than-significant impacts. In addition, implementation of the proposed Specific Plan and this alternative would include a General Plan Amendment establishing the specific land uses and zoning applicable to the Specific Plan Area. As a result, both the proposed Specific Plan and this alternative would result in similar, significant and unavoidable impacts.

5.4.2.12 Mineral Resources

There are no mineral resources located within the Specific Plan Area, and no mineral resources would be adversely affected under this alternative or the proposed Specific Plan. As a result, when compared to the proposed Specific Plan, this alternative would result in similar, less-than-significant impacts related to mineral resources.

5.4.2.13 Noise

Under this alternative, construction of approximately 7,600 residential units and preservation of 500 acres of agricultural land would occur within the approximately 1,900-acre Specific Plan Area. The

proposed Specific Plan would result in significant and unavoidable noise impacts resulting from temporary constructions noise. Under this alternative, noise generated during construction of residential units, school facilities or parks and recreational facilities would occur, but to a lesser degree as the proposed Specific Plan as less would be constructed. In addition, traffic generated under this alternative would be less than the proposed Specific Plan, because fewer vehicle trips would be generated by fewer residential units and reduced mixed uses. Industrial land uses would not be developed, which would also reduce noise generated under this alternative when compared to the proposed Specific Plan. Impacts related to groundborne vibration would occur under both the proposed Specific Plan and this alternative would be mitigated to less-than-significant levels. Noise generated from agricultural use would occur, but given the relatively small area compared to the overall development area, when compared to the proposed Specific Plan, this alternative would result in fewer impacts related to noise.

5.4.2.14 Population and Housing

Under this alternative, the Specific Plan Area would be developed, but with 3,000 fewer residential units and 500 more acres of agricultural acres, when compared to the proposed Specific Plan. Both the proposed Specific Plan and this alternative would result in similar, less-than-significant impacts related to the displacement of existing housing and population. Assuming the same household size as the proposed Specific Plan (3.55 resident per household), this alternative would result in a total population of approximately 26,980 residents, or approximately 11,300 fewer residents than the proposed Specific Plan. Because buildout of the Specific Plan Area was identified and anticipated in the City's General Plan, buildout of this alternative or the proposed Specific Plan would not induce substantial unplanned population growth, and would result in far fewer residences when compared to the proposed Specific Plan. As a result, this alternative would result in similar, less-than-significant impacts related to population and housing when compared to the proposed Specific Plan.

5.4.2.15 Public Services and Recreation

Under this alternative, construction of approximately 7,600 residential units would occur within the Specific Plan Area. As a result, the demand for public services, including fire protection, police protection, public schools, parks and recreational facilities would increase over the existing demand. However, this alternative would result in approximately 11,300 fewer residents when compared to the proposed Specific Plan, representing a reduced impact when compared to the proposed Specific Plan. The proposed Specific Plan and this alternative would result in significant and unavoidable impacts resulting from construction of public facilities. As a result, this alternative would result in similar, significant and unavoidable impacts to public services when compared to the proposed Specific Plan.

5.4.2.16 Transportation

Under this alternative, construction of approximately 7,600 residential units would occur within the Specific Plan Area. As a result, the impacts related to transportation would increase when compared to existing conditions. However, when compared to the proposed Specific Plan, this alternative would result in approximately 3,000 fewer residential units and 11,300 fewer residents. The proposed project would result in a less-than-significant impact related to VMT impacts. A reduction in residents in the Specific Plan Area would represent fewer impacts to transportation impacts,

including conflicts with existing policies. However, under this alternative, even with the preservation of 500 acres of agricultural land, a mix of residential and employment land uses would not occur, and many of the residents would need to travel further for employment, thus increase potential VMT impacts when compared to the proposed Specific Plan. Under this alternative, and similar to the proposed Specific Plan, impacts related to bicycle facilities, transit facilities, pedestrian facilities, hazards related to design features, and emergency access would be less-than-significant. As a result, this alternative would result in greater impacts to transportation when compared to the proposed Specific Plan.

