CERES GENERAL PLAN 2035

DRAFT ENVIRONMENTAL IMPACT REPORT | SCH# 2017052063

FEBRUARY 07, 2018

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February 07, 2018

Prepared for the
City of Ceres
by

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List of Acronyms and Abbreviations

AAPG: American Association of Petroleum Geologists

AB: Assembly Bill

ACC: Advanced Clean Cars

ACE: Altamont Commuter Express

ACE: Altamont Corridor Express

ACS: American Community Survey

ADA: Americans with Disabilities Act

ADWF: Average Dry Weather Flow

AIA: Airport influence area

ALUC: Airport Land Use Commissions

ALUCP: Airport Land Use Compatibility Plan

AQMD: Air quality management district

ASF: Average Sanitary Flow

ATCM: Airborne toxic control measure

ATP: Alternative Transportation Plan

BAU: Business as Usual

BMP: Best management practice

BPS: Best Performance Standards

C: Celsius

CAA: Clean Air Act

CAAQS: California Ambient Air Quality Standards

CAFE: Corporate Average Fuel Economy

CAL FIRE: California Department of Forestry and Fire Protection

CalARP: California Accidental Release Prevention Program

CALGreen: California Green Building Standards Code

CalEEMod: California Emissions Estimator Model

CalEPA: California Environmental Protection Agency

Calrecycle: California Department of Resources Recycling and Recovery

Caltrans: California Department of Transportation

CAPCOA: California Air Pollution Control Officers Association

CARB: California Air Resources Board

CAT: California Climate Action Team

CAT: Ceres Area Transit

CBC: California Building Code

CBSC: California Building Standards Commission

CCAA: California Clean Air Act

CCIC: Central California Information Center

CCR: California Code of Regulations

CDAR: Ceres Dial-A-Ride

CDFA: California Department of Food and Agriculture

CDFW: California Department of Fish and Wildlife

CEC: California Energy Commission

CEHC: California Essential Habitat Connectivity

CEQA: California Environmental Quality Act

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CERS: California Environmental Reporting System

CESA: California Endangered Species Act

CFR: Code of Federal Regulations

CGS: California Geologic Survey

CH_4: Methane

CMP: Congestion Management Program

CNDDB: California Natural Diversity Database

CNEL: Community Noise Equivalent Level

CO: Carbon monoxide

CO_2: Carbon dioxide

CO_2e: CO_2 equivalent

CPUC: California Public Utilities Commission

CRHR: California Register of Historical Resources

CSSA: Ceres Sewer Service Area

CUPA: Certified Unified Program Agency

CUSD: Ceres Unified School District

CWHR System: California Wildlife Habitat Relationship System

dB: Decibel

dBA: A-weighted decibels

DMA2K: Disaster Mitigation Act of 2000

DNL: Day-Night Average Level

DOE: United States Department of Energy

DOF: California Department of Finance

DPM: Diesel particulate matter

DTSC: California Department of Toxic Substances Control

DWR: California Department of Water Resources

EDD: California Employment Development Department

EIR: Environmental Impact Report

EISA: The Energy Independence and Security Act of 2007

EOP: Emergency Operations Plan

EOS: Emergency Operations Center (Stanislaus County)

EPA: United States Environmental Protection Agency

EPCRA: Emergency Planning and Community Right-to-Know Act

ETRIP: Employer Trop Reduction Implementation Plan

EV: Electric vehicle

F: Fahrenheit

FAA: Federal Aviation Administration

FEMA: Federal Emergency Management Agency

FESA: Federal Endangered Species Act

FMCSA: Federal Motor Carrier Safety Administration

FMMP: Farmland Mapping and Monitoring Program (California Department of Conservation)

FPPA: Farmland Protection Policy Act

FUBC: Federal Uniform Building Code

FWTM: Finished Water Transmission Main

GHG: Greenhouse gas

GIS: Geographic Information System

GWP: Global Warming Potential

H_2O: Water vapor

HAP: Hazardous air pollutants

HCD: California Department of Housing and Community Development

HCP: Habitat Conservation Plan

HDM: Highway Design Manual (Caltrans)

HFC: Hydrofluorocarbons

HMGP: Hazard Mitigation Grant Program

HMA: Hazard Mitigation Assistance

HMR: Hazardous Materials Regulations

HMTA: Hazardous Materials Transportation Act

HSSA: Hospital Facilities Seismic Safety Act

HVAC: Heating, Ventilation, and Air Conditioning

Hz: Hertz

I-5: Interstate 5

ICLEI: International Council for Local Environmental Initiatives

II: Internal-Internal Trips

in/sec: Inches per second

IPCC: Intergovernmental Panel on Climate Change

IX: Internal-External Trips

L_{eq}: Equivalent Noise Level

LAFCO: Local Agency Formation Commission

LCFS: Low Carbon Fuel Standard

LEED: Leadership in Energy and Environmental Design

LEV: Low Emission Vehicle

LHMP: Local Hazard Mitigation Plan

LID: Low-impact development

LOS: Level of Service

LRA: Local Responsibility Area

LUST: Leaking Underground Storage Tank

MAX: Modesto Area Express

MBTA: Migratory Bird Treaty Act

mg: million gallons

mgd: million gallons per day

μg/m^3: Micrograms per cubic meter

mg/m^3: milligrams per cubic meter

MJHMP: Multi-Jurisdictional Hazard Mitigation Plan

$MMTCO_2e$: Million Metric Tons of CO_2e

$MTCO_2e$: Metric Tons of CO_2e

MPO: Metropolitan Planning Organization

MSR: Municipal Service Review

MW: Megawatts

N_2O: Nitrous Oxide

NAC: Noise Abatement Criteria

NAAQS: National Ambient Air Quality Standards

NAGPRA: Native American Graves Protection and Repatriation Act

NAHC: Native American Heritage Commission

NCP: National Contingency Plan

NCSSA: North Ceres Sewer Service Area

NEHRP: National Earthquake Hazards Reduction Program

NEPA: National Environmental Policy Act

NF_3: Nitrogen Trifluoride

NFPA: National Fire Protection Association

NHTSA: National Highway Traffic Safety Administration

NIMS: National Incident Management System

NIST: National Institute of Standards and Technology

NPDES: National Pollution Discharge Elimination System

NPPA: California Native Plant Protection Act

NRCS: Natural Resources Conservation Service

NRHP: National Register of Historic Places

NO: Nitric oxide

NO_2: Nitrogen dioxide

NO_x: Nitrogen oxide

NOP: Notice of Preparation

NRCS: Natural Resources Conservation Service

O_3: Ozone

OD: Origin-Destination

OES: Office of Emergency Services (Stanislaus County)

OHP: California Office of Historic Preservation

OHWM: Ordinary high water mark

OPR: Office of Planning and Research

OSHA: Occupational Safety and Health Administration

PA&ED: Project Approval and Environmental Document

PHMSA: Pipeline and Hazardous Materials Safety Administration

PDM: Pre-Disaster Mitigation

PFC: Perfluorocarbon

PFF: Public Facility Finance Plan

PG&E: Pacific Gas & Electric

PHF: Peak Hour Flow

$PM_{2.5}$, PM_{10}: Particulate matter

PPD: Pound per person per day

ppm: Parts per million by volume

PPV: Peak Particle Velocity

PV: Photovoltaic

RCRA: Resource Conservation and Recovery Act of 1976

RFS: Renewable Fuel Standard

RHNA: Regional Housing Needs Allocation

ROG: Reactive organic gases

RPS Renewable Portfolio Standard

RTIP: Regional Transportation Impact Fee Program

RTP: Regional Transportation Plan

RWTM: Raw Water Transmission Main

RWQCB: Regional Water Quality Control Board

SARA: Superfund Amendments and Reauthorization Act

SB: Senate Bill

SCS: Sustainable Community Strategy

SEMS: California Standardized Emergency Management System

SF_6: Sulfur hexafluoride

SHMP: State Hazard Mitigation Plan

SIC: Southern Industrial Cluster

SIP: State Implementation Plan

SJRRC: San Joaquin Regional Rail Commission

SJVAB: San Joaquin Valley Air Basin

SJVAPCD: San Joaquin Valley Air Pollution Control District

SO_2: Sulfur dioxide

SO_x: Sulfur oxide

SOI: Sphere of Influence

SR 99: State Route 99

SRA: State Responsibility Area

SRRF: Stanislaus Resource Recovery Facility

SRWA: Stanislaus Regional Water Authority

SSMP: Sewer System Management Plan

SSO: Sanitary Sewer Overflow

StanCOG: Stanislaus Council of Governments

StaRT: Stanislaus County Regional Transit

SWPPP: Stormwater pollution prevention plan

SWRCB: State Water Resources Control Board

TAC: Toxic air contaminants

TID: Turlock Irrigation District

TNW: Traditional navigable water

TRB: Transportation Research Board

USACE: United States Army Corps of Engineers

USC: United States Code

USDA: United States Department of Agriculture

USDOT: United States Department of Transportation

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

UST: Underground Storage Tank

UWMP: Urban Water Management Plan

VdB: Vibration Decibels

VdB: Velocity in decibels

VMT: Vehicle miles traveled/vehicle miles of travel

VOC: Volatile organic compound

WDR: Waste Discharge Requirement

WRSP: Whitmore Ranch Specific Plan

WSA: Water Supply Assessment

WTP: Water Treatment Plant

WWTP: Wastewater Treatment Plant

XI (transportation): External-Internal Trips

XX (transportation): External-External Trips

ZEV: Zero emissions vehicle

Executive Summary

This draft Environmental Impact Report (EIR) evaluates the potential impacts of the proposed City of Ceres General Plan (General Plan), referred to as the "Proposed Project." The Proposed Project was developed in response to policy direction provided by the City Council, Planning Commission, and community. The EIR has been prepared on behalf of the City of Ceres, in accordance with the California Environmental Quality Act (CEQA). The City of Ceres is the lead agency for this EIR, as defined by CEQA.

An EIR is intended to inform decision-makers and the general public of the potential significant environmental impacts of a proposed project. The EIR also considers the availability of mitigation measures to minimize significant impacts and evaluates reasonable alternatives to the Proposed Project that may reduce or avoid one or more significant environmental effects. Based on the alternatives analysis, an environmentally superior alternative is identified.

This EIR is a program EIR that examines the potential effects resulting from implementing designated land uses and policies in the Proposed Project. The impact assessment evaluates the Project as a whole and identifies the broad, regional effects that may occur with its implementation. As a programmatic document, this EIR does not assess site-specific impacts. Any future development project made possible by the Proposed Project will be subject to individual, site-specific environmental review, as required by State law. This EIR represents the best effort to evaluate the proposed General Plan given its planning horizon through the year 2035. It can be anticipated that conditions will change; however, the assumptions used are the best available at the time of preparation and reflect existing knowledge of patterns of development.

Proposed Project

PROPOSED GENERAL PLAN

The proposed General Plan is intended to respond directly to changes experienced in Ceres since the preparation of the current General Plan (adopted in 1997), and to plan for city growth projected in coming decades. The proposed General Plan, which establishes a long-range planning framework and policies, would fully supplant the City's existing General Plan when adopted by the City Council.

The General Plan update was initiated to comprehensively examine the existing conditions in the city and to create a vision for the city's future. Although the proposed General Plan does not specify or anticipate when buildout of the city will occur, a horizon of year 2035 is assumed for planning purposes. The Vision Statement and Guiding Principles, included below, underpin the goals and policies of the General Plan.

Planning Area

The Planning Area encompasses 14,400 acres including the City of Ceres, its Sphere of Influence (SOI), adjacent unincorporated areas, and Mancini Park in the City of Modesto. The Planning Area is the same as that used for the 1997 Ceres General Plan. It is roughly bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east. Although Ceres does not have jurisdiction in areas outside of its city limits, what happens in those areas bears a relation to the city's planning and must be considered in the General Plan, per California Government Code Section 65300.

Vision Statement

The following Vision Statement was adopted for the General Plan update by the Ceres City Council in October 2016: "In 2035, Ceres has a continued connection to its agricultural heritage, a balance of housing and retail choices, ample job opportunities, an attractive Downtown, rich cultural and community events and an abundance of recreational opportunities. Ceres is a place where families want to raise their children and businesses want to locate and flourish. In Ceres, people enjoy a safe and healthy city with first-rate community amenities and a clean and sustainable environment."

Guiding Principles

The following Guiding Principles were adopted for the General Plan update by the Ceres City Council in October 2016:

- **Neighborly Character.** Knowing that "Together We Achieve," continue to cultivate a friendly, small town feel, inclusive, and civically engaged community as the population grows and changes.
- **Safe, Family-Friendly Hometown.** Promote Ceres strong and high performing school system, and support the City's safe neighborhoods and youth activities so that Ceres continues to be a desirable place for families.
- **Agricultural Identity**. Celebrate Ceres agricultural history, support the continued success of the agricultural industry, and consider how to balance the protection of prime agricultural lands with growth and economic development objectives.
- **Health and Sustainability.** Provide well-maintained and accessible parks, street trees and landscaping, and healthy food options; and prioritize clean air, clean water, and resource conservation to help keep the community—both the people and the environment—healthy.
- **Complete Community.** Support the development of a complete and balanced community where needs can be met locally, with new commercial options, industrial growth, and a diversity of housing options that attracts new business, industry and associated professionals.
- **Strong Downtown.** Encourage and direct public and private investment in Downtown Ceres to restore it as the physical and cultural center of the city. Enhance Downtown so it becomes vibrant, active and a place for people to assemble, dine, and socialize in a mixed-use environment.

- **Attractive Destination.** Cultivate Ceres as a unique destination in the Central Valley and for travelers on Highway 99. To the extent possible, ensure that new development visible from Highway 99 offers attractive and unique views from that travel way.
- **Economic Development.** Strengthen job opportunities with industrial and commercial growth and promote education and job training. Continue to balance provision of streamlined services and entitlements with fiscal responsibility to support the future needs of the City.
- **Revitalization.** Encourage infill development and investment within existing neighborhoods and commercial corridors in order to revitalize areas within the city limits.
- **Balanced Circulation Network.** Make it safe and convenient for residents and workers to get where they need to go and for businesses to transport goods by providing well-maintained sidewalks, connected bicycle networks, efficient connections to major transportation corridors, and regional transit connections.

Estimated Buildout of the Proposed General Plan

Development of land uses shown on the proposed General Plan Land Use Diagram is referred to as buildout. The proposed General Plan has a 2035 horizon year for planning purposes; however, the proposed General Plan does not specify or anticipate when buildout will occur, as long-range demographic and economic trends are difficult to predict. The designation of a site for a certain use also does not necessarily mean that the site will be developed or redeveloped with that use during the planning period, as most development will depend on property-owner initiative. Table ES-1: Non-Residential Buildout (2035) describes the new non-residential development anticipated to result from application of land use designations shown on the proposed Land Use Diagram on vacant and underutilized sites, according to analysis undertaken for the proposed General Plan. Table ES-2: Residential Buildout (2035) describes the estimated housing units and population anticipated at buildout of the proposed General Plan.

Table ES-1: Non-Residential Buildout (2035)[1]

	Ceres		*Unincorporated County*		*Planning Area Total*	
	Developed Square Feet	*Jobs*	*Developed Square Feet*	*Jobs*	*Developed Square Feet*	*Jobs*
Existing (2015)[2, 3]	8,500,000	8,700	3,600,000	1,300	12,100,000	10,000
Total Future Development	8,800,000	13,400	5,100,000	7,400	13,900,000	20,800
Commercial (including Office)	*5,300,000*	*9,800*	*2,800,000*	*4,200*	*8,100,000*	*14,100*
Industrial	*3,000,000*	*2,500*	*1,500,000*	*1,400*	*4,400,000*	*4,000*
Public/ Institutional	*500,000*	*1,100*	*800,000*	*1,700*	*1,400,000*	*2,700*
Total at Buildout	17,300,000	22,100	8,700,000	8,700	26,000,000	30,800

Notes:

1. Development numbers are rounded to the nearest hundred thousand, and job numbers are rounded to the nearest hundred.
2. Existing development within the city of Ceres is from Economic & Planning Systems, Inc., 2016; and existing development within the unincorporated County is derived from Stanislaus County Assessor's data from 2014
3. Existing jobs within the city of Ceres is from the 2015 Q2 California Employment Development Department; and existing jobs within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and job density assumptions.

Sources: Economic & Planning Systems, Inc., 2016; Employment Development Department, 2015; Dyett & Bhatia, 2017.

Table ES-2: Residential Buildout (2035)

	Ceres		*Unincorporated County*		*Planning Area Total*	
	Housing Units[1]	*Population*[2]	*Housing Units*[1]	*Population*[2]	*Housing Units*[1]	*Population*[2]
Existing (2015)[3,4]	13,800	47,000	2,400	8,000	16,200	55,000
Future Development[5]	3,700	12,000	3,500	12,000	7,200	24,000
Total at Buildout	**17,500**	**59,000**	**5,900**	**20,000**	**23,400**	**79,000**

Notes:

1. Housing unit numbers have been rounded to the nearest hundred.
2. Population numbers have been rounded to the nearest thousand.
3. Existing residential units within the city of Ceres is from the California Department of Finance, January 2015 estimate; and existing residential units within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and unit type assumptions.
4. Existing population within the city of Ceres is from the California Department of Finance, January 2015 estimate; and existing population within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and an assumption of 3.3 persons per housing unit.
5. Future population was calculated assuming 3.3 persons per housing unit.

Sources: CA Department of Finance, 2015; City of Ceres, 2017; Dyett & Bhatia, 2017.

Alternatives to the Proposed Project

The following alternatives are described and evaluated in this EIR, and are summarized in Table ES-3: Comparison of Key Characteristics; Existing, Alternatives, and Proposed General Plan.

Southern Industrial Cluster Alternative

The Southern Industrial Cluster (SIC) Alternative proposes land use changes in the area south of the planned Service Road interchange, including a new Regional Commercial designation that would replace some of the existing Business Park and Commercial Recreation designations, and the redesignation of some Business Park, Medium Density Residential, and Commercial Recreation areas as Service Commercial. Industrial uses are proposed to the southwest of the new commercial cluster. This Alternative seeks to shift Industrial-designated areas onto larger parcels closer to SR-99 in order to create a more attractive environment for industrial developers. The SIC Alternative differs from the Proposed Project primarily in terms of land use designations in this southeastern area; while the Proposed Project also redesignates a large area of Business Park and Commercial Recreation as Regional Commercial, it would not introduce new Service Commercial or Industrial designations there. This Alternative would also not propose any land use designation changes at Roeding Road. In general, policies for the SIC Alternative can be assumed to be the same as in the Proposed Project, to the extent that the policies would be supported by the SIC Alternative's proposed land use configuration.

No Project Alternative

The No Project Alternative would leave the 1997 General Plan unchanged and in effect. This Alternative would keep all current land use designations and definitions from the 1997 General Plan as amended to date. Policies concerning topics such as transportation, economic development, parks, open space, the environment, health, and housing would also remain unchanged. The purpose of evaluating the No Project Alternative is to allow decision-makers to compare the potential impacts of approving the project with the potential impacts of not approving the project. The No Project Alternative refers to what would be reasonably expected to occur in the foreseeable future if the project were not approved.

Table ES-3: Comparison of Key Characteristics; Existing, Alternatives, and Proposed General Plan

	City of Ceres			*Unincorporated County*			*Planning Area Total*		
	Population	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*
Existing (2015)[1,2,3]	47,000	13,800	8,700	8,000	2,400	1,300	55,000	16,200	10,000
Proposed Project (2035)	59,000	17,500	22,100	20,000	5,900	8,700	79,000	23,400	30,800
Southern Industrial Cluster Alternative (2035)	59,000	17,500	22,200	18,000	5,400	9,500	77,000	22,900	31,700
No Project Alternative (2035)	60,000	17,900	22,100	19,000	5,900	6,300	80,000	23,700	28,500

Notes:

1. Existing population in Ceres is from the California Department of Finance, January 2015 estimate. Existing population in the unincorporated county is derived from Stanislaus County Assessor's data from 2014 and an assumed 3.3 persons per housing unit.
2. Existing development in Ceres is from Economic & Planning Systems, Inc, 2016. Existing development in the unincorporated county is derived from Stanislaus County Assessor's data from 2014.
3. Existing jobs in Ceres is from the 2015 Q2 California Employment Development Department. Existing jobs in the unincorporated county is derived from Stanislaus County Assessor's data from 2014 and job density assumptions.

Source: Dyett & Bhatia, 2017.

Areas of Controversy

During the drafting of the proposed General Plan and this EIR, public agencies and members of the public were invited to provide feedback on the documents. The following topics were identified as areas of controversy, based on comments at public meetings on the proposed General Plan and at the EIR Scoping Meeting, and responses to the Notice of Preparation (NOP):

- **Light Industrial on Roeding Road.** The Proposed Project includes two parcels totaling 7.5 acres designated Light Industrial between Roeding Road and Whitmore Charter High School. The land use designation of these parcels in the 1997 General Plan is Low Density Residential. Three responses to the NOP expressed concern about this Light Industrial land use designation, with two requesting analysis with respect to specific EIR topic areas. The impacts of potential uses in the Light Industrial land use designation were analyzed in this EIR and are discussed in Chapter 3.3 Air Quality, Chapter 3.7 Hazards and Hazardous Materials, and Chapter 3.13 Transportation. Future development in the Light Industrial land use designation south of Roeding Road could contribute to significant impacts related to exposure of sensitive receptors to substantial pollutant concentrations and emission or handling of hazardous materials within one-quarter mile of a school.
- **Faith Home Road Expressway:** Expressways are limited access, moderate- to high-speed facilities that typically have four to six lanes and generally only intersect with primary collectors, arterials, and expressways. The Stanislaus County Council of Governments (StanCOG) Regional Expressway Study, 2010, identifies planned expressway facilities through Ceres, including Faith Home Road from Garner/Claus Road to SR 99. Faith Home Road is two lanes wide under existing conditions in 2017. Residents of the Planning Area have voiced concern at various public meetings and workshops during the General Plan update process about the expansion of Faith Home Road. Although Faith Home Road may ultimately be developed as an expressway, it may initially be constructed to arterial standards and was evaluated as such for the purposes of this EIR. Arterial roadways are intended to accommodate high volumes of traffic within a four- to six-lane cross-section, plus left-turn pockets and sometimes right-turn pockets. The impacts of Faith Home Road as a four-lane arterial are discussed in Chapter 3.13 Transportation, and are considered in the impacts discussed in 3.3 Air Quality and Chapter 3.11 Noise. In addition, a brief discussion of the impacts from Faith Home Road as a six-lane expressway is included in Section 4.3 of Chapter 4 Alternatives.

Additionally, environmental impacts classified as significant and unavoidable have been identified in the resource topics of agricultural resources; air quality; hazards and hazardous materials; land use, population, and housing; noise; and transportation, and inasmuch as they may be controversial to the general public, agencies, or stakeholders, they are described briefly here.

Agricultural Resources

The proposed General Plan was designed to provide for the expected growth in Ceres over the next 20 years. Given the land use pattern of this new growth, it is expected that Prime Farmland, Farmland of Statewide Importance, and Unique Farmland will be converted to urban uses within

the Planning Area. Although policies are included in the proposed General Plan to make the impact less severe, this loss of important farmland is considered a significant and unavoidable impact.

The Proposed Project proposes urban land use designations for land currently within the unincorporated area of the Planning Area that Stanislaus County has been zoned for agricultural use. This inconsistency would be resolved upon annexation to the city, when the land in question would clearly be under the jurisdiction of the city and would be designated for urban uses. However, the Proposed Project indicates an intent to allow for urban development in areas currently zoned for agricultural uses or under Williamson Act contracts, therefore the Propose Project results in a conflict with agricultural zoning and Williamson Act contracts.

Urban development can result in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Such indirect impacts can include the division of large tracts of continuous agricultural land into smaller, less agriculturally viable tracts; the presence of incompatible uses adjacent to existing agricultural operations that could lead to the restriction of chemical use and/or complaints regarding noise, dust, and odors; increases in land values and taxes that exert pressure on agricultural landowners to convert to urban uses; and loss of agricultural support infrastructure, such as processing facilities. As the Proposed Project provides for development on lands that support existing agricultural uses, it has the potential to cause these indirect impacts.

Air Quality

Implementation of the proposed General Plan would facilitate development within the Planning Area of additional residential units and commercial/office/industrial space by year 2035. Criteria pollutant emissions would occur during construction and operational activities, resulting in a significant and unavoidable impact. Future construction allowed under the proposed General Plan would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts. Particulate matter (PM_{10} and $PM_{2.5}$) emissions would primarily result from activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles.

Although specific project construction schedules that would be implemented under the proposed General Plan are not known at this time, construction emissions generated during construction of future development would potentially exceed San Joaquin Valley Air Pollution Control District (SJVAPCD) thresholds; therefore, impacts would be considered significant and unavoidable. Compliance with SJVAPCD rules and proposed General Plan policies listed in Chapter 3.3 would further aid in reducing emissions associated with construction activities. However, there is no guarantee emissions would be reduced below SJVAPCD thresholds.

Operational emissions from motor vehicles, due to vehicular traffic generated by future development, and area sources, such as natural gas combustion, landscaping, and architectural

coatings for maintenance, would exceed the SJVAPCD's significance threshold for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ primarily due to motor vehicle emissions; therefore, impacts would be potentially significant. Principles and actions described in the proposed General Plan would reduce impacts associated with operational emissions; however, there is no guarantee emissions would be mitigated below SJVAPCD thresholds.

The Proposed Project includes two parcels designated Light Industrial between Roeding Road and Whitmore Charter High School. The 1997 General Plan designates these parcels Low Density Residential. The Light Industrial designation would allow for new light industrial uses adjacent to Whitmore Charter High School and areas designated for residential use. This proposed change in land use designation has the potential to introduce higher levels of truck traffic, and therefore greater exposure to diesel particulate matter and fugitive dust to the vicinity. There are no mitigation measures available that would ensure that a potential increase in truck traffic serving light industrial uses adjacent to Whitmore Charter High School would have a less than significant impact on sensitive receptors, therefore the impact is significant and unavoidable.

Hazards and Hazardous Materials

Implementation of the Proposed Project would allow land uses to be developed within a quarter-mile of existing schools that could be reasonably expected to handle hazardous materials or generate hazardous emissions. Of the 26 public and private schools in the Planning Area, five schools would be located within a quarter mile of industrial land uses, the uses most likely to handle or emit hazardous materials. For example, in the Light Industrial and Industrial Reserve land use designation, uses could include light manufacturing, auto services, and contractors' yards, which could handle or emit toxic or volatile chemicals. Policies in the proposed General Plan limit the safety risks from hazardous materials near schools. However, the Proposed Project allows for industrial development within one-quarter mile of five existing schools, and industrial uses in these areas could emit hazardous emissions or handle hazardous materials, substances, or waste.

Land Use and Housing

The Proposed Project plans for population growth associated with future development of residential land uses. Buildout projections for the Proposed Project estimate a total of approximately 7,200 new housing units and 24,000 new residents within the Planning Area by 2035. In fact, as the buildout projections do not assume that every available parcel will develop at maximum allowable density, the Proposed Project has the capacity to accommodate more residential development than is estimated in the buildout projections. The potential population growth in Ceres under the Proposed Project is greater than forecasted by StanCOG, the California Department of Transportation (Caltrans), and the State Department of Finance (DOF), and it is greater than the historical rate of growth between 2005 and 2015. The Proposed Project buildout projections are based on a different methodology than the StanCOG, Caltrans, and DOF forecasts, thus it can be expected that the buildout projections vary from the forecasts. Despite these differences, the Proposed Project accommodates a substantial amount of new residential development.

In addition, the Proposed Project aims to increase the number of jobs in the Planning Area. If the Proposed Project is successful in increasing the number of jobs in Ceres over the planning horizon, implementation of the Proposed Project may contribute to secondary growth-inducing impacts.

An increase in jobs may attract new residents that are not accounted for in the buildout projections. Policies in the Proposed Project encourage infill development and require areawide plans for annexed land, thus limiting the potential for unplanned, induced growth. Nonetheless, the Proposed Project plans for both an increase in residential development and an increase in the number of jobs, inducing population growth in the area.

Noise

The Proposed Project would result in both short-term and long-term changes to the existing noise environment in the Planning Area. The increases associated with construction, rail, and stationary sources would be less than significant. For traffic-related noise, proposed General Plan policies would reduce potential noise impacts on new development to a less than significant level. However, the Proposed Project does not guarantee that noise generated from transportation sources will be reduced, nor does it require noise mitigation for existing land uses. Therefore, impacts of new traffic noise on existing sensitive receptors, such as the residences near the roadway segments that would experience an increase in noise, would be significant and unavoidable. The increase in noise levels along certain roadways compared to existing conditions would also result in a significant and unavoidable impact related to a substantial permanent increase in ambient noise levels.

Transportation

For the purposes of this EIR, the Proposed Project would result in a significant impact if implementation of the Proposed Project degrades the level of service (LOS) of a road segment from acceptable (LOS D or LOS C or better depending on facility type) to unacceptable, or if the segments where the LOS is already deficient under existing conditions experience increased traffic volumes. According to traffic modeling of the Proposed Project, three road segments that are deficient under existing conditions will experience increased traffic, and the LOS of several segments are expected to degrade. The proposed General Plan includes policies to reduce the demand for vehicle travel, as well as to work with StanCOG to increase travel capacity on the regional roadway network, but the impact remains significant and unavoidable.

StanCOG has integrated the function of the congestion management program into the StanCOG Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS), which establishes a LOS D standard for regional roadway facilities. Development potential under the Proposed Project would contribute to the need for improvements to the regional transportation system, including development of the expressway system identified by StanCOG and improvements to the freeway system. Should improvements identified in the StanCOG RTP/SCS not be constructed, roadway conditions could degrade below the LOS D standard. Policies in the proposed General Plan aim to reduce the demand for vehicle travel through Ceres, as well as to ensure the City will work with StanCOG to implement regional transportation improvements on the regional roadway network. However, even with implementation of these policies, the potential impact to the regional transportation network could remain significant and unavoidable as the City of Ceres cannot assure the completion of roadway improvement projects in other jurisdictions.

Impacts Summary and Environmentally Superior Alternative

IMPACTS SUMMARY

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact presents the summary of the significant impacts of the proposed General Plan identified in the EIR and the proposed General Plan policies that reduce these impacts. Detailed discussions of the impacts and proposed policies that would reduce impacts are in Chapter 3.

IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines (Section 15126.6) require the identification or an environmentally superior alternative among the alternatives analyzed. Table 4.4-1 in Chapter 4: Alternatives summarizes the Alternatives' overall environmental impacts for each environmental resource topic. For the SIC Alternative, 12 impacts were expected to be significant and unavoidable, 58 impacts were expected to be less than significant, and two were found to be no impact, the same as the Proposed Project. For the No Project Alternative, 21 impacts were expected to be significant and unavoidable, 49 impacts were expected to be less than significant, and two were found to be no impact. Because the SIC Alternative was found to have fewer potentially significant and unavoidable impacts than the No Project Alternative, the SIC Alternative is considered environmentally superior. While the proposed land use diagrams of the two Alternatives are similar, the policies included in the No Project Alternative in many cases do not address the broad range of environmental topics covered by the SIC Alternative and Proposed Project, and are not up to date with current laws and practices concerning environmental impacts.

Nevertheless, the SIC Alternative has the potential to perform worse than the Proposed Project on several impacts, despite having the same number of less than significant and significant and unavoidable impacts as the Proposed Project. The SIC Alternative has the potential for greater impacts than the Proposed Project on aesthetics, conversion of farmland, air quality and sensitive receptors, groundwater usage, permanent ambient noise levels, and regional traffic; it would only be expected to have lesser impacts in relation to exposure of residents to seismic hazards. The land uses designated by the Proposed Project in the southeastern portion of the Planning Area were generally found to be more compatible with both the surrounding environment and with promoting lower vehicle miles traveled (VMT) in and around the Planning Area. Therefore, the Proposed Project is environmentally superior to the SIC Alternative.

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1 Aesthetics		
3.1-1 Implementation of the Proposed Project would not have a substantial adverse effect on a scenic vista.	**Land Use and Community Design Element** 2.A.2 **Prioritize Growth in SOI.** Prioritize growth within the Ceres Sphere of Influence. Permit development outside of the Sphere of Influence only when there is a demonstrated need for additional land and there is less than a five-year supply of appropriately-designated land within the existing Sphere of Influence, in accordance with Stanislaus Local Agency Formation Commission (LAFCO). 2.A.3 **Compact Footprint.** Promote compact development patterns, mixed land uses, and higher-development intensities and limit "leap frog" development to conserve agricultural land, reduce vehicle trips, and improve air quality. 2.B.2 **Visual Distinction.** Provide visual distinction for key entry points to the City. 2. B.3 **Greenbelt.** In cooperation with Stanislaus County and the City of Hughson, seek to establish a permanent greenbelt between Ceres and Hughson. Goal 2.D Promote infill development to protect farmland; enhance community character; optimize city investment in infrastructure; provide pedestrian- and bicycle-friendly neighborhoods; and enhance economic vitality. 2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery. 2.D.3 **Sensitivity to Context.** Encourage design in new development that enhances and blends with the established fabric of the natural, social, and built environment, while allowing for innovative and unique architectural styles and projects that meet the community's needs. *See in Section 2.4 Urban Design of [the proposed General Plan] for urban design guidelines.* 2.E.2 **Conceal Unsightly Uses.** Enhance the visual quality of major corridors by requiring new and expanding development to conceal unsightly uses and	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-1 Implementation of the Proposed Project would not have a substantial adverse effect on a scenic vista.	equipment, (i.e., screening of rooftop equipment and outdoor storage, and undergrounding of utilities). **Agricultural and Natural Resources Element** Goal 4.A Promote the productivity of agricultural lands surrounding Ceres and the continued viability of agriculture in Stanislaus County, and, recognizing the community's agricultural heritage and its contribution to the local economy, support the preservation of agricultural character where it has cultural or scenic significance. 4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface. 4.A.2 **Urban Expansion in Agricultural Areas.** Ensure that development and the expansion of infrastructure in urban areas do not encourage the expansion of urban uses into areas designated for Agriculture on the Land Use Diagram, or otherwise reduce the viability of agricultural operations on lands designated for Agriculture. 4.A.10 **Strategic Conservation.** Work with land trusts to strategize and coordinate resources for the conservation of farmland in and around the Planning Area.	Less than significant
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	Goals 2.D and 4.A; and policies 2.B.2, 2.D.1, 2.D.3, 2.E.2, 4.A.1, and 4.A.2, as listed under Impact 3.1-1 above; as well as the following policies. **Land Use and Community Design Element** Goal 2.A Support growth that improves quality of life for all residents and enhances the qualities of Ceres that residents love.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	2.A.7 **Diversity.** Embrace diversity—physical, cultural, language, and social—and sensitively integrate new development with the old. 2.A.13 **Protect Beloved Qualities.** Preserve the vital qualities of existing residential neighborhoods, such as street trees, sidewalks, bikeways, well-located parks, and personal safety. 2.A.14 **Maintenance.** Maintain and invest in the public realm, including parks, sidewalks, and streets to enhance safety and character and to encourage upkeep and investment by private property owners. Goal 2.B Foster a distinctive city identity to support civic pride and Ceres' appeal. 2.B.1 **Place-Based Development.** Encourage development consistent with Ceres' history, location in the Central Valley, and evolving demographics to promote community identity and pride. 2.C.7 **Improve Appearance.** Support programs to improve the appearance of downtown, including alley clean-ups, abatement of building code violations, redevelopment activities to reduce blight, and enhancement and consolidation of parking. 2.D.3 **Sensitivity to Context.** Encourage design in new development that enhances and blends with the established fabric of the natural, social, and built environment, while allowing for innovative and unique architectural styles and projects that meet the community's needs. *See in Section 2.4 Urban Design of this chapter for urban design guidelines.* Goal 2.F Support Ceres' neighborly and family-friendly character with complete and well-designed neighborhoods. 2.F.6 **Integrated Neighborhoods.** Require new residential developments to be physically and socially integrated with the existing community.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	2.F.7 **Street Trees.** Support a robust system of street trees in order to increase shade, minimize runoff, and create a comfortable and visually attractive environment. Goal 2.1 Ensure new growth areas contribute to Ceres' proud identity and promote community health. 2.1.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following: • The distribution, location, and extent of land uses, including standards for land use intensity. • Compatibility of new development with adjacent existing and proposed development. • Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs. • Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary. • Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods. • Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	• Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities. • Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways. • Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences. • Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand. • Provisions for minimizing conflicts between new development and adjacent agricultural uses. • Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements. 2.G.3 **Enhanced Design of Existing Commercial.** Encourage the renovation, infill, and reuse of existing commercial centers and strip malls. Redesign and modernization of architectural treatment is encouraged as well as utilization of parking lots to make the centers more pedestrian friendly, and enhance the definition and character of the street frontage and associated streetscape. Goal 2.L Ensure quality design that supports the goals of the General Plan. 2.L.1 **Design Guidelines.** Ensure quality design by adopting simple and effective Design Guidelines that clearly express desirable, in addition to discouraged, outcomes. 2.L.2 **Design Review.** Require an efficient design review process, as appropriate, that focuses on achieving form and function for new, reuse and reinvestment projects to promote creativity, sustainability, health, and design quality.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	2.L.5 **Single Family Residential Design.** Ensure architecture and landscaping in single family residential projects contribute to a neighborhood identity with visual interest and variety. Encourage the following characteristics in single family residential development: • Architectural variety between residences to contribute to neighborhood identity. Discourage monotonous developments with repetitive residential design; • Development oriented to the street; • Reduced priority given to garages and parking; • Attractive architectural features such as front porches, articulated facades, formers, trim and moldings, and high-quality building materials; Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building. 2.L.6 **Multi-Family Residential Design.** Ensure attractive architecture and design of multi-family buildings provide a variety of high-quality housing options with convenient facilities to foster a high quality of life. Encourage the following characteristics in multi-family developments: • Variety of unit sizes including studios and three bedrooms; • Building mass broken into small units; • Sheltered and well-lit entrances to units and main entrances that are oriented to the street; • Sufficient private outdoor space for each unit, such as balconies or decks; • Functional and accessible interior site open space that may include a community garden; • Attractive landscaping, including larger trees; • Parking provided in rear of building or screened with landscaping;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	• Consolidated parking in higher density residential projects that shares one or two entrances/exits from the property in order to minimize curb cuts; • Good site and building management and maintenance; • Screened, secure, and accessible areas for waste disposal and recycling; • Building scale and mass transitions appropriate to adjacent single family neighborhoods, where applicable; and • Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building. 2.L.7 **Downtown Commercial and Mixed Use Development Design.** Ensure commercial and mixed use development in Downtown Ceres cultivates an attractive destination and pedestrian-oriented center of activity. Encourage the following characteristics in commercial and mixed use buildings in Downtown Ceres: • Main facades with entrance doors and windows that front the primary street; • Buildings on larger lots broken down in scale to create a small-scale frontage rhythm; • Ground-floor facades designed to give interest to pedestrians and visitors, for example with transparent glass storefronts; • Parking in rear (preferred) or side of building; • Shared facilities, such as driveways, parking areas, and pedestrian plazas, between adjoining properties; and • Materials chosen and detailed to respect the climate and traditions of the San Joaquin Valley. *See the Ceres Downtown Specific Plan for further guidelines.*	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	2.L.8 **Neighborhood Commercial Design.** Ensure development in the Neighborhood Commercial land use designation complements nearby residential neighborhoods with attractive commercial and mixed use buildings that are conveniently accessible by walking or biking. Encourage the following characteristics in development in the Neighborhood Commercial land use designation: • Building entrances oriented toward the street rather than parking lot; • Parking located to the side or rear of building where possible; • Shaded walkways and small gathering spaces that help strengthen community character and identity, and facilitate accessing the commercial area on foot. 2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations: • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility; • Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility; • Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate; • Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	• Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate; • A continuous, safe, and convenient walkway from the public right of way to building entrances; • Building entrances oriented to the walkway; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Large buildings "broken up" by variations in building form and architectural design; and • Articulation in the walls, including insets, canopies, wing walls, and trellises. 2.L.10 **Service and Highway Commercial Design.** Ensure development in the Service Commercial and Highway Commercial land use designations are designed to conveniently serve potential consumers and are appropriately buffered from adjacent residential and sensitive uses. Encourage the following characteristics in development in the Service Commercial and Highway Commercial land use designations: • Attractive building frontages; • Attractive frontages and signage promoting visibility from SR 99, where appropriate; • Integrated on-site circulation;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	• Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement; • Loading bays and outdoor storage areas that are not readily visible from the public right of way; and • Comprehensive sign program. 2.L.11 **Regional Commercial Design.** Ensure development in the Regional Commercial land use designation provides a commercial destination and other development attractive to the regional market. Encourage the following characteristics in development in the Regional Commercial land use designation: • Distinctive gateway or entry features that contribute to the character of Ceres; • Attractive landscaping with shade trees to provide substantial tree canopy in and around parking areas that enhance regional center identity; • Plaza and outdoor patio areas with public art that create focal points; • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility; • Convenient pedestrian connections from adjoining neighborhoods; • Parking located to the side or rear of building where possible; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Large buildings "broken up" by variations in building form and architectural design; and • Articulation in the walls, including insets, canopies, wing walls, and trellises. 2.L.12 **Business Park Design.** Ensure business park use developments attract businesses and provide a convenient and pleasant environment for workers. Encourage the following characteristics in development in the Business Park land use designation: • Articulation in the walls, including insets, canopies, wing walls, and trellises; • Large buildings "broken up" by variations in building form and architectural design; • Distinctive gateway or entry features that contribute to the character of Ceres; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Blocks of no more than 1,000 feet in length with block perimeters of no more than 4,000 feet. Where larger blocks exist, improve convenience of walking and bicycling with shaded, internal connections, such as sidewalks, bicycle paths, and multi-use trails;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings.	• A shaded pedestrian rest area with seating, landscaping, and trash receptacles near building entrances; • Attractive landscaping, including larger trees; • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility; • Parking located to the side or rear of building where possible; • Loading bays and outdoor storage areas that are not readily visible to the public. 2.L.13 **Industrial Design.** Ensure industrial development provides safe work environments and does not result in impacts on public health or quality of life of surrounding neighborhoods. Encourage the following characteristics in industrial development: • Attractive building frontages (facades of preferably brick, wood, glass, or other quality material) that are readily visible from the public street; • Large parking areas with tree coverage separated into a series of small parking areas with the use of landscaping and the location of buildings; • Outdoor services areas, loading bays, and outdoor storage areas located in the rear of buildings or screened from the public right of way; • Attractive landscaping to enhance the business by softening buildings and parking areas.	Less than significant
3.1-3 Implementation of the Proposed Project would create new sources of substantial light or glare that could adversely affect	5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
day- or night-time views in the area.	2.L.15 **Exterior Lighting Standards.** Establish standards for the evaluation of exterior lighting for new development and redevelopment to ensure that exterior lighting (except traffic lights, navigational lights, and other similar safety lighting) is minimized, restricted to low-intensity fixtures, shielded, and concealed to the maximum feasible extent, and that high-intensity perimeter lighting and lighting for athletic fields and other private recreational facilities is limited to reduce light pollution visible from public viewing areas.	Less than significant
3.2 Agricultural Resources		
3.2-1 Implementation of the Proposed Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	**Land Use and Community Design Element** 2.A.2 **Prioritize Growth in SOI.** Prioritize growth within the Ceres Sphere of Influence. Permit development outside of the Sphere of Influence only when there is a demonstrated need for additional land and there is less than a five-year supply of appropriately-designated land within the existing Sphere of Influence, in accordance with Stanislaus Local Agency Formation Commission (LAFCO). 2.A.3 **Compact Footprint.** Promote compact development patterns, mixed land uses, and higher-development intensities and limit "leap frog" development to conserve agricultural land, reduce vehicle trips, and improve air quality. 2.B.3 **Greenbelt.** In cooperation with Stanislaus County and the City of Hughson, seek to establish a permanent greenbelt between Ceres and Hughson. 2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery. **Agricultural and Natural Resources** Goal 4.A Promote the productivity of agricultural lands surrounding Ceres and the continued viability of agriculture in Stanislaus County, and, recognizing the community's agricultural heritage and its contribution to the local economy,	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.2-1 Implementation of the Proposed Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	support the preservation of agricultural character where it has cultural or scenic significance. 4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface. 4.A.2 **Urban Expansion in Agricultural Areas.** Ensure that development and the expansion of infrastructure in urban areas do not encourage the expansion of urban uses into areas designated for Agriculture on the Land Use Diagram, or otherwise reduce the viability of agricultural operations on lands designated for Agriculture. 4.A.3 **Continued Production.** Support continued agricultural production on properties within the Planning Area until development is proposed. 4.A.4 **County Referral.** Continue to work with Stanislaus County to review discretionary development proposals in the unincorporated portions of the Planning Area to ensure that all approved projects are compatible with the City's General Plan policies regarding agricultural preservation, as well as other General Plan policies and City development standards. 4.A.5 **Land Use Compatibility.** Ensure that new development adjacent to agricultural uses is compatible with the continuation of the agricultural uses by minimizing conflicts through appropriate design criteria, such as site layout, landscaping, and buffers to provide adequate separation between habitable structures and active farmland. The Stanislaus County General Plan also contains an agricultural buffer policy that would apply to unincorporated areas of the Planning Area. 4.A.6 **Right to Farm.** Continue to support the County's Right-to-Farm ordinance.	Significant and unavoidable