5.4.2.17 Utilities and Service Systems

Under this alternative, construction of approximately 7,600 residential units and the preservation of 500 acres of agricultural land would occur within the Specific Plan Area. As a result, the demand for utilities and service systems, including water, wastewater, stormwater and electricity, natural gas and telecommunications would increase over the existing demand. However, this alternative would result in approximately 11,300 fewer residents when compared to the proposed Specific Plan, representing a reduced impact when compared to the proposed Specific Plan. Although the proposed Specific Plan would result in less-than-significant impacts to public services in terms of capacities of facilities, the proposed Specific Plan would result in potential environmental impacts resulting from construction of those facilities. Mitigation measures required for the proposed Specific Plan would be required to assess available capacities of facilities when future development projects are proposed and would require the establishment of financing mechanism to fund future improvements. Although the General Plan requires confirmation of adequate public facilities prior to approval of construction, similar to the proposed Specific Plan, this alternative would also require future confirmation of adequacy of public facilities. As a result, this alternative would result in similar, significant and unavoidable impacts to utilities and service systems when compared to the proposed Specific Plan.

5.4.2.18 Wildfire

The Specific Plan Area does not contain any lands classified as a Very High Fire Hazard Severity Zone. This alternative would be constructed within the same project area as the proposed Specific Plan. Therefore, both the proposed Specific Plan and this alternative would result in less-than-significant impacts related to the impairment of adopted emergency response plan or evacuation plan, exacerbate wildfire risks, or expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. Similarly, because this alternative would be constructed within the same Specific Plan Area which is not designated as a Very High Fire Hazard Severity Zone, this alternative would therefore result in similar, less-than-significant impacts related to wildfire when compared to the proposed Specific Plan.

5.4.3 Overview of Potential Impact/Comparison to Proposed Project

Under the Reduced Project Alternative, development would occur, but the residential density would be lower than the proposed Specific Plan, 500 acres of agricultural land would be preserved (and potentially used for a General Plan-required agriculture buffer), and no commercial or industrial land uses would be included. Because the Specific Plan Area would be developed under both the proposed Specific Plan and the Reduced Project Alternative, impacts related to construction and site

disturbance would be similar for both scenarios. In addition, construction-related impacts related to the provision of adequate capacity for public services and utilities and service systems would be similar to the proposed Specific Plan. Transportation impacts under this alternative would be fewer than the proposed Specific Plan, because less residential units would be constructed, and potential conflicts with existing plans would not occur to the same degree as the proposed Specific Plan. This alternative would also include 500 acres of agriculture land which could be used for the agriculture buffer required by the General Plan. Additionally, when compared to the proposed Specific Plan, fewer overall residents would reside within the Specific Plan Area, resulting in fewer operational impacts related to energy, hydrology and water quality, and noise.

5.4.4 Project Objectives

The Reduced Project Alternative would achieve most of the Project Objectives, but with a limited set of land uses, this alternative would not create the same amount of mixed-use development or result in community character and pedestrian-friendly design that would be facilitated by a mix of land uses. With development of the Specific Plan Area and preservation of 500 acres of agricultural land, this alternative would address the City's current and projected housing needs, facilitate annexation of the Specific Plan area, and create a transportation network to meet objectives of the General Plan. Additionally, this alternative would promote opportunities for water efficiency and incorporate sustainable building and operating practices, incorporate sustainable practices, as practicable, in developing buildings and infrastructure; and result in an economically feasible and balanced development. Overall, this alternative would not achieve all of the objectives of the proposed Specific Plan to the same extent because the level of residential density and mix of land uses would not allow for sustainable development that balances housing and employment. Without the same level of development, this alternative would not address the City's current and project housing needs to the same level as the proposed Specific Plan.

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an Environmentally Superior Alternative. State CEQA Guidelines Section 15126.6(e)(2) states that if the No Project Alternative is the Environmentally Superior Alternative, then the EIR shall also identify an Environmentally Superior Alternative among the other alternatives. Table 5.B provides, in summary format, a comparison of the level of impacts for each alternative to the proposed project.

The No Project/No Build Alternative has the least impact to the environment because it would not result in any development or new physical impacts. While the No Project Alternative would lessen or avoid the impacts of the proposed Specific Plan, the beneficial impacts of the proposed project—including implementing sustainable planning and development, creating job growth, accommodation of strategic growth near transit, and the provision of housing units required to meet State-mandated affordable housing targets and alleviate overcrowding—would not occur, and none of the Project Objectives would be met.