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.2-1 Implementation of the Proposed Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	4.A.7 **Farmland Mitigation.** Minimize the loss of agricultural lands by developing a Plan for Agricultural Preservation upon application for a SOI expansion or annexation that includes agricultural land, consistent with the Stanislaus LAFCO Agricultural Preservation Policy. 4.A.8 **Farmland Security/Williamson Act.** Support participation in the Farmland Security Zone/Williamson Act program by property owners in the Planning Area. 4.A.9 **Agricultural Connections.** Maintain connections between agricultural lands and supporting uses and avoid the isolation of agricultural uses among non-agricultural uses in order to support the long-term viability of agricultural operations. 4.A.10 **Strategic Conservation.** Work with land trusts to strategize and coordinate resources for the conservation of farmland in and around the Planning Area. 4.A.11 **Complementary Businesses.** Strengthen the local agricultural economy by supporting the development of complementary agricultural businesses in the vicinity of agricultural uses. *Agricultural businesses include but are not limited to those that provide needed farming supplies or services locally, small-scale retail or processing facilities that allow farmers to sell products locally, and businesses that link agriculture and tourism.* Implementation Actions 2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including: • To ensure implementation of the provisions of the County's Right-to-Farm Ordinance	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.2-1 Implementation of the Proposed Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	2.7 Providing reciprocal agreements are reached with the City of Hughson and Stanislaus County, establish a permanent urban growth boundary on the eastern boundary of the Planning Area to permanently limit urban development and preserve agricultural lands east of the city. The permanent urban growth boundary should include buffers to minimize the impacts of urban development on the immediately adjacent agricultural lands. 2.8 To ensure the permanence of a greenbelt between Ceres and Hughson and buffering between urban and agricultural uses, analyze and pursue, as appropriate, the use of various policy strategies, including, but not limited to, the following: • Large ranchette lots on the periphery (e.g., to 2-5 acre lots) with setbacks to buffer with agricultural uses. • Public or private recreational uses (e.g, parks, golf courses) on the periphery to buffer with agricultural uses. • Sizing of infrastructure (e.g. water and sewer mains) to accommodate only limited, low-density growth on the eastern border of the Sphere of Influence, to make future expansion more difficult. • Design of circulation system to make eastward extension more difficult. • Special provisions (i.e., a "supermajority"— four-fifths of the City Council) to allow any amendments to the boundary. 4.1 Develop design guidelines to advise developers of best practices for siting, designing, and buffering new development from agricultural operations.	Significant and unavoidable
3.2-2 Implementation of the Proposed Project would conflict with existing zoning for agricultural use or a Williamson Act contract.	Goal 4.A; policies 2.A.2, 2.A.3, 2.B.3, 2.D.1, 4.A.1, 4.A.2, 4.A.3, 4.A.4, 4.A.5, 4.A.6, 4.A.7, 4.A.8, 4.A.9, 4.A.10, and 4.A.11; and implementation actions 2.1, 2.7, 2.8, and 4.1, as listed under Impact 3.2-1 above, as well as the following policy.	Significant and Unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.2-2 Implementation of the Proposed Project would conflict with existing zoning for agricultural use or a Williamson Act contract.	**Land Use and Community Design Element** 2.A.4 **Urban/Agriculture Compatibility.** Minimize conflict between urban and agricultural uses. See Chapter 4: Agricultural and Natural Resources Element for more information and related policies and goals.	Significant and unavoidable
3.3 Air Quality		
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	**Land Use and Community Design Element** 2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. 2.C.1 **Transit Oriented Development.** Encourage high-density, pedestrian-oriented development with managed parking strategies to leverage the development potential and improved accessibility resulting from the development of the ACE train stop. 2.C.2 **Integrated ACE Train Stop.** Integrate the Altamont Corridor Express (ACE) train stop into the Downtown, providing multi-modal mobility options and safe and convenient pedestrian and bicycle access between the train stop and Downtown Ceres. Goal 2.D Promote infill development to protect farmland; enhance community character; optimize city investment in infrastructure; provide pedestrian- and bicycle-friendly neighborhoods; and enhance economic vitality. 2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery. 2.D.4 **Mixed Use Development.** Encourage mixed use development within infill areas by providing incentives such as updating the city's Public Facility Fee program to reflect reduced need for additional roadway and operational	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	infrastructure; reduced parking requirements; and/or opportunities for shared parking. 2.E.4 **Mitchell Road Corridor Plan.** Update the Mitchell Road Corridor Specific Plan to: • Encourage infill development along the corridor; • Include Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow; • Improve pedestrian and bicycle mobility along the corridor and within and between properties with safe and convenient infrastructure and design; • Promote development that engages the street, including discouraging parking between the street and new development and encouraging street access into new buildings; • Differentiate commercial uses intended for the Mitchell Road Corridor from those intended for Downtown Ceres; • Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design; • Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; • Include the land designated Regional Commercial south of SR 99. 2.E.5 **Hatch Road Corridor Plan.** Prepare a corridor plan for Hatch Road between SR 99 and Mitchell Road, which includes the following components: • Infill development; • Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;	Less than significant

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3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	• Pedestrian and bicycle infrastructure and design to promote safe and convenient access to properties; • Differentiate commercial uses intended for the Hatch Road Corridor from those intended for Downtown Ceres; • Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design; • Land use and building location strategies to promote sharing of patronage among businesses; • Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; • Areawide information and sign program; • Maintenance plan and safety program; • Image enhancement and marketing program; and • Capital improvement projects, including streetscaping, signs, and façade improvements. 2.F.2 **Neighborhood Interaction.** Promote opportunities for neighborhood interaction with pedestrian-oriented streetscapes and urban design, as well as public spaces for meeting and gathering. 2.F.4 **Multi-Modal Accessibility.** Maximize accessibility for automobiles, cyclists, and pedestrians. 2.F.5 **Pedestrian-Oriented Streetscape.** Require streetscapes and buildings to encourage pedestrian activity and comfort. 2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation.	Less than significant

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3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	2.G.3 **Enhanced Design of Existing Commercial.** Encourage the renovation, infill, and reuse of existing commercial centers and strip malls. Redesign and modernization of architectural treatment is encouraged as well as utilization of parking lots to make the centers more pedestrian friendly, and enhance the definition and character of the street frontage and associated streetscape. 2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following: • The distribution, location, and extent of land uses, including standards for land use intensity. • Compatibility of new development with adjacent existing and proposed development. • Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs. • Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary. • Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods. • Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	• Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities. • Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways. • Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences. • Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand. • Provisions for minimizing conflicts between new development and adjacent agricultural uses. • Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements. 2.L.3 **Pedestrian-Oriented Design.** Promote architectural and landscape design features in new development that create more pedestrian-friendly neighborhoods, such as orientation to the street; rear, setback, or detached garages; front porches; tree-lined streets; and landscaped strips between streets and sidewalks. 2.L.6 **Multi-Family Residential Design.** Ensure attractive architecture and design of multi-family buildings provide a variety of high-quality housing options with convenient facilities to foster a high quality of life. Encourage the following characteristics in multi-family developments: • Parking provided in rear of building or screened with landscaping; • Consolidated parking in higher density residential projects that shares one or two entrances/exits from the property in order to minimize curb cuts	Less than significant

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3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	2.L.7 **Downtown Commercial and Mixed Use Development Design.** Ensure commercial and mixed use development in Downtown Ceres cultivates an attractive destination and pedestrian-oriented center of activity. Encourage the following characteristics in commercial and mixed use buildings in Downtown Ceres: • Ground-floor facades designed to give interest to pedestrians and visitors, for example with transparent glass storefronts; • Parking in rear (preferred) or side of building; • Shared facilities, such as driveways, parking areas, and pedestrian plazas, between adjoining properties; and 2.L.8 **Neighborhood Commercial Design.** Ensure development in the Neighborhood Commercial land use designation complements nearby residential neighborhoods with attractive commercial and mixed use buildings that are conveniently accessible by walking or biking. Encourage the following characteristics in development in the Neighborhood Commercial land use designation: • Building entrances oriented toward the street rather than parking lot; • Parking located to the side or rear of building where possible; • Shaded walkways and small gathering spaces that help strengthen community character and identity, and facilitate accessing the commercial area on foot. 2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations:	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	• Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility; • Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility; • Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate; • Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings; • Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate; • A continuous, safe, and convenient walkway from the public right of way to building entrances; • Building entrances oriented to the walkway; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas 2.L.11 **Regional Commercial Design.** Ensure development in the Regional Commercial land use designation provides a commercial destination and other development attractive to the regional market. Encourage the following characteristics in development in the Regional Commercial land use designation:	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	• Parking located to the side or rear of building where possible; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas 2.L.12 **Business Park Design.** Ensure business park use developments attract businesses and provide a convenient and pleasant environment for workers. Encourage the following characteristics in development in the Business Park land use designation: • Blocks of no more than 1,000 feet in length with block perimeters of no more than 4,000 feet. Where larger blocks exist, improve convenience of walking and bicycling with shaded, internal connections, such as sidewalks, bicycle paths, and multi-use trails • A shaded pedestrian rest area with seating, landscaping, and trash receptacles near building entrances; • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility **Transportation and Circulation Element** 3.A.1 **Multi-Modal Network.** Provide for a comprehensive, integrated transportation network in accordance with the functional classification system described in this chapter and reflected in the Circulation Diagram with infrastructure and design that allows safe and convenient travel along and across streets for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.	Less than significant

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3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service ("LOS") C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects support other goals from the General Plan including transit, active transportation, and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the "LOS" standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character. 3.A.4 **Reduce Vehicle Miles Traveled (VMT).** Support statewide efforts to reduce vehicle miles of travel (VMT) from existing and new development by encouraging infill and mixed use development, providing a multi-modal transportation network, and incorporating transportation and parking demand management measures into new development by design. 3.A.5 **Transportation Financing.** Pursue financing in a timely manner from a variety of sources to maintain, enhance, and expand the roadway, sidewalk, bicycle, and transit networks to achieve and maintain a safe and efficient complete transportation network. 3.A.6 **Development Fees.** Assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system, including transit, bicycle, and pedestrian systems. Goal 3.B Maintain acceptable multi-modal travel flow along Ceres' major corridors. 3.B.1 **Complete Streets Corridors.** Maintain adequate travel flow along Ceres' major corridors while allowing for new development or redevelopment. To this end, the following shall be considered in site plan development for new	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	development and redevelopment along Hatch Road, Mitchell Road, and Whitmore Avenue: • Require consolidation of driveway access to reduce the number of vehicle/pedestrian/bicycle conflicts areas; if necessary, driveway improvements should include relocation of driveway access points on existing sites; • Require combination of parking lots and access points with joint access and reciprocal parking agreements where possible; • Require medians within the existing cross-section to limit turning movements and to provide pedestrian refuges at mid-block crossing locations; • Require site plans to locate entrance and exits to avoid vehicle queue spillback to the public right-of-way; • Require a continuous, safe, and convenient walkway from the public right of way, including transit stops where appropriate, to building entrances that minimizes pedestrian/vehicle conflicts; and Limit or prohibit drive-up windows where peak vehicle queues cannot be accommodated on-site. Goal 3.C Protect residential areas from high-volume and high-speed traffic and its effects and promote bicycling and walking on residential streets. 3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible. 3.C.3 **Sidewalks.** Require sidewalks for all new streets in residential developments. Goal 3.D Provide a sufficient amount of convenient, safe, and attractive vehicle and bicycle parking to serve existing and new development throughout the city.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	3.D.1 **Off-Street Parking Requirements.** Require new development and redevelopment to provide adequate off-street parking for vehicles and bicycles that considers urban design, economic development, and alternative travel modes, including secure long-term bicycle parking at employment centers and transit centers. Parking shall be landscaped, located convenient to new development, and easily accessible from the street system. 3.D.2 **Context Sensitive Parking Requirements.** Provide parking supplies using a context-sensitive approach that considers the potential for shared parking and reduced parking requirements in walkable mixed-use neighborhoods and transit oriented areas. 3.D.3 **Electric Vehicle Parking.** Incorporate electric vehicle charging stations into new multifamily, commercial, and industrial development and site renovations. 3.D.5 **Priority Parking.** Where required, reserved employee car pool, bicycle, and electric vehicle parking should be provided in premium areas close to building entrances. Goal 3.E Promote provision of safe and efficient transit service to reduce congestion, improve the environment, and provide viable non-automotive means of transportation within and connecting to Ceres. 3.E.1 **Flexible Transit Service.** Plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand. 3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services. 3.E.3 **Transit Right-of-Way.** Consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles. Require new development to reserve	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route. 3.E.4 **Farebox Recovery Ratios.** Restrict from providing transit, either fixed route or demand responsive, in scenarios where it would not be expected to meet the revenue to operating expense ratios or other performance standards required by the State Transportation Development Act or as may be adopted by any other state or regional agency. 3.E.5 **Transit Priority.** Prioritize the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act. 3.E.6 **Paratransit.** Continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit. 3.E.7 **Transit Coverage.** Ensure that new and existing transit routes strive to serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan. 3.E.8 **ACE Train Stop.** Preserve right-of-way to facilitate development of an Altamont Commuter Express (ACE) train stop in Downtown Ceres. Goal 3.F Provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation. 3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	3.F.2 **Funding.** Pursue a variety of sources of funding for the development and improvement of bikeways and pedestrian pathways, including grant funding, Countywide Measure L funds, and Capital Improvement Program funding. 3.F.3 **New Development.** Require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate. 3.F.4 **Right-of-Way.** Require new development to provide adequate rights-of-way to accommodate bikeways where identified on the bikeways map and as specified in the Bicycle and Pedestrian Master Plan, and to contribute to the development of planned bikeways. 3.F.5 **On-Site Bicycle Facilities.** Require new multi-family residential, commercial and industrial developments to provide bicycle facilities, including bicycle parking. For employment locations with more than 50 employees, other amenities may be required, including showers and changing facilities. 3.F.6 **Bicycle Safety.** Promote bicycle safety education to children and adults through coordination with the local school district, community groups, and other city sponsored events. 3.F.7 **Roadway Maintenance.** When roadway repaving projects occur, opportunities to provide bicycle facilities consistent with the adopted Alternative Transportation Plan (ATP) shall be considered. 3.F.8 **Pedestrian Facility Design.** Provide safe, continuous and pleasant pedestrian paths of travel, including sidewalk width appropriate for the land use context of the street, enhanced street crossings, landscape and/or parking buffers, and pedestrian scale lighting throughout the city.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	3.F.9 **Interchange Improvements.** When interchanges and overpasses are upgraded, pedestrian and bicycle access shall be provided or enhanced as appropriate, safe, and feasible to do so. 3.H.2 **Project Prioritization.** Projects that incorporate Complete Streets objectives should be prioritized whenever possible, including incorporating active modes and transit as well as accessibility for all users of the transportation system. **Agricultural and Natural Resources Element** 4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes. Goal 4.G Protect and improve air quality in the Ceres area, and protect residents from harmful effects of air pollution. 4.G.1 **Air Quality Goals.** Cooperate with the San Joaquin Valley Air Pollution District and other agencies in the San Joaquin Valley Air Basin to meet regional air quality goals and achieve a consistent and effective approach to regional air quality planning and management. Coordinate with other jurisdictions and other regional agencies in the San Joaquin Valley to establish parallel air quality programs and implementation measures. 4.G.2 **San Joaquin Valley Air Pollution District.** Support the San Joaquin Valley Air Pollution District in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to adequately address the air quality impacts of new development. 4.G.3 **Air Quality Analysis.** Require major new development projects (those exceeding the San Joaquin Valley Air Pollution District's small project analysis level) to submit an air quality analysis for review and approval, with mitigation measures to be required as determined by the City.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	4.G.4 **Proposed Projects.** Solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality, and submit development proposals to the San Joaquin Valley Air Pollution District for review and comment pursuant to CEQA prior to consideration by the City. 4.G.5 **Reduce VMT.** Emphasize transit-oriented, walkable, compact development patterns to reduce total vehicle miles traveled. See [proposed General Plan] Chapter 2: Land Use and Community Design Element for more policies related to land use and neighborhood design, and Chapter 3: Transportation and Circulation Element for policies related to multi-modal transportation. 4.G.6 **Roadway Dust.** Reduce the generation of fugitive dust to the greatest extent feasible by requiring lower speed limits and/or paving on unpaved roads, the removal of heavy silt loadings from roadways, and the paving and planting of shoulders and medians. 4.G.7 **Sensitive Receptors.** Avoid the siting of sensitive receptors within 500 feet of SR 99 to protect sensitive receptors from toxic air emissions from highway traffic. For those projects permitted within 500 feet of the highway, require site-specific project design improvements to reduce public health risks associated with poor air quality in these locations. 4.G.8 **Noxious Odors.** Do not permit new residential development within a half-mile radius of emitters of noxious odors. Require that any new potential odor source locating within project screening trigger levels of sensitive receptors, as established by the San Joaquin Valley Air Pollution District, undertake a detailed odor analysis. 4.G.9 **Cumulative Impacts.** Address impacts of new development projects that may individually have insignificant impacts on air quality, but which together with other projects in the Planning Area may be cumulative significant by requiring mitigation at the plan level for areawide plan development.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	4.G.10 **Trip Reduction Program.** Consider promoting vehicle trip reduction by implementing a trip-reduction program for City employees. Such a program may include carpooling and ridesharing; reimbursement of transit costs; encouragement of flexible work schedules, telecommuting, and teleconferencing. 4.G.11 **City Fleet Emissions.** Ensure through its long-range capital expenditure plans that the City investigates and considers technologies and available incentives to minimize emissions from the City's fleet. 4.G.12 **Green Contracting.** Using the Air District's model ordinance as a guide, establish and follow a "green contracting" rule, awarding points in the bidding process to companies that use low-emission vehicles and equipment. Work to improve the public's understanding of the linkages between land use, transportation, and air quality. Encourage local organizations that provide air quality education programs. 4.G.13 **Thresholds of Significance.** Use the San Joaquin Valley Air Pollution District's thresholds of significance for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. 4.G.14 **Construction Mitigation.** Require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction. Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to: • Site watering or application of dust suppressants; • Phasing or extension of grading operations; • Covering of stockpiles; • Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	• Revegetation of graded areas. 4.G.15 **Point Sources.** 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, and to incorporate siting and design considerations to minimize the impact of air contaminants on surrounding land uses. **Health and Safety Element** 5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction. 5.E.2 **LEED Certification.** Encourage new development to participate in the Leadership in Energy and Environmental Design (LEED) certification program for the design, operation, and construction of high-performance energy efficient buildings. 5.E.3 **Energy Conservation and Retrofit.** Identify and promote resources and incentives for energy conservation and retrofitting of existing buildings. Encourage property owners and residents to participate in point-of-sale residential energy and water efficiency audits, and provide information on upgrading requirements and available incentives, if applicable. 5.E.4 **Energy Efficient Design.** Reduce the need for artificial temperature control and lighting by establishing standards to encourage the following: • Passive cooling measures in new and existing development; and • Design that incorporates windows that open to the outside in all habitable rooms to maximize the use of daylight and promote ventilation. • Passive cooling measures may include the use of shade structures, shade trees and other vegetation, textured building materials and	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	insulation, natural ventilation, and other strategies that rely on natural processes and minimize energy use. 5.E.7 **Energy Efficient Municipal Operations.** Demonstrate leadership by reducing the use of energy and fossil fuel consumption in municipal operations, increasing energy efficiency in transportation, waste management, building design and use, and the purchasing of goods and services. 5.E.8 **Renewable Energy.** Encourage the use of renewable energy sources in the community, such as geothermal, solar, hydroelectric, and wind power. 5.E.9 **Zero-Emission Vehicle Travel.** Support the use of zero-emission vehicles (ZEVs) in the community through measures such as ensuring the availability of infrastructure such as electric vehicle charging stations and dedicated parking. 5.E.10 **Community Engagement for Energy Efficiency.** Maintain up-to-date information on available resources, best practices, programs, and tools to support community members in improving their energy efficiency, including financial incentives provided by other agencies and funding opportunities that could allow the City to provide its own incentives and programs. Ensure that available information is accessible to the public through activities such as workshops or informational books, and media such as pamphlets or a website. 5.E.11 **Service Provider Cooperation.** Work with PG&E and Turlock Irrigation District to educate the public about the need to conserve energy resources and methods of improving energy efficiency, and develop programs to encourage the adoption of energy-saving measures. **Public Facilities and Services Element** 6.A.7 **Pedestrian and Bicycle Access to Schools.** Locate schools in areas with safe and convenient pedestrian and bicycle access. 6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	and enhance connectivity for all transportation modes in neighborhoods surrounding schools. 6.C.21 **Bicycle and Pedestrian Connections to Parks and Recreational Facilities.** Establish new and maintain existing bicycle and pedestrian network connections between parks and recreational facilities to improve health outcomes and access to diverse programming in City park and recreational facilities. Ensure connections are well-lit, maintained, and marked with signage. For more detail about planned bicycle infrastructure improvements, see Chapter 3: Transportation and Circulation Element. **Implementation Actions** 2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including: • To right-size the required number of parking spaces in Downtown Ceres to encourage a vibrant, walkable environment and to allow for parking management strategies, such as shared parking and parking pricing, to ensure efficient use of parking spaces; • To specify bicycle parking requirements for new developments and site renovations; • To reevaluate the adequacy and appropriateness of parking requirements and consider provisions to allow for shared parking and reduced parking requirements considered; • To specify electric vehicle parking requirements for new developments and site renovations 2.2 Update the public facilities fiscal model and the Public Facility Fee program based on the updated General Plan, including: • To encourage the development of affordable, special needs, and senior housing; and • To incentivize infill.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	• During the update, examine the potential for including costs related to improving the appearance of the SR 99 corridor in the Public Facility Fee program. 2.4 Establish incentives, potentially including, but not limited to, density bonuses, increased height limits, reduced parking requirements, expedited review, and development fee waivers or deferrals, to encourage the development of affordable, special needs, and senior housing. 2.10 Update the Downtown Specific Plan to incorporate and leverage the planned ACE train stop located Downtown. 2.12 Research and pursue the potential relocation of Whitmore Park, to allow for public and private investment and development on the existing park site near the potential ACE Train stop, while ensuring adequate parkland and public gathering spaces Downtown. 2.18 Discourage cul-de-sacs that have no pedestrian and bicycle connections. 2.19 Provide a pedestrian-scaled environment with streets and sidewalks sized and designed to promote outdoor use and walking. 2.20 Provide sidewalks along all streets, public and private, except along alleys. 3.1 Periodically update the Engineering Improvement Standards for all roadway cross-sections to ensure bicycle, pedestrian and transit vehicles are accommodated within the standard plans. This review will also consider circumstances under which street widths within the existing right-of-way may be reduced to accommodate the addition of pedestrian or bicycle facilities to meet other city goals. 3.8 Periodically prepare a short range transit plan. 3.9 Update the Downtown Specific Plan to incorporate new ACE train stop, train stop design plans, multimodal train stop access guidelines, parking policies, and transit-supportive uses.	Less than significant

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3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	3.10 In conjunction with the development of an ACE train stop, review CAT routes and adjust to serve ACE train if cost effective and/or consistent with other Goals and Policies in this section. 3.11 Prepare an Active Transportation Plan that at a minimum conforms to Caltrans Requirements, including community outreach, existing conditions, network development, implementation and funding. 3.12 Work with the Ceres Unified School District to plan, design, and construct infrastructure-related projects that will improve the ability of students to walk and bicycle to school. 3.13 As part of the Active Transportation Plan, identify gaps in the sidewalk network, prioritize gap closure projects, and develop design guidelines. 5.6 Encourage residential efficiency retrofits with the goal of a 50-percent energy reduction compared to baseline in 30 percent of the total homes in the city by 2035 (7,020 homes out of a total of 23,401) through the following activities: • Publicize available incentive and rebate programs, such as Turlock Irrigation District's (TID's) Energy Efficiency Rebates program and Pacific Gas and Electric's (PG&E's) energy savings programs—such as Home Upgrade options, the Energy Savings Assistance Program, and the Smart Thermostat Rebate—on the City's website and by other means; • Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and • Adopt a residential energy conservation ordinance, which requires residential property owners to conduct and disclose an energy audit at the time of major renovations (as defined by the ordinance), to ensure that homes and residential developments meet specified low cost	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	energy efficiency measures—such as requisite ceiling insulation, insulated pipes, water heater blankets and exterior door weather stripping. 5.7 Encourage commercial and industrial efficiency retrofits with the goal of a 25-percent energy reduction compared to baseline in 30 percent of the total non-residential square footage in the city by 2035 through the following activities: • Publicize available incentive and rebate programs; such as TID's Commercial Refrigeration Rebate, Advanced Power Strip Program, and Agricultural Irrigation Pump Rebate; and PG&E's Commercial HVAC Optimization Program, Heavy Industry Energy Efficiency Program, Retrocommissioning Program; on the City's website and by other means; • Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and • Adopt a non-residential energy conservation ordinance, which requires property owners to ensure that commercial and industrial buildings meet specified energy efficiency measures—such as requisite heating, ventilation, and air conditioning improvements, service water system requirements, and improved refrigeration equipment, at the time of conducting major renovations (as defined by the ordinance). 5.11 Promote an increase in the proportion of ZEV passenger vehicle miles traveled from a projected 14 percent to 25 percent of total vehicle miles traveled by 2035 through the following measures: • Working with industry partners, construct a "PV to EV" pilot project to install a photovoltaic charging station at a City facility (such as City Hall), to charge electric vehicles (EVs). The purpose of the pilot	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan.	project would be to evaluate the feasibility of incorporating more ZEVs into the city's fleet. • Prepare a community-wide charging station siting plan, which evaluates site visibility and exposure, EV driving ranges, high volume destinations, locations with high ownership or interest in EVs, and cost of construction. • Construct ZEV charging stations based on the community-wide charging station siting plan described above. The ZEV charging stations will be funded by grant funds when available, and the City will post signage directing ZEVs to charging stations described above. • Offer dedicated ZEV parking, and provide charging stations adjacent to ZEV parking as identified in the community-wide charging station siting plan. • Adopt requirements for ZEV parking for certain new developments. • Adopt a residential energy conservation ordinance requiring the installation of EV chargers or pre-wiring in new residential construction and major renovations.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.3-2 Development under the proposed General Plan would violate air quality standards or contribute substantially to an existing or projected air quality violation.	The proposed General Plan goals and policies as listed under Impact 3.3-1 above, which encourage cooperation between the City, SJVAPCD, and other regional agencies to establish parallel air quality programs; analysis of new developments' air quality impacts; reduction of VMT and roadway dust; investigation of lower-emission options for City fleets; and mitigation of construction impacts.	Significant and unavoidable
3.3-3 Development under the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants for which the General Plan region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	The proposed General Plan goals and policies as listed under Impact 3.15-1 above, which encourage cooperation between the City, SJVAPCD, and other regional agencies to establish parallel air quality programs; analysis of new developments' air quality impacts; reduction of VMT and roadway dust; investigation of lower-emission options for City fleets; and mitigation of construction impacts.	Significant and unavoidable
3.3-4 Development under the Proposed Project would expose sensitive receptors to substantial pollutant concentrations.	Goal 4.G and policies 4.G.7 and 4.G.15, as listed under Impact 3.3-1 above, as well as the following policies. **Land Use and Community Design Element** 2.G.7 **Reduce Impacts from Truck Traffic.** Use site design, including locating parking between the street and buildings, as well as using landscaping as a buffer—especially along expressways—on commercial uses and access to these uses, including along walkways. *See Chapter 3: Transportation and Circulation Element for more on expressways in Ceres.* 2.L.14 **Industrial Buffering.** Require industrial development to provide sufficient buffering from residential areas to avoid impacts associated with noise, odors, and the potential release of noxious and hazardous materials.	Significant and unavoidable