Table 5.B: Comparison of the Environmental Impacts of the Proposed Project to the Project Alternatives

Environmental Topic	Proposed Project Level of Impact After Mitigation	Alternative 1: No Project Alternative	Alternative 2: Low Density Residential Alternative	Alternative 3: Reduced Project Alternative
Aesthetics	Significant and Unavoidable	Fewer	Similar	Similar
Agriculture and Forestry Resources	Significant and Unavoidable	Fewer	Similar	Fewer
Air Quality	Significant and Unavoidable	Fewer	Similar	Similar
Biological Resources	Less than Significant with Mitigation	Fewer	Similar	Similar
Cultural Resources and Tribal Cultural Resources	Less than Significant with Mitigation	Fewer	Similar	Similar
Energy	Less than Significant with Mitigation	Fewer	Fewer	Fewer
Geology and Soils	Less than Significant with Mitigation	Fewer	Similar	Similar
Greenhouse Gas Emissions	Less than Significant with Mitigation	Fewer	Similar	Similar
Hazards and Hazardous Materials	Less than Significant with Mitigation	Fewer	Similar	Similar
Hydrology and Water Quality	Less than Significant	Fewer	Similar	Fewer
Land Use and Planning	Significant and Unavoidable	Greater	Similar	Similar
Mineral Resources	No Impact	Similar	Similar	Similar
Noise	Significant and Unavoidable	Fewer	Fewer	Fewer
Population and Housing	Less than Significant	Similar	Similar	Similar
Public Services and Recreation	Significant and Unavoidable	Fewer	Similar	Similar
Transportation	Significant and Unavoidable	Fewer	Greater	Greater
Utilities and Service Systems	Significant and Unavoidable	Fewer	Similar	Similar
Wildfire	Less than Significant	Similar	Similar	Similar
Attainment of Project Objectives	Meets all of the Project Objectives	Meets none of the Project Objectives	Meets some of the Project Objectives but not all, and not to the same degree as the proposed project	Meets some of the Project Objectives but not all, and not to the same degree as the proposed project

Source: LSA (December 2021).

Legend:

Greater = Greater impacts than the proposed project

Fewer = Fewer impacts than the proposed project

Similar = Similar impacts as the proposed project

With the exception of the No Project Alternative, the Environmentally Superior Alternative would be Alternative 3, Reduced Project Alternative. Overall, this alternative would lessen significant environmental impacts or result in impacts similar to those associated with the proposed project. Alternative 3 would achieve some of the Project Objectives; specifically, it would address housing needs in the City and would facilitate annexation of areas in the Specific Plan Area, and would incorporate sustainable practices in developing buildings and infrastructure. The reduced number of housing units in Alternative 3 would result in fewer impacts when compared to the proposed Specific Plan. However, although Alternative 3 would incrementally reduce impacts, significant and unavoidable impacts to aesthetics, agriculture, air quality, land use, noise, public services, transportation and utilities and service systems would still occur.

6.0 CEQA-REQUIRED ASSESSMENT CONCLUSIONS

Section 15126 of the California Environmental Quality Act (CEQA) Guidelines requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. This chapter provides an overview of the potential impacts resulting from the implementation of the proposed Specific Plan based on the analyses presented in Chapter 4.0 of this EIR. The topics covered in this chapter include impacts found not to be significant, growth inducement, significant and unavoidable impacts, and significant irreversible changes. A more detailed analysis of the effects the proposed Specific Plan would have on the environment and proposed mitigation measures to minimize significant impacts are provided in Sections 4.1 through 4.18 of this EIR.

6.1 GROWTH INDUCEMENT

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a proposed project or the construction of additional housing, either directly or indirectly, could foster economic or population growth in the surrounding environment. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are only sparsely developed or are underdeveloped. Typically, development projects on sites that are designated for development and surrounded by existing suburban uses are not considered adversely growth-inducing because growth in areas that already have development and infrastructure available to serve new development are generally considered environmentally beneficial. This section evaluates the potential of the proposed Specific Plan to create such growth inducements. Not all aspects of growth inducement are negative; rather, negative impacts associated with growth inducement occur only where the growth associated with the proposed Specific Plan would cause adverse environmental impacts. As described in Section 4.14, Population and Housing, implementation of the proposed Specific Plan would not exceed the City's projections for population growth in the Specific Plan Area, as previously addressed in the City's General Plan EIR¹ and 2016-2024 Housing Element.²

The proposed Specific Plan is not expected to result in indirect growth inducement because the additional housing units and population resulting from implementation of the proposed Specific Plan have been anticipated by the City and do not exceed projections of the City. Although the General Plan does not identify a specific housing allocation for the Specific Plan Area, the total buildout of the Specific Plan Area would be less than the City anticipates through implementation of the General Plan. Additional employment growth would occur incrementally over a period of approximately 30 years and would be consistent with the planning objectives of the City, and phased development of the proposed Specific Plan.

As discussed in Section 4.15, Public Services, and Section 4.17, Utilities and Service Systems, the Specific Plan Area is not currently served by the City's public service or utility providers, including

¹ Madera, City of. 2009. City of Madera General Plan Environmental Impact Report. October.

² Madera, City of. 2015. City of Madera 2016-2024 Housing Element Update. December.

police protection services, fire prevention services, water, wastewater, telecommunications, electricity, and natural gas. The proposed Specific Plan includes physical improvements to accommodate growth which would create an increased demand for public services and utilities within the Specific Plan Area. All future projects occurring within the Specific Plan Area requiring a discretionary action would be required to undergo project-specific environmental review to determine project-specific impacts on public services and utilities, and would be required to pay applicable impact fees in effect at the time such future development applications are submitted. City staff would continue to review site plans for future projects to ensure the adequate provision of public services and utilities.

Development of the proposed Specific Plan would involve construction activities that could generate some temporary employment opportunities. However, given the temporary nature of such opportunities, and given the relatively long period of time over which all phases of the proposed Specific Plan would be constructed, it is unlikely that construction workers would relocate to Madera as a result of the proposed Specific Plan. Thus, the proposed Specific Plan would not be considered growth-inducing from an employment perspective.

6.2 SIGNIFICANT IRREVERSIBLE CHANGES

Section 15126.2(d) of the CEQA Guidelines requires an EIR to discuss the extent to which the proposed Specific Plan would commit nonrenewable resources to uses that future generations would probably be unable to reverse. The three CEQA-required categories of irreversible changes are discussed below.

6.2.1 Changes in Land Use Which Commit Future Generations

The proposed Specific Plan would guide future development in the Specific Plan Area and would also involve the development of land currently used for agricultural production. Although the proposed development would commit future generations to using the Specific Plan Area for developed uses rather than agricultural purposes, such a commitment is consistent with planned uses for proposed Specific Plan Area, as identified in the City's General Plan. The General Plan has anticipated development in the Specific Plan Area that commits future generations, which was assessed under the General Plan EIR; the Specific Plan merely implements and carries out the vision of the General Plan.

6.2.2 Irreversible Damage from Environmental Accidents

Demolition and construction activities associated with implementation of the proposed Specific Plan would involve some risk for environmental accidents. However, accidental spills and soil contamination, as discussed in Section 4.9, Hazards and Hazardous Materials, would be addressed by City, State, and federal agencies, and would follow professional industry standards for safety and construction. Although there is a possibility for contaminated soil to be encountered during grading, excavation, and/or ground disturbance associated with implementation of the proposed Specific Plan, it is likely that such contamination may have resulted from agricultural operations within the Specific Plan Area. However, the risks of accidental contamination from handling construction materials or transport of these materials off site would be reduced to a less-than-significant level through compliance with the many federal, State, and local regulations regarding the handling and

disposal of such construction materials. Additionally, the land uses proposed by the proposed Specific Plan would not include any uses or activities that are likely to contribute to or be the cause of a significant environmental accident, such as industrial-related spills or leaks. As a result, the proposed Specific Plan would not pose a substantial risk of environmental accidents.

6.2.3 Consumption of Non-Renewable Resources

Consumption of non-renewable resources includes issues related to increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. The proposed Specific Plan would require water, electric, and natural gas service, as well as additional resources for construction. Construction and ongoing maintenance would irreversibly commit some materials and non-renewable energy resources. Materials and resources used during implementation of the proposed Specific Plan would include, but are not limited to, non-renewable and limited resources such as oil, gasoline, sand, gravel, asphalt, and steel. These materials and energy resources would be used for infrastructure development, transportation of people and goods, and utilities. During the operational phase of the proposed Specific Plan, energy sources including oil and gasoline would be used for lighting, heating, and cooling of residences, as well as transportation of people to and from the Specific Plan Area.

As discussed in Section 4.6, Energy, the projected electricity and natural gas demands are within the existing delivery capacity of current service providers, and the proposed Specific Plan would not result in a significant adverse impact related to the provision of electricity or natural gas. In addition, the proposed Specific Plan would comply with Title 24 of the California Code of Regulations (CCR) that requires conservation practices that would limit the amount of energy (California Energy Code Building Energy Efficiency Standards [Title 24, Part 6]) consumed through implementation of the proposed Specific Plan. With the development of more cost-effective and accessible technologies, dependence on non-renewable resources used in association with the future development envisioned under the proposed Specific Plan may also be reduced. Furthermore, all future projects requiring discretionary actions under the proposed Specific Plan would be required to undergo project-specific analysis (as required by CEQA) and comply with all California Green Building Standards Code (CALGreen Code) building efficiency standards (Title 24, Part 11) and mandatory residential and non-residential building requirements in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) (as required by State law). Additionally, resources that would be used during the operation of future development projects would be similar to those currently consumed within the City. Nevertheless, the use of such resources would continue to represent a long-term commitment of essentially non-renewable or slowly renewable resources.