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3.3-5 Development under the Proposed Project would not create objectionable odors affecting a substantial number of people.	Policy 4.G.8, as listed under Impact 3.3-1; and policies 2.G.7 and 2.L.14, as listed under Impact 3.3-5 above.	Less than significant
3.4 Biological Resources		
3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	**Agricultural and Natural Resources Element** 4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface. Goal 4.B Conserve and, where possible, enhance open space lands for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety. 4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes. 4.B.2 **Recreational Open Space.** Site and design City parks to include natural open space areas for passive recreation, wildlife study and enjoyment, increasing biodiversity, and stormwater management. Due to the built-out nature of the city, opportunities for natural open space for passive recreation uses are limited within the Planning Area. One area where some potential may exist is along the Tuolumne River east of River Bluff Park.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	4.B.3 **Tuolumne River Regional Park.** Work with Stanislaus County and the City of Modesto to integrate open space features into the Tuolumne River Regional Park system. 4.B.4 **Open Space Protection.** Identify and permanently protect as open space areas of natural resource value to the maximum extent feasible, including, but not limited to, wetlands, riparian corridors, and floodplains. Use site-specific assessments to determine the significance of the resource. Due to the built-out nature of the city, opportunities for open space protection may be limited. Some potential may exist within the Tuolumne River floodplain in the eastern portion of the Planning Area. 4.B.5 **River Bluffs**. Support efforts to preserve river bluffs as open space and to enhance the bluffs as part of the hydrological system and river habitat. 4.B.6 **Open Space Requirements.** Require new development to preserve and enhance as open space significant stands of vegetation and any areas of special ecological significance to the maximum extent feasible through site design approaches such as clustering and ecological planning. Goal 4.C Protect, restore, and enhance habitats and wildlife corridors that support fish and wildlife species to maintain populations at viable levels. 4.C.1 **Ecosystem Linkages.** Create and link open space and habitat areas of sufficient size to protect biodiversity, accommodate wildlife movement, and sustain ecosystems. 4.C.2 **Pesticide Control.** Work with the Stanislaus County Agricultural Commissioner to identify and enforce mechanisms to control residual pesticides and pesticide runoff to prevent potential damage to water quality, vegetation, and wildlife.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	4.C.3 **Fisheries.** Support the management efforts of the California Department of Fish and Wildlife to maintain and enhance the productivity of fisheries in the Tuolumne River. 4.C.4 **Riparian Setback.** Protect the integrity of habitats, hydrology, and soils along the river by prohibiting development within a distance of at least 50 feet as measured from the limit of riparian vegetation or as measured from the top of the channel bank, whichever is greater. Smaller buffers may be allowed only where it can be demonstrated that a 50-foot buffer is not possible due to site-specific constraints or if the development is for public, passive park or passive recreational uses, and the proposed narrower buffer would adequately protect the biological, hydrologic, and geologic integrity of the riparian corridor. Goal 4.D Protect environmentally sensitive lands and rare, threatened, or endangered plant and animal communities. 4.D.1 **Special-Status Species.** Support the preservation of habitats of rare, threatened, endangered, and other special-status species. Require development in areas known to have value for wildlife to be carefully planned and, where possible, sited to maintain reasonable wildlife value of the habitat. 4.D.2 **Biotic Resource Evaluation.** Require, as part of the environmental review process prior to approval of discretionary development permits involving parcels within a significant ecological resource area, a biotic resources evaluation of the site by a qualified biologist. Significant ecological resource areas include, at a minimum, the following: • Any habitat that supports rare, threatened, or endangered animals or plants; and • Riparian and wetland habitats associated with the Tuolumne River. • Such evaluation should consider the potential for significant impact on biological resources, and identify measures to feasibly mitigate any impacts or otherwise indicate why mitigation would not be feasible. In	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	approving any such permit, the City shall determine the feasibility of the identified mitigation measures. 4.D.3 **Significant Biological Resources.** Support and cooperate with the efforts of other local, State, and federal agencies and private entities engaged in the preservation and protection of significant biological resources from incompatible land uses and development, including efforts involving a Habitat Conservation Plan or other plan for habitat management or restoration. Significant biological resources include endangered, threatened, or rare species and their habitats, wetland habitats, wildlife migration corridors, and locally-important species/communities. 4.D.4 **Native and Drought Tolerant Plants.** Utilize native and drought-tolerant plants in landscaping for public buildings and parks. Encourage the use of native and drought-tolerant plant species on private property, and prohibit the use of invasive species. 4.D.5 **Swainson's Hawk Protection.** Require that proposed development projects adhere to the following steps in order to ensure the protection of Swainson's hawk in the Planning Area: • If ground-disturbing activities would take place on sites where suitable nesting habitat may exist, a survey for nesting Swainson's hawks shall be conducted by a qualified wildlife biologist following survey methods developed by the Swainson's Hawk Technical Advisory Committee (2000) prior to undertaking any ground-disturbing activities. The survey shall include recommended mitigation measures for any potential impacts from the project. • If ground disturbing activities would take place during the nesting season (March 1 through August 31) and Swainson's hawk nests are found to be present, a no-disturbance buffer of a minimum of 0.5 miles shall be established around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	fledged and are no longer reliant upon the nest or parental care for survival. If the 0.5-mile buffer is not feasible, the project proponent must consult with the California Department of Fish and Wildlife to determine if a smaller buffer would avoid take. If it is determined that take cannot be avoided, the project proponent must acquire authorization through an Incidental Take Permit from the California Department of Fish and Wildlife in accordance with the California Endangered Species Act in order to continue. 4.D.6 **Swainson's Hawk Habitat Mitigation.** Require mitigation for projects that would result in the loss of Swainson's hawk foraging habitat within 10 miles of an active nest tree, which may include but is not limited to: • For projects within one mile of an active nest tree, provide a minimum of one acre of habitat management land for each acre of development. • For projects within between one and five miles of an active nest tree, provide a minimum of 0.75 acres of habitat management land for each acre of development. • For projects within between five and 10 miles of an active nest tree, provide a minimum of 0.5 acres of habitat management land for each acre of development. Alternative mitigation strategies are acceptable if approved by the California Department of Fish and Wildlife. 4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation. Implementation Actions 4.2 Inventory open space resources in the Planning Area and identify gaps and opportunity areas where open space can be set aside for recreational,	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	resource conservation, groundwater recharge, or flood management purposes, as well as connected to create greenways for the enjoyment of residents, and/or corridors for wildlife movement.	Less than significant
3.4-2 Implementation of the Proposed Project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.	Goals 4.B, 4.C, and 4.D; policies 4.B.1, 4.B.3, 4.B.4, 4.B.5, 4.B.6, 4.C.1, 4.C.2, 4.C.3, 4.C.4, 4.D.1, 4.D.2, 4.D.3, 4.D.4, 4.D.6, and 4.F.9; and Implementation Action 4.2, as listed under Impact 3.4-1 above.	Less than significant
3.4-3 Implementation of the Proposed Project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling,	Goals 4.B, 4.C, and 4.D; policies 4.B.1, 4.B.3, 4.B.4, 4.B.5, 4.B.6, 4.C.2, 4.C.3, 4.C.4, 4.D.1, 4.D.2, 4.D.3, and 4.F.9; and Implementation Action 4.2, as listed under Impact 3.4-1 above, as well as the following policy. 4.F.3 **Contamination Prevention.** Protect surface water and groundwater resources from contamination from point and non-point sources by pursuing strategies to minimize the pollutant and sediment levels entering the hydrological system through stormwater, agricultural, and other urban runoff.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
hydrological interruption, or other means.		Less than significant
3.4-4 Implementation of the Proposed 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.	Goal 4.B and 4.C.; policies 4.B.1, 4.B.4, 4.B.5, 4.B.6, 4.C.1, 4.C.3, 4.C.4, 4.D.1, and 4.D.3; and Implementation Action 4.2, as listed under Impact 3.4-1 above.	Less than significant
3.4-5 Implementation of the Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No policies are required to reduce this impact below a level of significance.	No impact
3.4-6 Implementation of the Proposed 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.	Goal 4.D, and policies 4.D.1 and 4.D.3, as listed under Impact 3.4-1 above.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5 Energy, Greenhouse Gases, and Climate Change		
3.5-1 Development under the Proposed Project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	No policies are required to reduce this impact below a level of significance.	Less than significant
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	**Land Use and Community Design Element** 2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. 2.C.1 **Transit Oriented Development.** Encourage high-density, pedestrian-oriented development with managed parking strategies to leverage the development potential and improved accessibility resulting from the development of the ACE train stop. 2.C.2 **Integrated ACE Train Stop.** Integrate the Altamont Corridor Express (ACE) train stop into the Downtown, providing multi-modal mobility options and safe and convenient pedestrian and bicycle access between the train stop and Downtown Ceres. Goal 2.D Promote infill development to protect farmland; enhance community character; optimize city investment in infrastructure; provide pedestrian- and bicycle-friendly neighborhoods; and enhance economic vitality. 2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	2.D.4 **Mixed Use Development.** Encourage mixed use development within infill areas by providing incentives such as updating the city's Public Facility Fee program to reflect reduced need for additional roadway and operational infrastructure; reduced parking requirements; and/or opportunities for shared parking. 2.E.4 **Mitchell Road Corridor Plan.** Update the Mitchell Road Corridor Specific Plan to: • Encourage infill development along the corridor; • Include Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow; • Improve pedestrian and bicycle mobility along the corridor and within and between properties with safe and convenient infrastructure and design; • Promote development that engages the street, including discouraging parking between the street and new development and encouraging street access into new buildings; • Differentiate commercial uses intended for the Mitchell Road Corridor from those intended for Downtown Ceres; • Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design; • Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; and • Include the land designated Regional Commercial south of SR 99. 2.E.5 **Hatch Road Corridor Plan.** Prepare a corridor plan for Hatch Road between SR 99 and Mitchell Road, which includes the following components: • Infill development;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	• Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow; • Pedestrian and bicycle infrastructure and design to promote safe and convenient access to properties; • Differentiate commercial uses intended for the Hatch Road Corridor from those intended for Downtown Ceres; • Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design; • Land use and building location strategies to promote sharing of patronage among businesses; • Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; • Areawide information and sign program; • Maintenance plan and safety program; • Image enhancement and marketing program; and • Capital improvement projects, including streetscaping, signs, and facade improvements. 2.F.2 **Neighborhood Interaction.** Promote opportunities for neighborhood interaction with pedestrian-oriented streetscapes and urban design, as well as public spaces for meeting and gathering. 2.F.4 **Multi-Modal Accessibility.** Maximize accessibility for automobiles, cyclists, and pedestrians. 2.F.5 **Pedestrian-Oriented Streetscape.** Require streetscapes and buildings to encourage pedestrian activity and comfort. 2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation. 2.G.3 **Enhanced Design of Existing Commercial.** Encourage the renovation, infill, and reuse of existing commercial centers and strip malls. Redesign and modernization of architectural treatment is encouraged as well as utilization of parking lots to make the centers more pedestrian friendly, and enhance the definition and character of the street frontage and associated streetscape. 2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following: • The distribution, location, and extent of land uses, including standards for land use intensity. • Compatibility of new development with adjacent existing and proposed development. • Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs. • Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary. • Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods. • Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Master Plans, including reservations for needed wells and storage areas. • Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities. • Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways. • Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences. • Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand. • Provisions for minimizing conflicts between new development and adjacent agricultural uses. • Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements. 2.L.3 **Pedestrian-Oriented Design.** Promote architectural and landscape design features in new development that create more pedestrian-friendly neighborhoods, such as orientation to the street; rear, setback, or detached garages; front porches; tree-lined streets; and landscaped strips between streets and sidewalks. 2.L.6 **Multi-Family Residential Design.** Ensure attractive architecture and design of multi-family buildings provide a variety of high-quality housing options with convenient facilities to foster a high quality of life. Encourage the following characteristics in multi-family developments: • Variety of unit sizes including studios and three bedrooms; • Building mass broken into small units;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	• Sheltered and well-lit entrances to units and main entrances that are oriented to the street; • Sufficient private outdoor space for each unit, such as balconies or decks; • Functional and accessible interior site open space that may include a community garden; • Attractive landscaping, including larger trees; • Parking provided in rear of building or screened with landscaping; • Consolidated parking in higher density residential projects that shares one or two entrances/exits from the property in order to minimize curb cuts; • Good site and building management and maintenance; • Screened, secure, and accessible areas for waste disposal and recycling; • Building scale and mass transitions appropriate to adjacent single family neighborhoods, where applicable; and • Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building. 2.L.7 **Downtown Commercial and Mixed Use Development Design.** Ensure commercial and mixed use development in Downtown Ceres cultivates an attractive destination and pedestrian-oriented center of activity. Encourage the following characteristics in commercial and mixed use buildings in Downtown Ceres: • Main facades with entrance doors and windows that front the primary street; • Buildings on larger lots broken down in scale to create a small-scale frontage rhythm;	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	• Ground-floor facades designed to give interest to pedestrians and visitors, for example with transparent glass storefronts; • Parking in rear (preferred) or side of building; • Shared facilities, such as driveways, parking areas, and pedestrian plazas, between adjoining properties; and • Materials chosen and detailed to respect the climate and traditions of the San Joaquin Valley. 2.L.8 **Neighborhood Commercial Design.** Ensure development in the Neighborhood Commercial land use designation complements nearby residential neighborhoods with attractive commercial and mixed use buildings that are conveniently accessible by walking or biking. Encourage the following characteristics in development in the Neighborhood Commercial land use designation: • Building entrances oriented toward the street rather than parking lot; • Parking located to the side or rear of building where possible; • Shaded walkways and small gathering spaces that help strengthen community character and identity, and facilitate accessing the commercial area on foot. 2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations: • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	• Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility; • Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate; • Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings; • Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate; • A continuous, safe, and convenient walkway from the public right of way to building entrances; • Building entrances oriented to the walkway; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Large buildings "broken up" by variations in building form and architectural design; and • Articulation in the walls, including insets, canopies, wing walls, and trellises. 2.L.11 **Regional Commercial Design.** Ensure development in the Regional Commercial land use designation provides a commercial destination and other	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	development attractive to the regional market. Encourage the following characteristics in development in the Regional Commercial land use designation: • Distinctive gateway or entry features that contribute to the character of Ceres; • Attractive landscaping with shade trees to provide substantial tree canopy in and around parking areas that enhance regional center identity; • Plaza and outdoor patio areas with public art that create focal points; • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility; • Convenient pedestrian connections from adjoining neighborhoods; • Parking located to the side or rear of building where possible; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Large buildings "broken up" by variations in building form and architectural design; and • Articulation in the walls, including insets, canopies, wing walls, and trellises.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	2.L.12 **Business Park Design.** Ensure business park use developments attract businesses and provide a convenient and pleasant environment for workers. Encourage the following characteristics in development in the Business Park land use designation: • Articulation in the walls, including insets, canopies, wing walls, and trellises; • Large buildings "broken up" by variations in building form and architectural design; • Distinctive gateway or entry features that contribute to the character of Ceres; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Blocks of no more than 1,000 feet in length with block perimeters of no more than 4,000 feet. Where larger blocks exist, improve convenience of walking and bicycling with shaded, internal connections, such as sidewalks, bicycle paths, and multi-use trails; • A shaded pedestrian rest area with seating, landscaping, and trash receptacles near building entrances; • Attractive landscaping, including larger trees; • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility; • Parking located to the side or rear of building where possible; • Loading bays and outdoor storage areas that are not readily visible to the public. **Transportation and Circulation Element** 3.A.1 **Multi-Modal Network.** Provide for a comprehensive, integrated transportation network in accordance with the functional classification system	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	described in this chapter and reflected in the Circulation Diagram with infrastructure and design that allows safe and convenient travel along and across streets for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility. 3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service ("LOS") C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects support other goals from the General Plan including transit, active transportation, and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the "LOS" standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character. 3.A.4 **Reduce Vehicle Miles Traveled (VMT).** Support statewide efforts to reduce vehicle miles of travel (VMT) from existing and new development by encouraging infill and mixed use development, providing a multi-modal transportation network, and incorporating transportation and parking demand management measures into new development by design. 3.A.5 **Transportation Financing.** Pursue financing in a timely manner from a variety of sources to maintain, enhance, and expand the roadway, sidewalk, bicycle, and transit networks to achieve and maintain a safe and efficient complete transportation network. 3.A.6 **Development Fees.** Assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system, including transit, bicycle, and pedestrian systems.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Goal 3.B Maintain acceptable multi-modal travel flow along Ceres' major corridors. 3.B.1 **Complete Streets Corridors.** Maintain adequate travel flow along Ceres' major corridors while allowing for new development or redevelopment. To this end, the following shall be considered in site plan development for new development and redevelopment along Hatch Road, Mitchell Road, and Whitmore Avenue: • Require consolidation of driveway access to reduce the number of vehicle/pedestrian/bicycle conflicts areas; if necessary, driveway improvements should include relocation of driveway access points on existing sites; • Require combination of parking lots and access points with joint access and reciprocal parking agreements where possible; • Require medians within the existing cross-section to limit turning movements and to provide pedestrian refuges at mid-block crossing locations; • Require site plans to locate entrance and exits to avoid vehicle queue spillback to the public right-of-way; • Require a continuous, safe, and convenient walkway from the public right of way, including transit stops where appropriate, to building entrances that minimizes pedestrian/vehicle conflicts; and • Limit or prohibit drive-up windows where peak vehicle queues cannot be accommodated on-site. Goal 3.C Protect residential areas from high-volume and high-speed traffic and its effects and promote bicycling and walking on residential streets. 3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible.	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	3.C.3 **Sidewalks.** Require sidewalks for all new streets in residential developments. Goal 3.D Provide a sufficient amount of convenient, safe, and attractive vehicle and bicycle parking to serve existing and new development throughout the city. 3.D.1 **Off-Street Parking Requirements.** Require new development and redevelopment to provide adequate off-street parking for vehicles and bicycles that considers urban design, economic development, and alternative travel modes, including secure long-term bicycle parking at employment centers and transit centers. Parking shall be landscaped, located convenient to new development, and easily accessible from the street system. 3.D.2 **Context Sensitive Parking Requirements.** Provide parking supplies using a context-sensitive approach that considers the potential for shared parking and reduced parking requirements in walkable mixed-use neighborhoods and transit oriented areas. 3.D.3 **Electric Vehicle Parking.** Incorporate electric vehicle charging stations into new multifamily, commercial, and industrial development and site renovations. 3.D.5 **Priority Parking.** Where required, reserved employee car pool, bicycle, and electric vehicle parking should be provided in premium areas close to building entrances. Goal 3.E Promote provision of safe and efficient transit service to reduce congestion, improve the environment, and provide viable non-automotive means of transportation within and connecting to Ceres. 3.E.1 **Flexible Transit Service.** Plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand. 3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services.	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	3.E.3 **Transit Right-of-Way.** Consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles. Require new development to reserve space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route. 3.E.5 **Transit Priority.** Prioritize the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act. 3.E.6 **Paratransit.** Continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit. 3.E.7 **Transit Coverage.** Ensure that new and existing transit routes strive to serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan. 3.E.8 **ACE Train Stop.** Preserve right-of-way to facilitate development of an Altamont Commuter Express (ACE) train stop in Downtown Ceres. Goal 3.F Provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation. 3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	3.F.2 **Funding.** Pursue a variety of sources of funding for the development and improvement of bikeways and pedestrian pathways, including grant funding, Countywide Measure L funds, and Capital Improvement Program funding. 3.F.3 **New Development.** Require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate. 3.F.4 **Right-of-Way.** Require new development to provide adequate rights-of-way to accommodate bikeways where identified on the bikeways map and as specified in the Bicycle and Pedestrian Master Plan, and to contribute to the development of planned bikeways. 3.F.5 **On-Site Bicycle Facilities.** Require new multi-family residential, commercial and industrial developments to provide bicycle facilities, including bicycle parking. For employment locations with more than 50 employees, other amenities may be required, including showers and changing facilities. 3.F.6 **Bicycle Safety.** Promote bicycle safety education to children and adults through coordination with the local school district, community groups, and other city sponsored events. 3.F.7 **Roadway Maintenance.** When roadway repaving projects occur, opportunities to provide bicycle facilities consistent with the adopted Alternative Transportation Plan (ATP) shall be considered. 3.F.8 **Pedestrian Facility Design.** Provide safe, continuous and pleasant pedestrian paths of travel, including sidewalk width appropriate for the land use context of the street, enhanced street crossings, landscape and/or parking buffers, and pedestrian scale lighting throughout the city. 3.F.9 **Interchange Improvements.** When interchanges and overpasses are upgraded, pedestrian and bicycle access shall be provided or enhanced as appropriate, safe, and feasible to do so.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	3.H.2 **Project Prioritization.** Projects that incorporate Complete Streets objectives should be prioritized whenever possible, including incorporating active modes and transit as well as accessibility for all users of the transportation system. **Agricultural and Natural Resources Element** 4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes. 4.G.5 **Reduce VMT.** Emphasize transit-oriented, walkable, compact development patterns to reduce total vehicle miles traveled. See Chapter 2: Land Use and Community Design Element for more policies related to land use and neighborhood design, and Chapter 3: Transportation and Circulation Element for policies related to multi-modal transportation. 4.G.10 **Trip Reduction Program.** Consider promoting vehicle trip reduction by implementing a trip-reduction program for City employees. Such a program may include carpooling and ridesharing; reimbursement of transit costs; encouragement of flexible work schedules, telecommuting, and teleconferencing. **Health and Safety Element** Goal 5.E Reduce the community's GHG emissions to mitigate the rate and extent of climate change. 5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction. 5.E.2 **LEED Certification.** Encourage new development to participate in the Leadership in Energy and Environmental Design (LEED) certification program	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	for the design, operation, and construction of high-performance energy efficient buildings. 5.E.3 **Energy Conservation and Retrofit.** Identify and promote resources and incentives for energy conservation and retrofitting of existing buildings. Encourage property owners and residents to participate in point-of-sale residential energy and water efficiency audits, and provide information on upgrading requirements and available incentives, if applicable. 5.E.4 **Energy Efficient Design.** Reduce the need for artificial temperature control and lighting by establishing standards to encourage the following: • Passive cooling measures in new and existing development; and • Design that incorporates windows that open to the outside in all habitable rooms to maximize the use of daylight and promote ventilation. • Passive cooling measures may include the use of shade structures, shade trees and other vegetation, textured building materials and insulation, natural ventilation, and other strategies that rely on natural processes and minimize energy use. 5.E.5 **Energy Efficient Lighting.** Establish standards to improve energy efficiency related to outdoor lighting by limiting unnecessary fixtures and utilizing low-energy fixtures. 5.E.6 **Greenhouse Gas Monitoring.** Monitor GHG emissions in the city and systematically evaluate the progress of GHG reduction measures, adjusting policies as necessary to ensure compliance with State standards. 5.E.7 **Energy Efficient Municipal Operations.** Demonstrate leadership by reducing the use of energy and fossil fuel consumption in municipal operations, increasing energy efficiency in transportation, waste management, building design and use, and the purchasing of goods and services.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	5.E.8 **Renewable Energy.** Encourage the use of renewable energy sources in the community, such as geothermal, solar, hydroelectric, and wind power. 5.E.9 **Zero-Emission Vehicle Travel.** Support the use of zero-emission vehicles (ZEVs) in the community through measures such as ensuring the availability of infrastructure such as electric vehicle charging stations and dedicated parking. 5.E.10 **Community Engagement for Energy Efficiency.** Maintain up-to-date information on available resources, best practices, programs, and tools to support community members in improving their energy efficiency, including financial incentives provided by other agencies and funding opportunities that could allow the City to provide its own incentives and programs. Ensure that available information is accessible to the public through activities such as workshops or informational books, and media such as pamphlets or a website. 5.E.11 **Service Provider Cooperation.** Work with PG&E and Turlock Irrigation District to educate the public about the need to conserve energy resources and methods of improving energy efficiency, and develop programs to encourage the adoption of energy-saving measures. 5.F.7 **Resilient Transportation.** Promote a resilient transportation system that offers connectivity for multiple transportation modes in the face of extreme weather events, such as storms and flooding, related to climate change. Transportation improvements may include elevating transportation infrastructure, installing culverts, or raising bridges where necessary. **Public Facilities and Services Element** 6.A.7 **Pedestrian and Bicycle Access to Schools.** Locate schools in areas with safe and convenient pedestrian and bicycle access. 6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools.	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	6.C.21 **Bicycle and Pedestrian Connections to Parks and Recreational Facilities.** Establish new and maintain existing bicycle and pedestrian network connections between parks and recreational facilities to improve health outcomes and access to diverse programming in City park and recreational facilities. Ensure connections are well-lit, maintained, and marked with signage. For more detail about planned bicycle infrastructure improvements, see Chapter 3: Transportation and Circulation Element. **Implementation Actions** 2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including: • New or changed land use designations and development standards; • To allow accessory dwelling units in all residential zones, in order to add to the City's affordable housing stock and provide housing opportunities for extended families, senior citizens, special needs, and other household types; • To allow highway-oriented commercial signage; • To right-size the required number of parking spaces in Downtown Ceres to encourage a vibrant, walkable environment and to allow for parking management strategies, such as shared parking and parking pricing, to ensure efficient use of parking spaces; • To specify bicycle parking requirements for new developments and site renovations; • To reevaluate the adequacy and appropriateness of parking requirements and consider provisions to allow for shared parking and reduced parking requirements considered; • To specify electric vehicle parking requirements for new developments and site renovations;	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	• To ensure implementation of the provisions of the County's Right-to-Farm Ordinance; and • To allow community gardens as a permitted use in appropriate districts. 2.2 Update the public facilities fiscal model and the Public Facility Fee program based on the updated General Plan, including: • To encourage the development of affordable, special needs, and senior housing; and • To incentivize infill. During the update, examine the potential for including costs related to improving the appearance of the SR 99 corridor in the Public Facility Fee program. 2.4 Establish incentives, potentially including, but not limited to, density bonuses, increased height limits, reduced parking requirements, expedited review, and development fee waivers or deferrals, to encourage the development of affordable, special needs, and senior housing. 2.10 Update the Downtown Specific Plan to incorporate and leverage the planned ACE train stop located Downtown. 2.12 Research and pursue the potential relocation of Whitmore Park, to allow for public and private investment and development on the existing park site near the potential ACE Train stop, while ensuring adequate parkland and public gathering spaces Downtown. 2.18 Discourage cul-de-sacs that have no pedestrian and bicycle connections. 2.19 Provide a pedestrian-scaled environment with streets and sidewalks sized and designed to promote outdoor use and walking. 2.20 Provide sidewalks along all streets, public and private, except along alleys.	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	3.1 Periodically update the Engineering Improvement Standards for all roadway cross-sections to ensure bicycle, pedestrian and transit vehicles are accommodated within the standard plans. This review will also consider circumstances under which street widths within the existing right-of-way may be reduced to accommodate the addition of pedestrian or bicycle facilities to meet other city goals. 3.8 Periodically prepare a short range transit plan. 3.9 Update the Downtown Specific Plan to incorporate new ACE train stop, train stop design plans, multimodal train stop access guidelines, parking policies, and transit-supportive uses. 3.10 In conjunction with the development of an ACE train stop, review CAT routes and adjust to serve ACE train if cost effective and/or consistent with other Goals and Policies in this section. 3.11 Prepare an Active Transportation Plan that at a minimum conforms to Caltrans Requirements, including community outreach, existing conditions, network development, implementation and funding. 3.12 Work with the Ceres Unified School District to plan, design, and construct infrastructure-related projects that will improve the ability of students to walk and bicycle to school. 3.13 As part of the Active Transportation Plan, identify gaps in the sidewalk network, prioritize gap closure projects, and develop design guidelines. 5.6 Encourage residential efficiency retrofits with the goal of a 50-percent energy reduction compared to baseline in 30 percent of the total homes in the city by 2035 (7,020 homes out of a total of 23,401) through the following activities: • Publicize available incentive and rebate programs, such as Turlock Irrigation District's (TID's) Energy Efficiency Rebates program and Pacific Gas and Electric's (PG&E's) energy savings programs—such as	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Home Upgrade options, the Energy Savings Assistance Program, and the Smart Thermostat Rebate—on the City's website and by other means; • Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and • Adopt a residential energy conservation ordinance, which requires residential property owners to conduct and disclose an energy audit at the time of major renovations (as defined by the ordinance), to ensure that homes and residential developments meet specified low cost energy efficiency measures—such as requisite ceiling insulation, insulated pipes, water heater blankets and exterior door weather stripping. 5.7 Encourage commercial and industrial efficiency retrofits with the goal of a 25-percent energy reduction compared to baseline in 30 percent of the total non-residential square footage in the city by 2035 through the following activities: • Publicize available incentive and rebate programs; such as TID's Commercial Refrigeration Rebate, Advanced Power Strip Program, and Agricultural Irrigation Pump Rebate; and PG&E's Commercial HVAC Optimization Program, Heavy Industry Energy Efficiency Program, Retrocommissioning Program; on the City's website and by other means; • Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and • Adopt a non-residential energy conservation ordinance, which requires property owners to ensure that commercial and industrial buildings meet specified energy efficiency measures—such as requisite	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	heating, ventilation, and air conditioning improvements, service water system requirements, and improved refrigeration equipment, at the time of conducting major renovations (as defined by the ordinance). 5.8 Promote the replacement of 50 percent of incandescent and halogen light bulbs in residential and commercial buildings with LED or similarly efficient lighting by 2035 through the following activities: • Promote the use of LED or other energy efficient lamps by publicizing rebate programs and information from SCE on the benefits of the use of LED or other energy efficient lighting on the City's webpage; and • Evaluate the feasibility of adopting a minimum natural lighting and ventilation standard, developed based on local conditions. Demonstrate natural lighting and ventilation features in future renovations or new construction. 5.9 Promote installation of residential photovoltaic (PV) systems to increase solar capacity by 20.0 megawatts (MW) per year, or the equivalent of 15 percent of projected residential electricity supplied by TID, by 2035 through the following activities: • On a continuing basis, ensure that regulatory provisions—such as complying with regulations for zoning, structure height, permit submittal and review, etc.—do not hinder residential PV system installation; and • Evaluate the feasibility of adopting an ordinance that requires all new homes install PV panels to offset a portion of their energy use. 5.10 Promote installation of commercial and industrial PV systems to produce an additional 37.4 MW per year, or 15 percent of projected commercial and industrial electricity supplied by TID, by 2035 through the following activities: • Adopt a commercial energy conservation ordinance requiring all new non-residential developments with more than 50 cars surface parked or on roofs of parking structures to use PV panels over at least half of	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	the surface/roof-parked cars, or provide equivalent energy conservation/generation by other means (over and above other requirements); • On a continuing basis, ensure that regulatory provisions—such as complying with regulations for zoning, structure height, permit submittal and review, etc.—do not hinder commercial and industrial PV system installation; and • Adopt an ordinance requiring existing and new non-residential developments to install PV panels to offset a portion of their energy use. 5.11 Promote an increase in the proportion of ZEV passenger vehicle miles traveled from a projected 14 percent to 25 percent of total vehicle miles traveled by 2035 through the following measures: • Working with industry partners, construct a "PV to EV" pilot project to install a photovoltaic charging station at a City facility (such as City Hall), to charge electric vehicles (EVs). The purpose of the pilot project would be to evaluate the feasibility of incorporating more ZEVs into the city's fleet. • Prepare a community-wide charging station siting plan, which evaluates site visibility and exposure, EV driving ranges, high volume destinations, locations with high ownership or interest in EVs, and cost of construction. • Construct ZEV charging stations based on the community-wide charging station siting plan described above. The ZEV charging stations will be funded by grant funds when available, and the City will post signage directing ZEVs to charging stations described above. • Offer dedicated ZEV parking, and provide charging stations adjacent to ZEV parking as identified in the community-wide charging station siting plan.	Less than significant