The proposed Specific Plan also includes Sustainability Guidelines that encourage sustainable building and design practices to include compact development, reduced impervious surfaces, improved water detention and conservation, preservation of habitat areas, mixing of compatible land uses, water-efficient landscaping and irrigation, and enhanced pedestrian and bicycle amenities that reduce reliance on the use of automobiles. The proposed Specific Plan also includes landscape guidelines that promote sustainability, drought-tolerant plant materials adapted to the local climate, as well as bio-swale and basins that efficiently address stormwater management. In addition, the proposed Specific Plan presents an opportunity to integrate recycled water use for irrigation of landscaped areas of the Specific Plan Area. Green field installation of a distribution system at the

initial development stage provides opportunity to plan optimum recycled water utilization within the Plan Area.

Implementation of the proposed Specific Plan would also result in future development that would result in an increased demand for potable water and generation of wastewater. However, as stated in Section 4.17, Utilities and Service Systems, future projects requiring discretionary actions would be subject to additional environmental review and would be assessed to ensure facilities are available to accommodate development at that time.

Although the construction and ongoing operation of the proposed Specific Plan would involve the use of non-renewable resources, through the inclusion of energy-conserving features of the Specific Plan, and compliance with applicable standards and regulations, the proposed Specific Plan would not represent a an unjustified use of such non-renewable resources.

6.3 SIGNIFICANT UNAVOIDABLE IMPACTS

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. As determined in this EIR, implementation of the proposed Specific Plan would result in significant and unavoidable adverse impacts related to aesthetics, agricultural resources, air quality, land use, noise, public services and recreation, transportation, and utilities and service systems. With implementation of mitigation measures for aesthetics, air quality, land use, noise, public services, and utilities and service systems, the potential impacts identified in this EIR would still remain significant and unavoidable. Due to the absence of feasible mitigation, the adverse agricultural and transportation impacts would remain significant and unavoidable. In addition, potentially significant and unavoidable traffic impacts were identified at California Department of Transportation (Caltrans) freeway facilities, which are not within the jurisdiction of the City of Madera. This section lists the impacts for the proposed Specific Plan that were found to be significant and unavoidable.

- **Aesthetics**

- Implementation of the proposed Specific Plan would have a substantial adverse effect on a scenic vista.
- Implementation of the proposed Specific Plan would substantially degrade the existing visual character or quality of public views of the site and its surroundings.
- Implementation of the proposed Specific Plan would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

- **Agricultural Resources**

- Implementation of the proposed Specific Plan would convert Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (Farmland) to non-agricultural use.

- Implementation of the proposed Specific Plan would conflict with existing zoning for agricultural use and Williamson Act contract lands.
 - **Air Quality**
 - Implementation of the proposed Specific Plan would result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable federal or State ambient air quality standards.
 - Implementation of the proposed Specific Plan could expose sensitive receptors to substantial pollutant concentrations.
 - **Noise**
 - Implementation of the proposed Specific Plan would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Specific Plan Area in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or federal standards.
 - **Public Services and Recreation**
 - Implementation of the proposed Specific Plan would include construction of fire, police, parks, and other public facilities which would have an adverse physical effect on the environment.
 - **Transportation**
 - Implementation of the proposed Specific Plan would conflict with City's General Plan level of service (LOS) policies addressing roadway facilities.
 - **Utilities and Service Systems**
 - Implementation of the proposed Specific Plan would require the construction of new water facilities which would cause significant environmental effects.
 - Implementation of the proposed Specific Plan would require the construction of new wastewater facilities which would cause significant environmental effects.
 - Implementation of the proposed Specific Plan would require the construction of new water reclamation facilities which would cause significant environmental effects.
 - Implementation of the proposed Specific Plan would require construction of new stormwater drainage facilities which would cause significant environmental effects.
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- Implementation of the proposed Specific Plan would require construction of new electric, natural gas, and telecommunications facilities which would cause significant environmental effects.

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