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3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	• Adopt requirements for ZEV parking for certain new developments. • Adopt a residential energy conservation ordinance requiring the installation of EV chargers or pre-wiring in new residential construction and major renovations.	Less than significant
3.5-3 Development under the Proposed Project would not cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance.	Goals and policies listed under Impact 3.5-2 above.	Less than significant
3.5-4 The Proposed Project would not conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2035, or any other applicable energy conservation regulations.	Goals and policies listed under Impact 3.5-2 above.	Less than significant
3.6 Geology, Soils, and Seismicity		
3.6-1 Implementation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent	**Land Use and Community Development Element** 2.A.15 **Ordinance Enforcement.** Continue to enforce the Municipal Code to address property and buildings that become eyesores or present health and safety problems. Goal 4.B Conserve and, where possible, enhance open space lands for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety.	Less than significant

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Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of a known fault; strong seismic groundshaking; seismic-related ground failure, including liquefaction; and landslides.	4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes. 4.B.5 **River Bluffs.** Support efforts to preserve river bluffs as open space and to enhance the bluffs as part of the hydrological system and river habitat. 4.C.4 **Riparian Setback.** Protect the integrity of habitats, hydrology, and soils along the river by prohibiting development within a distance of at least 50 feet as measured from the limit of riparian vegetation or as measured from the top of the channel bank, whichever is greater. Smaller buffers may be allowed only where it can be demonstrated that a 50-foot buffer is not possible due to site-specific constraints or if the development is for public, passive park or passive recreational uses, and the proposed narrower buffer would adequately protect the biological, hydrologic, and geologic integrity of the riparian corridor. 4.F.8 **Graded and Disturbed Areas.** Require that new development provides landscaping and re-vegetation of graded or disturbed areas with drought-tolerant native or non-invasive plants. 4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation. **Health and Safety Element** Goal 5.G Minimize loss of life, injury, and property damage due to seismic and geologic hazards. 5.G.1 **Building Standards.** Require that new structures and alterations to existing structures be designed and constructed according to current California	Less than significant

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3.6-1 Implementation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of a known fault; strong seismic groundshaking; seismic-related ground failure, including liquefaction; and landslides.	Building Code standards to minimize risk to the safety of occupants during groundshaking. 5.G.2 **Improving Knowledge Base.** Support investigations conducted by local, State, and federal agencies and other institutions to refine, enlarge, and improve the body of knowledge regarding active fault zones, unstable areas, groundshaking risks, and other seismic conditions in the Planning Area. 5.G.3 **Historic Building Safety.** Support improvements to the structural safety and stability of structures of designated historic significance while maintaining their historic character according to the State Historic Building Code. 5.G.4 **Dangerous Buildings.** Continue to implement the California Building Code for the Abatement of Dangerous Buildings to identify and address seismic or geologic risk in older buildings. 5.G.5 **Seismic and Geologic Hazard Assessment.** Require a geotechnical report for subdivisions and any project shown to have expansive soils or geologic instability, or potential risk for such soils or instability. Reports shall include the following: • A description of the site and geologic conditions; • Assessment of any threats from or impacts on seismic hazards such as groundshaking and ground failure, and geological hazards such as expansive soils and subsidence; and • Recommendations to mitigate any hazards identified in the analysis. 5.G.6 **Expansive Soils.** Limit the siting of structures across soil materials of substantially different expansive properties. Require appropriate design specifications, including special slabs, where foundations are located in areas of expansive soils. 5.G.7 **Critical Facilities.** Ensure that critical facilities are sited, designed, and maintained to avoid damage from seismic and geologic hazards. Critical	Less than significant

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3.6-1 Implementation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of a known fault; strong seismic groundshaking; seismic-related ground failure, including liquefaction; and landslides.	facilities include, but are not limited to, water and wastewater facilities, energy stations, hospitals, and public safety facilities. 5.G.8 **Construction Erosion.** Require the use of best management practices to control and mitigate soil erosion during construction activities.	Less than significant
3.6-2 Implementation of the Proposed Project would not result in substantial soil erosion or topsoil loss.	Goal 5.G and policies 4.C.4, 4.F.8, 4.F.9, 5.G.2, 5.G.5, and 5.G.8, as listed under Impact 3.6-1 above.	Less than significant
3.6-3 Implementation of the Proposed Project would not locate structures on expansive soils or on a geologic unit or soil that 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, or	Goal 5.G and policies 4.C.4, 4.F.8, 4.F.9, 5.G.2, 5.G.5, 5.G.6, and 5.G.8, as listed under Impact 3.6-1 above.	Less than significant

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create substantial risks to life or property.		Less than significant
3.6-4 Implementation of the Proposed Project would not result in 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.	Goal 5.G and policies 4.F.9, 5.G.2, 5.G.5, and 5.G.6, as listed under Impact 3.6-1 above, as well as the following policy. 6.E.3 **On-Site Wastewater Treatment and Disposal.** Prohibit new on-site wastewater treatment and disposal facilities within the City's service area, except where such systems are deemed appropriate and will not pose health risks or risks to groundwater, and where soil conditions, percolation qualities, and topography would support the use of such facilities.	Less than significant
3.7 Hazards		
3.7-1 Development under the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	**Health and Safety Element** Goal 5.I Minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials. 5.I.1 **Hazardous Materials Standards.** Ensure that the use and disposal of hazardous materials in the city comply with local, State, and federal safety standards. Ensure that industrial facilities are constructed and operated in accordance with current safety and environmental protection standards and best practices. 5.I.2 **Soil Investigations.** Require preliminary (Phase 1) soil investigations in conjunction with areawide plans and/or prior to approving residential development plans or tentative maps. 5.I.3 **Sensitive Uses.** Discourage the development of sensitive uses, such as residential uses, hospitals, nursing homes, near known hazardous waste disposal or handling facilities.	Less than significant

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3.7-1 Development under the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	5.I.4 **Hazardous Materials Projects.** Review all proposed development projects that would manufacture, use, or transport hazardous materials to ensure compliance with the County's Hazardous Materials Disclosure Program. 5.I.5 **County Cooperation.** Work with the County to strictly regulate the storage of hazardous materials and wastes. 5.I.6 **Development Standards.** Ensure that industrial facilities and other uses where hazardous materials are created, stored, or disposed of are designed, constructed, and operated in accordance with current safety and environmental protection standards. Require secondary containment and periodic examination for storage of large quantities of toxic materials. 5.I.7 **Industrial Buffers.** Require that new industries that store and process hazardous materials provide a buffer zone between the installation and the property boundaries of a distance and with screening materials sufficient to protect public health and safety. 5.I.8 **Radioactive Materials.** Encourage the State Department of Public Health and the California Highway Patrol to review permits for radioactive materials on a regular basis and to publish and enforce public safety standards for the use of these materials, including the placarding of transport vehicles. 5.I.9 **Hazardous Use Siting.** Review development proposals for uses involving hazardous materials storage, maintenance, use and disposal to ensure that the proposed development would not pose significant safety risks to sensitive uses (such as schools, hospitals, nursing homes, and residences). 5.I.10 **Coordinated Emergency Response.** Work with other agencies, including the City of Modesto and Stanislaus County, to ensure an adequate countywide response capability for hazardous materials emergencies. Provide for safe and efficient hazardous waste emergency response and contaminated site cleanup. 5.I.11 **Hazardous Materials Information.** Provide the public, industry, agriculture, and Stanislaus County with the information needed to take rational	Less than significant

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3.7-1 Development under the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	steps to minimize, recycle, treat, dispose of, and otherwise manage hazardous waste. 5.1.12 **Hazardous Household Waste.** Work with the County to provide for the education of small quantity, household, and agricultural generators regarding their responsibilities for source reduction and proper and safe hazardous waste management.	Less than significant
3.7-2 Development under the Proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Goal and policies listed above under Impact 3.7-1.	Less than significant
3.7-3 Development under the Proposed Project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Goal and policies listed above under Impact 3.7-1.	Significant and unavoidable
3.7-4 Development under the Proposed Project could result in a project 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,	The proposed General Plan goals and actions listed in Impact 3.7-1, Impact 3.7-2, and Impact 3.7-3 would also help to reduce the risk of significant hazard to the public or environment from a contaminated site.	Less than significant

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would create a significant hazard to the public or the environment.		Less than significant
3.7-5 Development under the Proposed Project would not result in a safety hazard for people residing or working within an airport land use compatibility plan area or, where such a plan has not been adopted, within two miles of a public airport or public use airport.	**Health and Safety Element** Goal 5.J Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from airport hazards. 5.J.1 **Flight Hazard Reduction.** Work with the City of Modesto and Stanislaus County to ensure that new development in the Modesto City-County Airport Influence Area does not create safety hazards such as lights from direct or reflective sources, smoke, electrical interference, hazardous chemicals, or fuel storage in violation of adopted safety standards. 5.J.2 **Airport Land Use Compatibility Plan.** Ensure that new development within the Modesto City-County Airport Influence Area complies with the policies of the Stanislaus County Airport Land Use Compatibility Plan by coordinating the review of development proposals within the Airport Influence Area with the Stanislaus County ALUC.	Less than significant
3.7-6 Development under the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Policies 5.I.5, 5.I.11, and 5.I.12, as listed under Impact 3.7-1 above, as well as the following policies. **Health and Safety Element** 5.F.1 **Planning for Hazards.** Incorporate updated information about future climate change hazards, particularly those related to extreme weather such as drought, storms, heat waves, and flooding, into the City's hazard mitigation and emergency planning processes. 5.K.4 **Fire Safety Awareness.** Support the Ceres Fire Department in continuing education programs to increase public awareness of local fire hazards, response, and safety practices. 5.M.1 **Emergency Operations and Hazard Mitigation.** Use an updated Emergency Operations Plan and Local Hazard Mitigation Plan for coordinated	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.7-6 Development under the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	emergency response and hazard mitigation consistent with the County and neighboring jurisdictions. 5.M.2 **Coordination.** Continue to coordinate emergency preparedness, response, recovery, and mitigation activities with Stanislaus County, special districts, service agencies, voluntary organizations, other cities within the county, and State and federal agencies. **Public Facilities and Services Element** 6.K.1 **Meet NFPA Response Time Standards.** Strive to meet the National Fire Protection Association's (NFPA) National Response Time Standard of responding within nine minutes of the dispatch notification at least 90 percent of the time. 6.K.5 **Ensure Adequate Funding for Fire Services.** Within the City's overall budgetary constraints, ensure that fire and emergency medical services have modern facilities, equipment, and staffing needed to perform their duties and ensure efficient response time. Seek grants and funding when facilities, equipment, and staffing needs exceed the City's budget. 6.K.6 **New Development Funding of Fire Services.** Require new development to develop or fund fire protection facilities, personnel, and operations and maintenance that, at a minimum, maintains the above service level standards. **Implementation Actions** 5.14 Update the Emergency Operations Plan as needed to reflect changes in the Planning Area and in emergency management techniques, including specific local hazards that may not be included in the plan. 5.15 Adopt a Ceres Local Hazard Mitigation Plan. 5.16 Update the Ceres Local Hazard Mitigation Plan with up-to-date information and best practices for identifying hazard risks and vulnerabilities including hazards due to or exacerbated by climate change, identifying and prioritizing	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.7-6 Development under the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	mitigation actions, encouraging the development of local mitigation, and providing technical support for these efforts. 6.12 Monitor response times and patrol time to review staffing requirements necessary to maintain established levels of service.	Less than significant
3.7-7 Development under the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	Policies 5.K.4, 6.K.1, 6.K.5, and 6.K.6 and implementation action 6.12, as listed under Impact 3.7-1 above, as well as the following policies. **Health and Safety Element** Goal 5.K Prevent and minimize the risk of loss of life, injury, and damage to property and natural resources resulting from fires. 5.K.1 **Fire Safety Standards.** Require that new development meet State, County, and local fire district standards for fire protection. 5.K.2 **Development Review.** Require that the Fire Department review all development proposals for compliance with fire safety standards. 5.K.3 **Public Buildings.** Ensure that new and existing buildings of public assembly incorporate adequate fire protection measures to reduce the risk of loss of life and property in accordance with State and local codes and ordinances. 5.K.5 **Smoke Detectors.** Encourage and promote the installation and maintenance of smoke detectors in existing residences and commercial facilities that were constructed prior to the requirement for their installation. 5.K.6 **Fire Prevention Outreach.** Develop and promote fire prevention and outreach programs to support residential fire safety, including a program to offer voluntary home inspections and teach awareness of home fire prevention measures.	Less than significant

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3.7-7 Development under the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	**Public Facilities and Services Element** Goal 6.K Protect residents of and visitors to Ceres from injury and loss of life, and protect property from fires. 6.K.2 **Establish and Achieve Service Ratio.** Establish and strive to achieve service standard ratios (i.e. number of responders per 1,000 residents). 6.K.3 **Fire Safety Education.** Identify key fire loss problems and design appropriate fire safety education programs to reduce fire incidents and losses, and promote awareness of fire hazards and safety. 6.K.4 **Project Review.** Endeavor through project review to control fire losses and fire protection costs through requiring use of automatic fire detection, control, and suppression systems. **Implementation Action** 5.12 Undertake a review of critical facilities, including, but not limited to: water and wastewater facilities, energy stations, hospitals, and public safety facilities, and identify potential vulnerabilities and any necessary upgrades required to reduce risk.	Less than significant
3.8 Historical, and Cultural Resources		
3.8-1 Implementation of the Proposed Project could cause a substantial adverse change in the significance of a historical resource, as defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially	**Land Use and Community Design Element** 2.B.1 **Place-Based Development.** Encourage development consistent with Ceres' history, location in the Central Valley, and evolving demographics to promote community identity and pride. **Agricultural and Natural Resources Element** Goal 4.H Preserve and maintain sites, structures, and landscapes that serve as significant, visible reminders of the city's social, architectural, and agricultural history. 4.H.1 **Register Historic Sites.** Support property owners in seeking registration of eligible historic structures and sites in registration programs such as California	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
impaired (Guidelines Section 15064.5).	Historical Landmarks, California Points of Historical Interest, California Register of Historical Resources, and the National Register of Historic Places. 4.H.2 **Reuse of Historic Buildings.** Encourage the preservation, maintenance, and adaptive reuse of existing historic buildings in the Planning Area in order to prevent demolition and disrepair. 4.H.3 **Preservation of Historic Buildings.** Identify and preserve buildings of local historic importance Downtown and in surrounding areas through inclusion on the local historic resources register and the Historic Building Code. 4.H.4 **Relocation of Historic Buildings.** Where implementation of a project with a legitimate public purpose would threaten a historic resource, assess the feasibility of relocating the resource in a way that maintains its historical integrity. 4.H.5 **Historic Building Code.** Continue to implement the Historic Building Code for historic properties, periodically reviewing and updating the code as necessary to reflect current conditions and best practices. 4.H.6 **Whitmore Mansion.** Maintain and improve the Whitmore Mansion in an architecturally sensitive manner, and develop educational programming about its history for the benefit of the community. **Implementation Actions** 4.10 Research, and if appropriate, apply an historic overlay zone to locally-important historic buildings or areas within the Downtown with concentrations of locally-important historic buildings. 4.11 Develop guidelines for the preservation, maintenance, and adaptive reuse of existing historic buildings. 4.12 Provide guidelines for the proper relocation of historic resources as a means of historic preservation.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.8-2 Implementation of the Proposed Project could cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	**Agricultural and Natural Resources Element** Goal 4.1 Protect and preserve archaeological and paleontological resources in the Planning Area. 4.1.1 **Archaeological Sites.** Refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory at California State University, Stanislaus. Do not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting the California Archaeological Inventory, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the CEQA Guidelines. 4.1.2 **Archaeological Resource Management.** Establish a procedure for the management of archaeological materials found on-site during a development, including the following provisions: • If significant resources are known or suspected to be present on a site, require that a qualified archaeologist conduct monitoring of building demolition and/or construction grading activities. • If materials are found on-site during construction activities, require that work be halted until a qualified archaeologist evaluates the find and makes a recommendation for the preservation in place or recovery of the resource. 4.1.3 **Preservation in Place.** Seek to preserve discovered archaeological resources in place in order to maintain the relationship between the artifacts and their archaeological context, where feasible. Preservation can be achieved through measures such as planning construction to avoid archaeological sites, incorporating sites within open space areas, capping the site prior to construction, and permanently protecting the site using a conservation easement.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.8-3 Implementation of the Proposed Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**Agricultural and Natural Resources Element** 4.I.4 **Paleontological Resources.** Establish a procedure for the management of paleontological materials found on-site during a development, including the following provisions: • If materials are found on-site during grading, require that work be halted until a qualified professional evaluates the find to determine if it represents a significant paleontological resource. • If the resource is determined to be significant, the paleontologist shall supervise removal of the material and determine the most appropriate archival storage of the material. • Appropriate materials shall be prepared, catalogued, and archived at the applicant's expense and shall be retained within Stanislaus County if feasible.	Less than significant
3.8-4 Development allowed by the Proposed Project would have the potential to disturb human remains, including those interred outside of formal cemeteries.	No policies are required to reduce this impact below a level of significance.	Less than significant
3.8-5 Implementation of the Proposed Project could cause an adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a	**Agricultural and Natural Resources Element** Goal 4.J Protect Ceres' Native American heritage. 4.J.1 **Native American Outreach.** Conduct outreach to local Native American tribal contacts to identify potential opportunities to highlight the area's Native American history. 4.J.2 **Coordination with Native American Tribes.** Proactively coordinate with the local Native American tribes in the review and protection of any tribal cultural resources discovered at development sites. 4.J.3 **Tribal Cultural Resources.** Avoid the disturbance of tribal cultural resources and, where possible, seek to preserve resources in place, exploring	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
California Native American Tribe, and that is: (a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or (b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	opportunities for permanent protection of the resources where feasible. Treat tribal cultural resources with respect. 4.J.4 **Native American Consultation.** Conduct project specific Native American consultation early in the development review process to ensure adequate data recovery and mitigation for adverse impacts to significant Native American sites. Ensure that City staff and local developers are aware of their responsibilities to facilitate Native American consultation under SB 18 and AB 52.	Less than significant
3.9 Hydrology and Water Quality		
3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	**Agricultural and Natural Resources Element** Goal 4.F Protect and enhance the natural qualities of rivers, creeks, and groundwater. 4.F.1 **Tuolumne River.** Cooperate with other municipalities, agencies, institutions, and nonprofit organizations in the conservation of the Tuolumne River for the protection of its water resources, water quality, and open space qualities.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	4.F.2 **Groundwater Resources.** Protect groundwater resources from overdraft by promoting conservation and groundwater recharge efforts. 4.F.3 **Contamination Prevention.** Protect surface water and groundwater resources from contamination from point and non-point sources by pursuing strategies to minimize the pollutant and sediment levels entering the hydrological system through stormwater, agricultural, and other urban runoff. 4.F.4 **Impervious Surfaces**. Minimize the amount of impervious surface in the Planning Area in order to reduce stormwater flows that may have a negative impact on the hydrology of the Tuolumne River and other downstream water bodies. 4.F.5 **Permeable Surfaces.** Maximize the amount of permeable surfaces in public spaces to permit the percolation of urban runoff. 4.F.6 **Green Infrastructure.** Require the use of feasible and practical best management practices (BMPs) and low-impact development (LID) strategies to protect receiving waters from the adverse effects of construction activities and urban runoff. 4.F.7 **Hydrologically Friendly Development.** Encourage development that reflects an integrated approach to building design, civil engineering, and landscape architecture that maximizes rainwater harvesting and stormwater retention for landscape irrigation. Ensure that new development avoids causing significant changes in the Planning Area's hydrology and drainage patterns through activities such as grading, removing vegetation, increasing impervious surface cover, and introducing barriers to drainage flows. 4.F.8 **Graded and Disturbed Areas**. Require that new development provides landscaping and re-vegetation of graded or disturbed areas with drought-tolerant native or non-invasive plants. 4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation. 4.F.10 **Stormwater Quality Outreach.** Provide a public outreach program to educate residents and local businesses about the importance of stormwater pollution prevention. 4.F.11 **Stormwater Pollution Prevention.** Ensure that public areas, including streets and recreational areas, are routinely cleaned of litter, debris, and contaminant residue. Coordinate with and support efforts by other organizations or volunteer groups to promote cleanups of parks and public open spaces. Require the City, property owners, or homeowners' associations, as applicable, to sweep permitted parking lots and public and private streets frequently to remove debris and contaminated residue. **Public Facilities and Services Element** Goal 6.E Ensure adequate wastewater collection and treatment and the safe disposal of waste in a timely fashion to support the needs of current and future Ceres residents. 6.E.1 **Wastewater Treatment Facility Capacity.** Ensure wastewater treatment facility capacity is available to serve planned urban development within Ceres. 6.E.2 **Wastewater System Demand Reduction.** Promote reduced wastewater system demand through efficient water use by: • Requiring water-conserving design and equipment in new construction; • Providing information about water-conserving devices to property owners and residents; and	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	• Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible. 6.E.3 **On-Site Wastewater Treatment and Disposal.** Prohibit new on-site wastewater treatment and disposal facilities within the City's service area, except where such systems are deemed appropriate and will not pose health risks or risks to groundwater, and where soil conditions, percolation qualities, and topography would support the use of such facilities. 6.E.5 **Financing Wastewater System Improvements.** Finance repairs to existing and new wastewater collection, treatment, and disposal systems and facilities using transparent and fair strategies, such as development impact fees and monthly service charges. Goal 6.F Collect and dispose of stormwater in a manner that minimizes inconvenience to the public, reduces burden on existing stormwater facilities, encourages groundwater recharge, minimizes potential water-related damage, and enhances the environment.6.F.1 **Storm Drainage Capacity.** Ensure that increased storm drainage system capacity is sufficient to serve the existing Ceres community and planned urban development within the Planning Area. 6.F.2 **Reducing Stormwater Runoff.** Encourage project designs that minimize drainage concentrations, minimize impervious coverage, utilize pervious paving materials, utilize low impact development (LID) strategies, and utilize Best Management Practices (BMPs) to reduce stormwater runoff. 6.F.3 **Low Impact Development.** Promote the use of low impact development (LID) strategies in new development and redevelopment projects, including but not limited to the use of canopy trees and shrubs, vegetated swales, and permeable paving. 6.F.4 **New Development Stormwater Mitigation.** Require new development to mitigate increases in stormwater peak flows and/or volume. Mitigation measures, such as low impact development (LID) strategies, should take into	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	consideration impacts on adjoining lands in the city and immediately adjacent to the city in unincorporated Stanislaus County. 6.F.5 **Drainage System Design.** Design all drainage systems to be in accordance with the accepted principles of civil engineering, adopted Storm Drainage Master Plan, and adopted storm drainage design standards and specifications. 6.F.6 **Surface Drainage Disposal.** Require that new development have surface drainage disposal accommodated in one of the following ways: • Positive drainage. Positive drainage to a river, stream, creek, or other natural water course; • Irrigation facility. Drainage into an irrigation district facility, either by gravity or pumping, pursuant to the City of Ceres – Turlock Irrigation District agreement; • Drainage ponds. Ponds, either in individual lots within a subdivision or in the case of larger developments, within a drainage basin; • Drainage unit. Use of French drains within depressed areas of the street right-of-way for those subdivisions or portions of subdivisions of such size that positive drainage, irrigation into a facility, or drainage ponds is not feasible, as determined by the City Engineer; or • On-site drainage. Drainage retained on-site within the development. • Commercial development must accommodate drainage on-site unless positive drainage or irrigation facility methods described above are available and the development participates in a system to address on-site drainage as approved by the City Engineer. All on-site industrial drainage must remain on-site and require full paving improvements. Encourage commercial and industrial development to integrate on-site storm drainage facilities with landscaping. 6.F.7 **Grading.** Require appropriate mitigation, such as temporary mulch or revegetation, for grading activities during the rainy season to avoid	Less than significant

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3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements.	sedimentation of storm drainage facilities. See Municipal Code Chapter 13.18.120. 6.F.8 **Surface Water Runoff.** Require projects that have significant impacts on the quality of surface water runoff to incorporate mitigation measures as described in Municipal Code Chapter 13.18.120. 6.F.9 **Pollutant Discharge Requirements.** Ensure future drainage system requirements comply with applicable State and federal pollutant discharge requirements. *See also the Water Quality section in Chapter 4: Agricultural and Natural Resources Element for more information about reducing the amount of pollutants in stormwater.* 6.F.10 **Storm Drainage System Operation and Maintenance.** Minimize operational complexities and maintenance requirements of the storm drainage system. 6.F.11 **Stormwater Detention Facilities.** Allow stormwater detention facilities to mitigate drainage impacts and reduce storm drainage system costs. To the extent practical, design stormwater detention facilities for multiple purposes, including recreational and/or stormwater quality improvement. 6.F.13 **Meeting Federal Stormwater Quality Requirements.** When necessary to meet federal stormwater quality requirements, establish a storm drain utility to address these requirements on a citywide basis.	Less than significant
3.9-2 Development under the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of	Goal 6.F and policy 4.F.5, as listed under Impact 3.9-1 above, as well as the following policies. **Agricultural and Natural Resources Element** 4.F.2 **Groundwater Resources.** Protect groundwater resources from overdraft by promoting conservation and groundwater recharge efforts. **Health and Safety Element**	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
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the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	5.F.4 **Water Efficiency in Public Uses.** Increase the efficiency of water usage in public places, such as irrigation in public parks. 5.F.5 **Drought Tolerant Landscaping.** Utilize drought-tolerant landscaping in City parks and streetscapes; and promote the use of drought-tolerant plantings on private property. 5.F.6 **Permeable Surfaces.** Promote the use of permeable surfaces for hardscape. Minimize the area of impervious surfaces, such as driveways, streets, and parking lots so that land is available for groundwater recharge and to absorb stormwater, reduce runoff, and prevent flooding. Utilize permeable surfaces in public spaces wherever feasible. 5.F.8 **Non-Potable Water Sources.** Permit and support the use of non-potable water sources as appropriate, including residential graywater, collected rainwater, and recycled water for landscape irrigation and commercial and industrial processes. Support efforts to develop a system for the treatment and delivery of recycled water. 5.H.8 **Floodplain Management.** Recognize floodplains as a potential public resource to be managed and maintained for the public's benefit and, where possible, view flood waters as a resource to be used for waterfowl habitat, aquifer recharge, fishery enhancement, agricultural water supply, and other suitable uses. **Public Facilities and Services Element** 6.D.1 **Adequate Water Supply for New Development.** Approve new development that relies on a public water system only where an adequate water supply and conveyance system already exists or will be provided. 6.D.2 **Efficient Water Use.** Promote efficient water use and reduced water demand by:	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-2 Development under the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	• Requiring water-conserving design and equipment in new construction, encouraging water-conserving landscaping and other conservation measures, and encouraging retrofitting existing development with water-conserving devices; • Developing public education programs targeted to residents of all ages; • Distributing outdoor lawn watering guidelines; • Continuing metering and conservation efforts and assessing the effectiveness of these programs; • Promoting water audit and leak detection programs; • Enforcing water conservation programs, including the City's Water Efficient Landscape Ordinance; and • Limiting a percentage of hardscape in favor of landscaping in front yard areas of residential lots. 6.D.3 **Reclaimed Wastewater.** Investigate and promote, to the extent feasible, the use of reclaimed wastewater to offset the demand for new water supplies. Such programs may include: dual water systems for potable and non-potable water; reuse of grey water in homes or businesses for irrigation; and reuse of sewage effluent for irrigation of crops, golf courses, or city irrigation. 6.D.4 **Aquifer and Wellhead Protection.** Promote aquifer and wellhead protection programs to limit infiltration of pollutants that might contaminate the groundwater supply. 6.D.5 **Turlock Groundwater Subbasin.** Continue to participate in the West Turlock Subbasin Groundwater Sustainability Agency and other efforts to preserve existing groundwater quality and to ensure future supplies of the Turlock Groundwater Subbasin of the San Joaquin Valley Groundwater Basin. Ensure groundwater management policies are compliant with the State Sustainable Groundwater Management Act.	Less than significant

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3.9-2 Development under the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	6.F.12 **Stormwater Reuse.** Use stormwater of adequate quality to replenish the local groundwater basin, restore wetlands and riparian habitat, and irrigate agricultural lands, or as open space or recreational enhancements.	Less than significant
3.9-3 Development under the Proposed Project would not substantially alter the existing drainage pattern of the Planning Area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site.	Goals 4.F and 6.F and policies 4.F.3, 4.F.4, 4.F.5, 4.F.6, 4.F.7, 4.F.8, 4.F.9, 4.F.11, 6.F.2, 6.F.3, 6.F.4, 6.F.5, 6.F.6, 6.F.7, 6.F.8, 6.F.9, 6.F.10, 6.F.11, as listed under Impact 3.9-1; and Policy 5.F.6, as listed under Impact 3.9-2 above.	Less than significant
3.9-4 Development under the Proposed Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide	Goal 6.F and policies 4.F.3, 4.F.4, 4.F.5, 4.F.6, 4.F.7, 4.F.9, 4.F.10, 4.F.11, 6.F.1, 6.F.2, 6.F.3, 6.F.4, 6.F.5, 6.F.6, 6.F.7, 6.F.8, 6.F.9, 6.F.10, 6.F.11, as listed under Impact 3.9-1; and Policy 5.F.6, as listed under Impact 3.9-2 above.	Less than significant

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substantial additional sources of polluted runoff.		Less than significant
3.9-5 Development under the Proposed Project would not substantially degrade water quality	Goals and policies listed under Impact 3.9-1 above.	Less than significant
3.9-6 Development under the Proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	**Agricultural and Natural Resources Element** 4.C.4 **Riparian Setback.** Protect the integrity of habitats, hydrology, and soils along the river by prohibiting development within a distance of at least 50 feet as measured from the limit of riparian vegetation or as measured from the top of the channel bank, whichever is greater. Smaller buffers may be allowed only where it can be demonstrated that a 50-foot buffer is not possible due to site-specific constraints or if the development is for public, passive park or passive recreational uses, and the proposed narrower buffer would adequately protect the biological, hydrologic, and geologic integrity of the riparian corridor. **Health and Safety Element** 5.H.1 **Floodplain Zoning.** Implement floodplain zoning and undertake other actions required to comply with federal and State floodplain requirements. 5.H.3 **Flood Hazard Evaluation.** In areas identified as flood zones by the Federal Emergency Management Agency (FEMA), require evaluation of potential flood hazards prior to site plan approval. Require that new development in flood zones submit accurate topographic and flow characteristics information, including depiction of the 100-year floodplain boundaries under fully-developed, unmitigated runoff conditions. The evaluation should also recommend any flood hazard mitigation measures as necessary to prevent damage from a 100-year flood event.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-6 Development under the Proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	5.H.6 **Flood Hazard Information.** Ensure that the City's information on flood hazards is up-to-date with the latest available hydrologic and hydraulic engineering data from the Federal Emergency Management Agency and other agencies and organizations.	Less than significant
3.9-7 Development under the Proposed Project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.	Policies listed under Impact 3.9-6 above, as well as the following policy. **Health and Safety Element** 5.H.4 **Critical Facilities.** Avoid siting critical facilities within the floodplain. If a critical facility must be located in a floodplain, ensure that it is sited, designed, maintained, and protected such that it can continue to function and provide services in case of a flood event. Critical facilities include, but are not limited to, water and wastewater facilities, energy stations, hospitals, and public safety facilities.	Less than significant
3.9-8 Development under the Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	Policies listed under Impact 3.9-6 above and policy 5.H.4, as listed under Impact 3.9-7 above, as well as the following policies. **Health and Safety Element** 5.F.1 **Planning for Hazards.** Incorporate updated information about future climate change hazards, particularly those related to extreme weather such as drought, storms, heat waves, and flooding, into the City's hazard mitigation and emergency planning processes.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.9-8 Development under the Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	Goal 5.H Protect lives and property from hazards associated with development in floodplains and manage floodplains for their natural resource values. 5.H.2 **Flood Insurance.** Continue to participate in the National Flood Insurance Program and the Community Rating System to ensure that the City is incentivized to reduce the risk of damage from flooding and improve flood preparedness. 5.H.5 **Flood-Proofing.** Require flood-proofing of structures in areas subject to flooding. 5.H.7 **Inter-Agency Cooperation.** Continue to work closely with the Federal Emergency Management Agency, U.S. Army Corps of Engineers, and Reclamation Board, and Stanislaus County in defining and identifying solutions for existing and potential flood problem areas.	Less than significant
3.9-9 Development under the Proposed Project would not result in inundation by seiche, tsunami, or mudflow.	Policy 4.C.4, as listed under Impact 3.9-6 above.	Less than significant
3.10 Land Use, Population, and Housing		
3.10-1 Implementation of the Proposed Project would not physically divide an established community.	**Land Use and Community Design Element** 2.A.3 **Compact Footprint.** Promote compact development patterns, mixed land uses, and higher-development intensities and limit "leap frog" development to conserve agricultural land, reduce vehicle trips, and improve air quality. 2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. *See Chapter 3:*	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-1 Implementation of the Proposed Project would not physically divide an established community.	*Transportation and Circulation Element for more information and related goals and policies.* 2.D.3 **Sensitivity to Context.** Encourage design in new development that enhances and blends with the established fabric of the natural, social, and built environment, while allowing for innovative and unique architectural styles and projects that meet the community's needs. *See in Section 2.4 Urban Design of this chapter for urban design guidelines.* Goal 2.E Balance the function of streets as part of the circulation network with their role as public spaces, elements in the city's landscape, and potential commercial corridors. 2.F.6 **Integrated Neighborhoods.** Require new residential developments to be physically and socially integrated with the existing community. 2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation. 2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations: • Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility; • Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-1 Implementation of the Proposed Project would not physically divide an established community.	• Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate; • Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings; • Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate; • A continuous, safe, and convenient walkway from the public right of way to building entrances; • Building entrances oriented to the walkway; • Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement; • Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas; • Adaptive reuse of buildings and design of new buildings to allow for future reuse; • Large buildings "broken up" by variations in building form and architectural design; and • Articulation in the walls, including insets, canopies, wing walls, and trellises. **Transportation and Circulation Element** 3.B.4 **Sidewalk Network.** Require sidewalks for all new developments along major corridors.	Less than significant

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3.10-1 Implementation of the Proposed Project would not physically divide an established community.	3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible. 3.C.3 **Sidewalks.** Require sidewalks for all new streets in residential developments. 3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services. 3.E.7 **Transit Coverage.** Ensure that new and existing transit routes strive to serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan. 3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists. **Agricultural and Natural Resources Element** 4.A.9 **Agricultural Connections.** Maintain connections between agricultural lands and supporting uses and avoid the isolation of agricultural uses among non-agricultural uses in order to support the long-term viability of agricultural operations. **Health and Safety Element** 5.B.1 **Safe and Convenient Multi-Modal Options.** Encourage development patterns, urban design, and streetscapes that allow people to safely and conveniently reach destinations by walking, bicycling, or using transit. See Chapter: 2 Land Use and Community Design Element and Chapter 3:	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-1 Implementation of the Proposed Project would not physically divide an established community.	Transportation and Circulation Element for more information and related goals and policies. 5.B.2 **Safe Routes to Schools.** Improve the conditions for youth walking and bicycling in the areas surrounding schools by working with the Ceres Unified School District, other local agencies, and nonprofit organizations to implement the Safe Routes to School program. **Public Facilities and Services Element** 6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools. **Implementation Actions** 2.16 Promote the use of grid and modified grid street patterns in new residential, commercial, or mixed-use developments that propose to construct new streets. Modified grids may include combinations of grid and curvilinear streets. 2.17 Discourage block lengths in residential and mixed-use neighborhoods greater than 600 feet. 2.18 Discourage cul-de-sacs that have no pedestrian and bicycle connections. 2.19 Provide a pedestrian-scaled environment with streets and sidewalks sized and designed to promote outdoor use and walking. 2.20 Provide sidewalks along all streets, public and private, except along alleys. 2.21 Strongly discourage gated communities, where such new residential developments can be integrated with the existing residential developments.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-1 Implementation of the Proposed Project would not physically divide an established community.	3.12 Work with the Ceres Unified School District to plan, design, and construct infrastructure-related projects that will improve the ability of students to walk and bicycle to school.	Less than significant
3.10-2 Implementation of the Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	**Land Use and Community Design Element** 2.A.2 **Prioritize Growth in SOI.** Prioritize growth within the Ceres Sphere of Influence. Permit development outside of the Sphere of Influence only when there is a demonstrated need for additional land and there is less than a five-year supply of appropriately-designated land within the existing Sphere of Influence, in accordance with Stanislaus Local Agency Formation Commission (LAFCO). 2.J.1 **Compatibility.** Require compatibility between urban development and airport facilities to ensure the availability of local air transportation services and a quality living environment. 2.J.2 **Airport Safety Zones.** Allow new development within Airport Safety Zones (Figure 5-8: Hazardous Sites in Chapter 5: Health and Safety Element) according to the standards in the most recent Stanislaus County Airport Land Use Compatibility Plan. At the discretion of the Ceres Director of Community Development, an applicant for a permit or other entitlement may be required to submit survey information sufficient to document the location of a property or development site in relation to the various Airport Safety Zones as adopted by Stanislaus County Airport Land Use Commission. 2.J.3 **Partnerships.** Work closely with appropriate agencies, including the Stanislaus County Airport Land Use Commission, to ensure compatibility of land uses with airport facilities and operations. To this end, encourage the Stanislaus County Airport Land Use Commission to update the Airport Land Use Compatibility Plan consistent with the requirements of State law, including using the California Division of Aeronautic Airport Planning Handbook as a guideline.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-2 Implementation of the Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect	2.J.4 **Building Heights.** Limit building heights for airspace protection in accordance with Federal Aviation Regulations Part 77. 2.J.5 **Overflight Easements.** Require Avigation Easement Dedication, Recorded Deed Notice, and Real Estate Disclosure as required by the Stanislaus County Airport Land Use Compatibility Plan. **Transportation and Circulation Element** 3.A.8 **RTP/SCS Participation.** Continue to participate in the development and implementation of the countywide Regional Transportation Plan and Sustainable Community Strategy, including improvements to the State Highway system. **Agricultural and Natural Resources Element** 4.A.4 **County Referral.** Continue to work with Stanislaus County to review discretionary development proposals in the unincorporated portions of the Planning Area to ensure that all approved projects are compatible with the City's General Plan policies regarding agricultural preservation, as well as other General Plan policies and City development standards. 4.A.6 **Right to Farm.** Continue to support the County's Right-to-Farm ordinance. 4.A.7 **Farmland Mitigation.** Minimize the loss of agricultural lands by developing a Plan for Agricultural Preservation upon application for a SOI expansion or annexation that includes agricultural land, consistent with the Stanislaus LAFCO Agricultural Preservation Policy. 4.D.3 **Significant Biological Resources.** Support and cooperate with the efforts of other local, State, and federal agencies and private entities engaged in the preservation and protection of significant biological resources from incompatible land uses and development, including efforts involving a Habitat Conservation Plan or other plan for habitat management or restoration. Significant biological resources include endangered, threatened, or rare	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-2 Implementation of the Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect	species and their habitats, wetland habitats, wildlife migration corridors, and locally-important species/communities. 4.F.1 **Tuolumne River.** Cooperate with other municipalities, agencies, institutions, and nonprofit organizations in the conservation of the Tuolumne River for the protection of its water resources, water quality, and open space qualities. **Health and Safety Element** 5.J.2 **Airport Land Use Compatibility Plan.** Ensure that new development within the Modesto City-County Airport Influence Area complies with the policies of the Stanislaus County Airport Land Use Compatibility Plan by coordinating the review of development proposals within the Airport Influence Area with the Stanislaus County ALUC. 5.L.8 **Airport Noise Compatibility.** Ensure that new development complies with the Modesto City-County Airport Land Use Compatibility Plan policies regarding noise. 5.L.13 **Airport Compatibility**. For projects within the Modesto City-County Airport Influence Area, utilize the noise standards contained in the Stanislaus County Airport Land Use Compatibility Plan, as well as the noise standards contained in this element. **Implementation Actions** 2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including: • New or changed land use designations and development standards; • To allow accessory dwelling units in all residential zones, in order to add to the City's affordable housing stock and provide housing opportunities for extended families, senior citizens, special needs, and other household types; • To allow highway-oriented commercial signage;	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-2 Implementation of the Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect	• To right-size the required number of parking spaces in Downtown Ceres to encourage a vibrant, walkable environment and to allow for parking management strategies, such as shared parking and parking pricing, to ensure efficient use of parking spaces; • To specify bicycle parking requirements for new developments and site renovations; • To reevaluate the adequacy and appropriateness of parking requirements and consider provisions to allow for shared parking and reduced parking requirements considered; • To specify electric vehicle parking requirements for new developments and site renovations; • To ensure implementation of the provisions of the County's Right-to-Farm Ordinance; and • To allow community gardens as a permitted use in appropriate districts.	Less than significant
3.10-3 Implementation of the Proposed Project would not conflict with any applicable habitat conservation plan or natural community conservation plan	Policy 4.D.3, as listed under Impact 3.10-2 above, as well as the following policy. 4.D.1 **Special-Status Species.** Support the preservation of habitats of rare, threatened, endangered, and other special-status species. Require development in areas known to have value for wildlife to be carefully planned and, where possible, sited to maintain reasonable wildlife value of the habitat.	Less than significant
3.10-4 Implementation of the Proposed Project could induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of	Policy 2.A.3, as listed under Impact 3.10-1 above; and Policy 2.A.2, as listed under Impact 3.10-2 above. **Land Use and Community Design Element** 2.B.3 **Greenbelt.** In cooperation with Stanislaus County and the City of Hughson, seek to establish a permanent greenbelt between Ceres and Hughson.	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
roads or other infrastructure). (*Significant and Unavoidable*)	2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery. 2.I.1 **Annexations.** Approve annexations only after City approval of an appropriate area-wide plan (e.g., master plan, specific plan) that addresses land use, circulation, housing, infrastructure, and public facilities and services, based on the City's annexation policy, while also adhering to the policies of the General Plan. Exceptions to this requirement for area-wide plans include annexations of: • Existing developed areas; • Areas of less than five acres; and • Housing developments for very-low and low-income households. **Agricultural and Natural Resources Element** 4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface. **Implementation Actions** 2.8 To ensure the permanence of a greenbelt between Ceres and Hughson and buffering between urban and agricultural uses, analyze and pursue, as appropriate, the use of various policy strategies, including, but not limited to, the following: • Large ranchette lots on the periphery (e.g., to 2-5 acre lots) with setbacks to buffer with agricultural uses. • Public or private recreational uses (e.g, parks, golf courses) on the periphery to buffer with agricultural uses.	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-4 Implementation of the Proposed Project could induce substantial 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). (*Significant and Unavoidable*)	• Sizing of infrastructure (e.g. water and sewer mains) to accommodate only limited, low-density growth on the eastern border of the Sphere of Influence, to make future expansion more difficult. • Design of circulation system to make eastward extension more difficult. • Special provisions (i.e., a "supermajority"— four-fifths of the City Council) to allow any amendments to the boundary.	Significant and unavoidable
3.10-5 Implementation of the Proposed Project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	**Land Use and Community Design Element** 2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following: • The distribution, location, and extent of land uses, including standards for land use intensity. • Compatibility of new development with adjacent existing and proposed development. • Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs. • Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary. • Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-5 Implementation of the Proposed Project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	• Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas. • Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities. • Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways. • Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences. • Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand. • Provisions for minimizing conflicts between new development and adjacent agricultural uses. • Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements. 2.A.6 **Range of Housing.** Ensure that a range of residential densities and housing types, including small-lot single family, move-up, townhouses, apartments, accessory dwelling units, affordable housing, senior housing, and condominiums, is available to accommodate the housing needs of all residents. 2.A.7 **Diversity.** Embrace diversity—physical, cultural, language, and social—and sensitively integrate new development with the old. 2.A.8 **Plan for All.** Plan and provide for the public welfare of all Ceres residents, based on community engagement and careful consideration of those who have	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.10-5 Implementation of the Proposed Project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	been historically disadvantaged, including people of color and low-income residents. 2.A.9 **Age in Place.** Help older adults live independently in the community of their choice, through "Age in Place" strategies, including engaging older adults in the planning process, planning for a range of affordable housing options, providing convenient transportation options, and strengthening community resources for seniors. 2.A.11 **Prioritize Development with Community Benefits.** Prioritize development projects that are needed to provide for the City's fair share of regional housing needs, including very-low- and low-income housing, or provide substantial benefits to the community, including, but not limited to, unique economic development opportunities (e.g., substantial number of jobs, substantial sales tax revenues). 2.A.17 **Equitable Investments.** Improve quality of life for all Ceres residents through equitable investments in programs and facilities with particular focus on meeting the needs of disadvantaged communities. 2.C.6 **Housing Options.** Promote Downtown as an attractive option for existing and prospective residents looking for housing in Ceres, with a wide variety of rental and ownership housing opportunities.	Less than significant
3.11 Noise		
3.11-1 Implementation of the Proposed Project would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies.	**Health and Safety Element** Goal 5.L Protect the community from the harmful and annoying effect of exposure to excessive noise and vibration. 5.L.1 **Community Noise Compatibility.** Use [proposed General Plan] Table 5-3: Community Noise Compatibility Matrix and the Projected Noise Contours (2035) in [proposed General Plan] Figure 5-13 as guidelines to evaluate land use compatibility of new development, including whether a proposed use is compatible with the existing or planned noise environment of a given location,	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.11-1 Implementation of the Proposed Project would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies.	as well as whether a proposed use would negatively affect the noise environment for existing or planned uses in the area. 5.L.2 **Maximum Allowable Noise Exposure.** Use the standards in [proposed General Plan] Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources to regulate acceptable limits of noise for various land uses for both exterior and interior environments from transportation sources. 5.L.3 **Performance Standards.** Use performance standards established in [proposed General Plan] Table 5-5: Performance Standards for Stationary Sources to regulate operational noise associated with new non-residential development or changes of non-residential use. Require, prior to approval of a project, that noise generated by the project be mitigated so as not to exceed the performance standards of Table 5-5. Standards apply to the noise sources themselves, as measured at the edge of the property line of residential or other sensitive uses; noise caused by motor vehicles traveling to and from the site is exempt from these standards. 5.L.4 **Siting Noise Sensitive Uses.** Prohibit the development of noise-sensitive uses where noise levels are "normally unacceptable" or higher as shown in Table 5-3: Community Noise Compatibility Matrix, unless effective noise mitigation measures have been incorporated into the development design to achieve the specified interior noise standards in Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources. For public schools, require acoustic analyses for any schools proposed in areas where noise levels would be considered "normally unacceptable" per Table 5-3: Community Noise Compatibility Matrix. 5.L.6 **Compatibility with Noise Sensitive Uses.** Require that noise created by new proposed non-transportation sources be mitigated so as not exceed the noise level standards of Table 5-4: Maximum Allowable Noise Exposure for	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.11-1 Implementation of the Proposed Project would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies.	Transportation Noise Sources as measured at the property line of lands designated on the General Plan Land Use Map for noise-sensitive uses. 5.L.7 **Acoustical Analysis.** Require an acoustical analysis as part of the environmental review process for proposed non-residential land uses that are likely to produce noise levels exceeding the performance standards of Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources for existing or planned noise-sensitive uses to ensure that mitigation is included in the project design. The acoustical analysis shall meet the following requirements: • It shall be the financial responsibility of the applicant; • It shall be prepared by a qualified person, selected by the City, who is licensed through the State of California in the fields of environmental noise assessment and architectural acoustics; • It shall include representative noise measurements with sufficient sampling period sand locations to adequately describe local conditions and the predominant noise sources; • It shall include estimates of existing and projected cumulative (20 years) noise levels in terms of DNL or CNEL and/or the standards of Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources, and compare those levels to the adopted policies of the General Plan; • It shall recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan, 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. Where the noise source in question consists of intermittent single events, the report must address the effects of	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.11-1 Implementation of the Proposed Project would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies.	maximum noise levels in sleeping rooms in terms of possible sleep disturbance; • It shall include estimates of noise exposure after the prescribed mitigation measures have been implemented; and • It shall describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures, when deemed necessary by the City. 5.L.8 **Airport Noise Compatibility.** Ensure that new development complies with the Modesto City-County Airport Land Use Compatibility Plan policies regarding noise. 5.L.9 **Overflight Noise.** Oppose changes in flight patterns that would increase flight activity over Ceres and significantly increase noise concerns. 5.L.10 **Temporary Events.** Require applicants for special events, such as community celebrations, festivals, music events, and public gatherings, to acquire a permit for the temporary amplification of sound and adhere to City standards regarding timing of sound amplification, and noticing prior to the event. 5.L.11 **Noise Compatibility.** Prevent incompatible land uses from encroaching upon existing or planned noise-generating uses (such as agricultural, industrial, or commercial uses) by avoiding the placement of incompatible uses in environments where existing noise levels conflict with guidelines and standards provided in [proposed General Plan] Table 5-3: Community Noise Compatibility Matrix , Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources, and Table 5-5: Performance Standards for Stationary Noise Sources, or where land use designations provide for future uses whose noise levels would be likely to conflict, in order to protect the city's economic base. 5.L.12 **Noise Mitigation.** Require, where noise mitigation measures are required to achieve the standards of [proposed General Plan] Table 5-4: Maximum	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.11-1 Implementation of the Proposed Project would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies.	Allowable Noise Exposure for Transportation Noise Sources and Table 5-5: Performance Standards for Stationary Noise Sources, that the emphasis of such measures be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project. 5.L.13 **Airport Compatibility.** For projects within the Modesto City-County Airport Influence Area, utilize the noise standards contained in the Stanislaus County Airport Land Use Compatibility Plan, as well as the noise standards contained in [the proposed General Plan Health and Safety Element].	Significant and unavoidable
3.11-2 Implementation of the Proposed Project would not expose people to or generate excessive groundborne vibration or groundborne noise levels.	No policies are required to reduce this impact below a level of significance.	Less than significant
3.11-3 The development of the Proposed Project not would result in a substantial permanent increase in ambient noise levels above levels existing without the Proposed Project.	Goal and policies under Impact 3.11-1.	Significant and unavoidable
3.11-4 The development of the Proposed Project not would result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the Proposed Project.	No policies are required to reduce this impact below a level of significance.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.11-5 The Proposed Project would not result in a project that exposes people residing or working in the project area to excessive noise levels due to the project's location within an airport land use plan noise impact area.	Goal 5.M and policies 5.M.7, 5.M.8, 5.M.9, 5.M.12, and 5.M.13 under Impact 3.11-1.	Less than significant
3.12 Public Services and Recreation		
3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.	**Land Use and Community Design Element** 2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. See Chapter 3: Transportation and Circulation Element for more information and related goals and policies **Transportation and Circulation Element** 3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service ("LOS") C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects support other goals from the General Plan including transit, active transportation, and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the "LOS" standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.	**Agricultural and Natural Resources Element** 4.F.6 **Green Infrastructure.** Require the use of feasible and practical best management practices (BMPs) and low-impact development (LID) strategies to protect receiving waters from the adverse effects of construction activities and urban runoff. 4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation. 4.G.14 **Construction Mitigation.** Require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction. Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to: • Site watering or application of dust suppressants; • Phasing or extension of grading operations; • Covering of stockpiles; • Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and • Revegetation of graded areas. 4.I.2 **Archaeological Resource Management.** Establish a procedure for the management of archaeological materials found on-site during a development, including the following provisions: • If significant resources are known or suspected to be present on a site, require that a qualified archaeologist conduct monitoring of building demolition and/or construction grading activities.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.	• If materials are found on-site during construction activities, require that work be halted until a qualified archaeologist evaluates the find and makes a recommendation for the preservation in place or recovery of the resource. **Health and Safety Element** 5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction. 5.F.7 **Resilient Transportation.** Promote a resilient transportation system that offers connectivity for multiple transportation modes in the face of extreme weather events, such as storms and flooding, related to climate change. Transportation improvements may include elevating transportation infrastructure, installing culverts, or raising bridges where necessary. 5.G.8 **Construction Erosion.** Require the use of best management practices to control and mitigate soil erosion during construction activities. 5.M.3 **Design for Emergency Access.** Ensure all-weather access for emergency vehicles and services by providing at least two means of ingress/egress into new communities, limitations on the length of cul-de-sacs, proper roadway widths and road grades, and other requirements per the California Fire Code, and ensure that all roads, streets, and major public buildings are identified in a manner that is clearly visible to fire protection and other emergency vehicles. **Public Facilities and Services Element** 6.A.1 **Quality Education.** Continue to assist the Ceres Unified School District in providing quality education facilities that will accommodate projected student growth. 6.A.2 **Close Cooperation with Schools.** Continue to work cooperatively with the Ceres Unified School District in monitoring housing, population, and school enrollment trends and in planning for future school facility needs, and	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact			
Impact	*Proposed General Policies that Reduce the Impact*		*Significance Level*
3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.		assist the District in locating appropriate sites for new schools in the Planning Area.	Less than significant
	6.A.3	**Coordinate Land Use Planning.** Coordinate the City's land use planning with the planning of school facilities. Work with the Ceres Unified School District starting from the early stages of the areawide planning and school site selection processes. As needed, reserve school sites in areawide plans to accommodate school district needs.	
	6.A.12	**Joint Use Agreements.** Continue joint use agreements with the Ceres Unified School District, and create joint use agreements with private schools to utilize facilities for non-school-related activities, including recreational use and child care services. Future negotiations should consider use of school facilities to be used for recreational opportunities for Ceres residents.	
	6.B.4	**Development Fees.** Continue to cooperate with the County in collecting County development fees on new development in Ceres to ensure that new development contributes its fair share to the development of additional library facilities, as long as the mutual agreement is in force.	
	6.C.2	**Population Growth.** Ensure that the development of parks and recreational facilities keeps pace with population growth within the city.	
	6.C.3	**Acres of Parkland.** Provide a minimum of 4.0 acres of publicly accessible parkland per 1,000 residents.	
	6.C.4	**Parkland Dedication.** Continue to require that new development provide dedicated parkland, in lieu fees, or both, in accordance with the Quimby Act, to meet the recreational needs of new residents. Prefer dedication of public parkland to in lieu fees, provided that the developed parkland is open to the greater Ceres community and not privatized by its design, operation, or location.	
	6.C.5	**In Lieu Fees.** Calculate park fees to enable purchase of acreage and provision of off-site improvements for 4.0 acres of parkland per 1,000 residents added.	

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.	Review and update in lieu fees on a regular basis to reflect the total cost of improvements required to serve new development. 6.C.12 **Joint Development of Commercial or Private Recreational Facilities.** Encourage the establishment or joint development of commercial or private recreation facilities within the Planning Area in appropriate locations. 6.C.14 **Joint Development of Parks and Recreation Facilities.** Continue to cooperate with public and quasi-public agencies, including the Ceres Unified School District, in the joint development, maintenance, and use of parks and recreation facilities. 6.J.2 **Measure and Meet Response Time Standards**. Establish and strive to achieve response time standards. Measure response times and annually review progress in meeting response time standards. 6.J.4 **Public Safety Programs.** Promote public safety programs, including neighborhood watch, child identification and fingerprinting, and other public education efforts for people of all ages. 6.J.5 **Designing to Improve Public Safety.** Consider public safety issues and Crime Prevention through Environmental Design (CPTED) principles in all aspects of public facility, commercial, and residential project design. 6.J.6 **Modern Facilities and Equipment.** Within the City's overall budgetary constraints, ensure that law enforcement services have modern facilities and equipment (including patrol and other vehicles, necessary equipment, and support personnel) needed to perform their duties and ensure efficient dispatch and response time. 6.J.7 **Continue Funding of Police Services.** Continue to ensure that new development funds police facilities, personnel, operations, equipment and maintenance that, at a minimum, maintains the response standards.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.	6.K.3 **Fire Safety Education.** Identify key fire loss problems and design appropriate fire safety education programs to reduce fire incidents and losses, and promote awareness of fire hazards and safety. 6.K.4 **Project Review.** Endeavor through project review to control fire losses and fire protection costs through requiring use of automatic fire detection, control, and suppression systems. 6.K.5 **Ensure Adequate Funding for Fire Services.** Within the City's overall budgetary constraints, ensure that fire and emergency medical services have modern facilities, equipment, and staffing needed to perform their duties and ensure efficient response time. Seek grants and County funding when facilities, equipment, and staffing needs exceed the City's budget. 6.K.6 **New Development Funding of Fire Services.** Require new development to develop or fund fire protection facilities, personnel, and operations and maintenance that, at a minimum, maintains the above service level standards.	Less than significant
3.12-2 Implementation of the Proposed 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.	Policies 6.A.12, 6.C.2, 6.C.3, 6.C.4, 6.C.5, 6.C.12, and 6.C.14 listed under Impact 3.12-1 above, as well as the following policies. **Land Use and Community Design Element** 2.A.14 **Maintenance.** Maintain and invest in the public realm, including parks, sidewalks, and streets to enhance safety and character and to encourage upkeep and investment by private property owners. 2.A.17 **Equitable Investments.** Improve quality of life for all Ceres residents through equitable investments in programs and facilities with particular focus on meeting the needs of disadvantaged communities.Health and Safety Element 5.B.4 **Access to Recreation.** Ensure equitable access to parks and recreation facilities through the following measures:	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.12-2 Implementation of the Proposed 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.	• Ensure that all residential areas of the city are within a half-mile (about a 10-minute walking distance) of recreational facilities by siting new parks and facilities in underserved areas; • Regularly review the fee schedule for recreational programs and, as appropriate and feasible, explore and implement strategies that would ensure that programs are affordable for all members of the community; and • Design new parks and improve existing parks such that they are accessible to users of all ages and abilities. **Public Facilities and Services Element** 6.C.25 **Parks and Recreation Master Plan.** Use the Parks and Recreation Master Plan as the primary tool for planning specific capital improvements and programming, and update periodically based on community feedback, demographic changes, and recreation trends.	Less than significant
3.12-3 Implementation of the Proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Policies 4.F.6, 4.F.9, 4.G.14, 4.I.2, 5.E.1, and 5.G.8. as listed under Impact 3.12-1 above.	Less than significant
3.13 Transportation		
3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of	**Land Use and Community Design Element** 2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. *See Chapter 3: Transportation and Circulation Element for more information and related goals and policies.*	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	2.C.1 **Transit Oriented Development.** Encourage high-density, pedestrian-oriented development with managed parking strategies to leverage the development potential and improved accessibility resulting from the development of the ACE train stop. 2.C.2 **Integrated ACE Train Stop.** Integrate the Altamont Corridor Express (ACE) train stop into the Downtown, providing multi-modal mobility options and safe and convenient pedestrian and bicycle access between the train stop and Downtown Ceres. 2.F.4 **Multi-Modal Accessibility.** Maximize accessibility for automobiles, cyclists, and pedestrians. 2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation. **Transportation and Circulation Element** 3.A.1 **Multi-Modal Network.** Provide for a comprehensive, integrated transportation network in accordance with the functional classification system described in this chapter and reflected in the Circulation Diagram with infrastructure and design that allows safe and convenient travel along and across streets for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility. 3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects supports other goals from the General Plan including transit, active transportation and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	LOS standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character. 3.A.3 **Transportation Impact Analysis**. Require transportation analysis to determine the effects of traffic from major development projects (generally those that would generate 100 or more peak-hour trips) or projects that would increase hazards related to the introduction of incompatible land uses. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. Such improvements may include a fair share contribution towards improvements that provide benefits to others. 3.A.4 **Reduce Vehicle Miles Traveled (VMT).** Support statewide efforts to reduce vehicle miles of travel (VMT) from existing and new development by encouraging infill and mixed use development, providing a multi-modal transportation network and incorporating transportation and parking demand management measures into new development by design. 3.A.6 **Development Fees.** Assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system, including transit, bicycle and pedestrian systems. 3.A.7 **Expressway System.** Continue to support development of an expressway system to handle regional through traffic in the Modesto-Ceres urban area as conceptually identified in the StanCOG Regional Expressway Study, 2010. 3.A.8 **RTP/SCS Participation.** Continue to participate in the development and implementation of the countywide Regional Transportation Plan and Sustainable Community Strategy, including improvements to the State Highway system.	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	3.B.1 **Complete Streets Corridors.** Maintain adequate travel flow along Ceres' major corridors while allowing for new or redevelopment development. To this end, the following shall be considered in site plan development for new and redevelopment along Hatch Road, Mitchell Road, and Whitmore Avenue: • Require consolidation of driveway access to reduce the number of vehicle/pedestrian/bicycle conflicts areas; if necessary, driveway improvements should include relocation of driveway access points on existing sites; • Require combination of parking lots and access points with joint access and reciprocal parking agreements where possible; • Require medians within the existing cross-section to limit turning movements and to provide pedestrian refuges at mid-block crossing locations; • Require site plans to locate entrance and exits to avoid vehicle queue spillback to the public right-of-way; and • Limit or prohibit drive-up windows where peak vehicle queues cannot be accommodated on-site. 3.B.2 **Direct Expressway Access Restrictions**. Limited direct access to industrial, commercial, and high density residential uses along existing and planned expressways may be approved through site plan review. 3.B.3 **Expressway Roadway Connections.** Access from driveways, secondary collectors, and local streets onto existing and planned Class B expressways is restricted, and right-in/right-out access may be allowed at select locations. 3.B.4 **Sidewalk Network.** Sidewalks are required for all new developments along major corridors. 3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted,	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible. 3.C.3 **Sidewalks**. Sidewalks are required for all new streets in residential developments. 3.D.1 **Off-Street Parking Requirements.** Require new development and redevelopment to provide adequate off-street parking for vehicles and bicycles that considers urban design, economic development, and alternative travel modes, including secure long-term bicycle parking at employment centers and transit centers. Parking shall be landscaped, located convenient to new development, and easily accessible from the street system. 3.D.2 **Context Sensitive Parking Requirements.** Provide parking supplies using a context-sensitive approach that considers the potential for shared parking and reduced parking requirements in walkable mixed-use neighborhoods and transit oriented areas. 3.D.4 **Parking Lot Design.** Promote parking lot design to minimize vehicle/pedestrian conflict points with appropriate lighting and landscaping provided. 3.D.5 **Priority Parking.** Where required, reserved employee car pool and bicycle parking should be provided in premium areas close to building entrances. 3.E.1 **Flexible Transit Service.** Plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand. 3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services. 3.E.3 **Transit Right-of-Way.** Consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	exclusive or shared with other vehicles. Require new development to reserve space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route. 3.E.4 **Farebox Recovery Ratios.** The City of Ceres will not provide transit, either fixed route or demand responsive, in scenarios where it would not be expected to meet the revenue to operating expense ratios or other performance standards required by the State Transportation Development Act or as may be adopted by any other state or regional agency. 3.E.5 **Transit Priority.** Prioritize the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act. 3.E.6 **Paratransit.** Continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit. 3.E.7 **Transit Coverage.** New and existing transit routes shall strive to ensure that routes serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan (see implementation item under Policy 3.E.2). 3.E.8 **ACE Train Stop.** Preserve right-of-way to facilitate development of an Altamont Commuter Express (ACE) train stop in Downtown Ceres. 3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.	Significant and unavoidable

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	3.F.2 **Funding.** Pursue a variety of sources of funding for the development and improvement of bikeways and pedestrian pathways, including grant funding, Countywide Measure L funds, and Capital Improvement Program funding. 3.F.3 **New Development.** Require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate. 3.F.4 **Right-of-Way.** Require new development to provide adequate rights-of-way to accommodate bikeways where identified on the bikeways map and as specified in the Bicycle and Pedestrian Master Plan, and to contribute to the development of planned bikeways. 3.F.5 **On-Site Bicycle Facilities.** Require new multi-family residential, commercial and industrial developments to provide bicycle facilities, including bicycle parking. For employment locations with more than 50 employees, other amenities may be required, including showers and changing facilities. 3.F.6 **Bicycle Safety**. Promote bicycle safety education to children and adults through coordination with the local school district, community groups, and other city sponsored events. 3.F.7 **Roadway Maintenance.** When roadway repaving projects occur, opportunities to provide bicycle facilities consistent with the adopted Alternative Transportation Plan (ATP) shall be considered. 3.F.8 **Pedestrian Facility Design.** Provide safe, continuous and pleasant pedestrian paths of travel, including sidewalk width appropriate for the land use context of the street, enhanced street crossings, landscape and/or parking buffers, and pedestrian scale lighting throughout the city.	Significant and unavoidable

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3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	3.F.9 **Interchange Improvements.** When interchanges and overpasses are upgraded, pedestrian and bicycle access shall be provided or enhanced as appropriate, safe, and feasible to do so. **Health and Safety Element** 5.B.1 **Safe and Convenient Multi-Modal Options.** Encourage development patterns, urban design, and streetscapes that allow people to safely and conveniently reach destinations by walking, bicycling, or using transit. *See Chapter: 2 Land Use and Community Design Element and Chapter 3: Transportation and Circulation Element for more information and related goals and policies.* 5.B.2 **Safe Routes to Schools.** Improve the conditions for youth walking and bicycling in the areas surrounding schools by working with the Ceres Unified School District, other local agencies, and nonprofit organizations to implement the Safe Routes to School program.	Significant and unavoidable
3.13-2 Implementation of the Proposed Project could conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	Policies 2.A.12, 2.F.4, 3.A.1, 3.A.2, 3.A.3, 3.A.4, 3.A.5, 3.A.6, 3.A.7, and 3.A.8, as listed above under Impact 3.13-1 would reduce the severity of impacts to the regional transportation system, but may not reduce impacts to a less-than-significant level.	Significant and unavoidable
3.13-3 Implementation of the Proposed Project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in	No policies are required to reduce this impact below a level of significance.	No impact

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
location that results in substantial safety risks.		No impact
3.13-4 Implementation of the Proposed Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Policies 3.A.1, 3.A.3, 3.F.6, and 5.B.2, as listed under Impact 3.13-1 above, as well as the following policies. **Land Use and Community Design Element** 2.E.4 **Mitchell Road Corridor Plan.** Update the Mitchell Road Corridor Specific Plan to: • Encourage infill development along the corridor; • Include Complete Streets strategies—see *Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;* • Improve pedestrian and bicycle mobility along the corridor and within and between properties with safe and convenient infrastructure and design; • Promote development that engages the street, including discouraging parking between the street and new development and encouraging street access into new buildings; • Differentiate commercial uses intended for the Mitchell Road Corridor from those intended for Downtown Ceres; • Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design; • Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; and • Include the land designated Regional Commercial south of SR 99. 2.E.5 **Hatch Road Corridor Plan.** Prepare a corridor plan for Hatch Road between SR 99 and Mitchell Road, which includes the following components:	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-4 Implementation of the Proposed Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	• Infill development; • Complete Streets strategies—*see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;* • Pedestrian and bicycle infrastructure and design to promote safe and convenient access to properties; • Differentiate commercial uses intended for the Hatch Road Corridor from those intended for Downtown Ceres; • Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design; • Land use and building location strategies to promote sharing of patronage among businesses; • Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; • Areawide information and sign program; • Maintenance plan and safety program; • Image enhancement and marketing program; and • Capital improvement projects, including streetscaping, signs, and facade improvements. 2.G.7 **Reduce Impacts from Truck Traffic.** Use site design, including locating parking between the street and buildings, as well as using landscaping as a buffer—especially along expressways—on commercial uses and access to these uses, including along walkways. *See Chapter 3: Transportation and Circulation Element for more on expressways in Ceres.*	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.13-4 Implementation of the Proposed Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	**Transportation and Circulation Element** 3.C.1 **Residential Neighborhood Streets.** Consider the effects of new development on local streets in residential areas and require new development to mitigate significant impacts to existing residential neighborhoods. 3.G.1 **Goods Movement.** Plan for and maintain a roadway system that provides for efficient and safe movement of goods within Ceres. 3.G.2 **Truck Routes**. Maintain a network of truck routes, as shown on Figure 3-3 of the General Plan, within the city and work with Stanislaus County to develop a system of truck routes for the area around Ceres. **Public Facilities and Services Element** 6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools.	Less than significant
3.13-5 Implementation of the Proposed Project would not result in inadequate emergency access.	Policies 3.A.1, 3.A.3, and 5.F.7, as listed above under Impact 3.13-1.	Less than significant
3.13-6 Implementation of the Proposed Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	Policies 2.A.12, 2.C.1, 2.C.2, 2.F.4, 3.A.1, 3.A.2, 3.A.3, 3.A.4, 3.A.5, 3.A.6, 3.B.1, 3.B.4, 3.C.2, 3.C.3, 3.D.1, 3.D.2, 3.D.4, 3.D.5, 3.E.1, 3.E.2, 3.E.3, 3.E.4, 3.E.7, 3.E.8, 3.F.1,3.F.2, 3.F.3, 3.F.4, 3.F.5, 3.F.7, 3.F.8, 3.F.9, 5.B.1, and 5.B.2, as listed under Impact 3.13-1 above.	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.14 Utilities		
3.14-1 Development under the Proposed Project would not violate wastewater treatment requirements of the applicable Regional Water Quality Control Board.	**Public Facilities and Services Element** 6.E.1 **Wastewater Treatment Facility Capacity.** Ensure wastewater treatment facility capacity is available to serve planned urban development within Ceres. 6.E.2 **Wastewater System Demand Reduction.** Promote reduced wastewater system demand through efficient water use by: • Requiring water-conserving design and equipment in new construction; • Providing information about water-conserving devices to property owners and residents; and • Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible. 6.E.3 **On-Site Wastewater Treatment and Disposal.** Prohibit new on-site wastewater treatment and disposal facilities within the City's service area, except where such systems are deemed appropriate and will not pose health risks or risks to groundwater, and where soil conditions, percolation qualities, and topography would support the use of such facilities. 6.E.5 **Financing Wastewater System Improvements.** Finance repairs to existing and new wastewater collection, treatment, and disposal systems and facilities using transparent and fair strategies, such as development impact fees and monthly service charges. 6.E.6 **Treated Wastewater.** Assess the possibility of utilizing treated wastewater with each update to the City's Sewer System Master Plan and Urban Water Management Plan.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.14-2 Development under the Proposed Project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Policies 6.E.1, 6.E.2, 6.E.3, 6.E.5, and 6.E.6, as listed under Impact 3.14-1 above, as well as the following policies. **Health and Safety Element** 5.F.8 **Non-Potable Water Sources.** Permit and support the use of non-potable water sources as appropriate, including residential graywater, collected rainwater, and recycled water for landscape irrigation and commercial and industrial processes. Support efforts to develop a system for the treatment and delivery of recycled water. **Public Facilities and Services Element** 6.D.2 **Efficient Water Use.** Promote efficient water use and reduced water demand by: • Requiring water-conserving design and equipment in new construction, encouraging water-conserving landscaping and other conservation measures, and encouraging retrofitting existing development with water-conserving devices; • Developing public education programs targeted to residents of all ages; • Distributing outdoor lawn watering guidelines; • Continuing metering and conservation efforts and assessing the effectiveness of these programs; • Promoting water audit and leak detection programs; • Enforcing water conservation programs, including the City's Water Efficient Landscape Ordinance; and • Limiting a percentage of hardscape in favor of landscaping in front yard areas of residential lots. 6.D.3 **Reclaimed Wastewater.** Investigate and promote, to the extent feasible, the use of reclaimed wastewater to offset the demand for new water supplies. Such programs may include: dual water systems for potable and non-potable	Less than significant

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Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.14-2 Development under the Proposed Project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	water; reuse of grey water in homes or businesses for irrigation; and reuse of sewage effluent for irrigation of crops, golf courses, or City irrigation.	Less than significant
3.14-3 Development under the Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	**Public Facilities and Services Element** 6.F.1 **Storm Drainage Capacity**. Ensure that increased storm drainage system capacity is sufficient to serve the existing Ceres community and planned urban development within the Planning Area. 6.F.2 **Reducing Stormwater Runoff.** Encourage project designs that minimize drainage concentrations, minimize impervious coverage, utilize pervious paving materials, utilize low impact development (LID) strategies, and utilize Best Management Practices (BMPs) to reduce stormwater runoff. 6.F.3 **Low Impact Development.** Promote the use of low impact development (LID) strategies in new development and redevelopment projects, including but not limited to the use of canopy trees and shrubs, vegetated swales, and permeable paving. 6.F.4 **New Development Stormwater Mitigation.** Require new development to mitigate increases in stormwater peak flows and/or volume. Mitigation measures, such as low impact development (LID) strategies, should take into consideration impacts on adjoining lands in the City and immediately adjacent to the City in unincorporated Stanislaus County.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.14-3 Development under the Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	6.F.5 **Drainage System Design.** Design all drainage systems to be in accordance with the accepted principles of civil engineering, adopted Storm Drainage Master Plan, and adopted storm drainage design standards and specifications. 6.F.6 **Surface Drainage Disposal.** Require that new development have surface drainage disposal accommodated in one of the following ways: • Positive drainage. Positive drainage to a river, stream, creek, or other natural water course; • Irrigation facility. Drainage into an irrigation district facility, either by gravity or pumping, pursuant to the City of Ceres – Turlock Irrigation District agreement; • Drainage ponds. Ponds, either in individual lots within a subdivision or in the case of larger developments, within a drainage basin; • Drainage unit. Use of French drains within depressed areas of the street right-of-way for those subdivisions or portions of subdivisions of such size that positive drainage, irrigation into a facility, or drainage ponds is not feasible, as determined by the City Engineer; or • On-site drainage. Drainage retained on-site within the development. • Commercial development must accommodate drainage on-site unless positive drainage or irrigation facility methods described above are available and the development participates in a system to address on-site drainage as approved by the City Engineer. All on-site industrial drainage must remain on-site and require full paving improvements. Encourage commercial and industrial development to integrate on-site storm drainage facilities with landscaping. 6.F.7 **Grading.** Require appropriate mitigation, such as temporary mulch or revegetation, for grading activities during the rainy season to avoid sedimentation of storm drainage facilities. See Municipal Code Chapter 13.18.120	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
3.14-3 Development under the Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	6.F.10 **Storm Drainage System Operation and Maintenance.** Minimize operational complexities and maintenance requirements of the storm drainage system.	Less than significant
3.14-4 Development under the Proposed Project would have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.	No policies are required to reduce this impact below a level of significance.	Less than significant
3.14-5 Development under the Proposed 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	No policies are required to reduce this impact below a level of significance.	Less than significant
3.14-6 Development under the Proposed Project could be served by a landfill with insufficient permitted capacity to	No policies are required to reduce this impact below a level of significance.	Less than significant

Table ES-4: Summary of Significant Impacts and Proposed General Policies that Reduce the Impact		
Impact	*Proposed General Policies that Reduce the Impact*	*Significance Level*
accommodate the project's solid waste disposal needs.		Less than significant
3.14-7 Development under the Proposed Project would comply with federal, State, and local statues and regulations related to solid waste.	No policies are required to reduce this impact below a level of significance.	No impact

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1 Introduction

This Draft Environmental Impact Report (EIR) has been prepared on behalf of the City of Ceres in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 *et seq.*). The EIR analyzes potential environmental impacts of the adoption and implementation of the proposed Ceres General Plan 2035 (General Plan), referred to as the "Proposed Project." This chapter outlines the purpose and overall approach to the preparation of the EIR. The City of Ceres is the lead agency responsible for ensuring that the proposed General Plan complies with CEQA. "Lead agency" is defined by Section 21067 of CEQA as "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment."

1.1 Purpose of the EIR

Pursuant to the provisions of CEQA and related case law, general plans and other programs must include analyses of the potential significant environmental impacts associated with implementation of their policies and proposals. The primary intent of CEQA is to ensure that public agency decision-makers document and consider the environmental implications of their actions in order to avoid or minimize environmental damage that could result from the implementation of a project wherever feasible, and to balance environmental, economic, and social objectives. The purpose of an EIR is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided (California Public Resources Code [PRC] Section 21002.1).

PURPOSE

This EIR serves the following purposes:

- To satisfy CEQA requirements for analysis of environmental impacts by including a complete and comprehensive programmatic evaluation of the physical impacts of adopting and implementing the Proposed Project;
- To recommend a set of measures to mitigate any significant adverse impacts;
- To analyze a range of reasonable alternatives to the Proposed Project;
- To inform decision-makers and the public of the potential environmental impacts of the Proposed Project prior to taking action on the Proposed Project, and to assist City officials in reviewing and adopting the proposed General Plan; and

- To provide a basis for the review of subsequent development projects and public improvements proposed within the planning area. Subsequent environmental documents may be tiered from the Final EIR.

The proposed General Plan consists of policies, diagrams, and standards to guide the future development of the City of Ceres and its Planning Area, as described in Chapter 2: Project Description. This EIR contains analysis of all potential environmental impacts expected to result from implementation of the various policies and programs identified as part of the Proposed Project, including those that serve to avoid or minimize adverse environmental impacts. In accordance with CEQA requirements, this EIR also identifies and evaluates alternatives to the Proposed Project, including the No Project Alternative, which represents the continued implementation of the current General Plan. An environmentally superior alternative is identified as part of the alternatives analysis.

This EIR represents the best effort, at a programmatic level, to evaluate the potential environmental impacts of the Proposed Project given its 2035 planning horizon. It can be anticipated that conditions will change; however, the assumptions used are the best available at the time of preparation and reflect existing knowledge of patterns of development.

INTENDED USES OF THE EIR

The CEQA Guidelines (Section 15124(d)) require EIRs to identify the agencies that are expected to use the EIR in their decision-making, and the approvals for which the EIR will be used. This EIR will inform the City of Ceres, in addition to other responsible agencies, persons, and the general public, of the potential environmental effects of the Proposed Project and the identified alternatives. The City of Ceres will use the EIR as part of its review and approval of the proposed General Plan. Other agencies expected to use the EIR include: Stanislaus County, Stanislaus Council of Governments, the Stanislaus County Local Agency Formation Commission (LAFCO), the City of Modesto, and the Ceres Unified School District, as well as State agencies such as the State Water Resources Control Board and Caltrans.

1.2 Approach and Scope of the EIR

TYPE OF EIR

This EIR is a program EIR, defined in Section 15168 of the CEQA Guidelines as: "[An EIR addressing a] series of actions that can be characterized as one large project and are related either: (1) Geographically; (2) A[s] logical parts in the chain of contemplated actions; (3) In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental impacts which can be mitigated in similar ways."

Program EIRs can be used as the basic, general environmental assessment for an overall program of future projects, policies, and related implementation actions, such as the proposed General Plan, intended to be developed or implemented over a 20-year planning horizon. A program EIR has several advantages. First, it provides a basic reference document to avoid unnecessary

repetition of facts or analysis in subsequent project-specific assessments. Second, it allows the lead agency to look at the broad, regional impacts of a program of actions before its adoption and eliminates redundant or contradictory approaches to the consideration of regional and cumulative effects.

As a programmatic document, this EIR presents a citywide assessment of the potential impacts of the Proposed Project. It does not separately evaluate subcomponents of the Proposed Project nor does it assess project-specific impacts of potential future projects under the Proposed Project, all of which are required to comply with CEQA and/or the National Environmental Policy Act (NEPA) as applicable.

As a program EIR, the preparation of this document does not relieve the sponsors of specific projects from the responsibility of complying with the requirements of CEQA (and/or NEPA) for projects requiring federal funding or approvals). As noted, individual projects are required to prepare a more precise, project-level analysis to fulfill CEQA and/or NEPA requirements. The lead agency responsible for reviewing these projects shall determine the level of review needed, and the scope of that analysis will depend on the specifics of the particular project. These projects may, however, use the discussion of impacts in this EIR as a basis of their assessment of these regional, citywide, or cumulative impacts, provided that the projects are consistent with the General Plan and the data and assumptions used in this EIR remain current and valid.

ENVIRONMENTAL ISSUE AREAS

Information gathered about the environmental setting is used to define relevant planning issues, determine thresholds of significance, and evaluate potential impacts. Based on the initial analysis of environmental setting and baseline conditions, and comments on the NOP, the following issues are analyzed in this program EIR:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Energy, Greenhouse Gases, and Climate Change
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Historic and Cultural Resources
- Hydrology and Water Quality
- Land Use, Population, and Housing
- Noise
- Public Services and Recreation
- Transportation

- Utilities

PLANNING HORIZON

For analytic purposes in this EIR, the base year is 2015 unless otherwise noted, and the horizon year representing future conditions is 2035. In cases where current data is not available, the most recent known data is used to depict baseline conditions. The horizon year of 2035 represents the target year of the Proposed Project when projects and programs are anticipated to be fully implemented. In reality, full implementation of the Proposed Project may take more or less than 20 years.

ALTERNATIVES

CEQA requires EIRs to evaluate a reasonable range of alternatives to the Proposed Project that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts. This EIR evaluates two alternatives, including the Southern Industrial Cluster Alternative and the No Project Alternative, which represents the continuation of the City's currently adopted General Plan.

1.3 Planning Process and Public Involvement

NOTICE OF PREPARATION AND PUBLIC PARTICIPATION

A Notice of Preparation (NOP) for the EIR on the Proposed Project was submitted to the State Clearinghouse on May 24, 2017 and circulated among relevant State and local agencies, as well as to members of the public. The City received comments during a 30-day review period, which ended June 23, 2017. The NOP and comments on the NOP received by the City are included as Appendix A of this EIR. An EIR Scoping Meeting conducted by the Planning Commission was held on June 5, 2017 in Council Chambers to receive comments and suggestions on scope and content for the EIR; solicit inputs on potential impacts, mitigation measures, and alternatives to consider; and consult with public agencies responsible for natural resources, other regulatory bodies, neighboring communities, Native American tribes, and members of the public. Comments on the NOP, along with input received during public workshops and meetings over the course of the General Plan update process, have helped to identify the major planning and environmental issues and concerns and establish the framework of this EIR.

TRIBAL CONSULTATION (SB 18 AND AB 52)

Senate Bill (SB) 18, codified in California Government Code §65352.3, requires local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of protecting, and/or mitigating impacts to cultural places prior to the adoption or amendment of a city's general plan. Additionally, Assembly Bill (AB) 52 requires tribal cultural resources to be addressed under CEQA and established requirements for consultation with Native American tribes as part of the CEQA process, providing both federal and non-federally recognized tribes the right to formal consultation with project lead agencies (California Public Resources Code Section 21080.3.1). In accordance with SB 18, the City contacted the NAHC in September 2016 to request a consultation list of tribes traditionally and culturally affiliated with the Planning area. The City contacted the listed tribes, providing

information about the planning process and inviting them to initiate consultation if desired. A representative of one tribe responded requesting that her tribe receive periodic email updates from the City to be kept informed of the Proposed Project.

In October 2017, the City contacted the NAHC to request a list of tribes on the AB 52 Consultation List. In November 2017, the City contacted tribal contacts provided by the NAHC to invite interested tribes to participate in consultation on the EIR. As of January 2018, the City has not received any responses from tribes on the AB 52 Consultation List.

DRAFT EIR REVIEW

The 45-day review period for the draft EIR ends on March 26, 2018. The EIR and appendices are available for review at the City of Ceres Community Development Department at 2220 Magnolia Street, Ceres, CA 95307, and online at www.ceresgeneralplanupdate.com.

Please submit comments on this draft EIR in writing or via email to:

Tom Westbrook, Director of Community Development
City of Ceres
Planning Division
2220 Magnolia Street
Ceres, CA 95307
Tom.Westbrook@ci.ceres.ca.us

After the close of the public review period, City staff and CEQA consultants will review the comments, respond to the comments received, and determine whether any changes are required to the EIR. The City Council will then consider certification of the Final EIR. Subsequent to certification of the Final EIR, the City Council may approve the Proposed Project. If the City Council approves the Project, a Notice of Determination will be filed with the State Office of Planning and Research and the Clerk of Stanislaus County.

1.4 Other Relevant Plans and Environmental Studies

An Existing Conditions Report was published in August 2016 to explore a range of social, economic, and environmental topics as part of the planning process for the proposed General Plan. In some instances, the report may contain information at a greater level of detail than this EIR; however, information in this EIR is more current. This document can be viewed online at www.ceresgeneralplanupdate.com. Other plans and studies relevant to the Proposed Project include the following:

- City of Ceres Downtown Specific Plan (2011)
- City of Ceres Economic Development Strategic Plan (2013)
- City of Ceres Parks and Recreation Master Plan (2016)
- City of Ceres Sewer System Master Plan (2013)
- City of Ceres Urban Water Management Plan (2010)

- Eastgate Planned Community Master Plan (2004)
- Mitchell Road Corridor Specific Plan (1995)
- Stanislaus County Airport Land Use Compatibility Plan (2016)
- Stanislaus County General Plan (2015)
- West Landing Specific Plan and EIR (2011)
- Whitmore Ranch Specific Plan (Ongoing)

1.5 Organization of the EIR

This draft EIR is organized into the following chapters, plus appendices:

ES. **Executive Summary.** Summarizes the EIR by providing an overview of the Proposed Project, the potentially significant environmental impacts that could result from the Proposed Project, the mitigation measures identified to reduce or avoid these impacts, alternatives to the Proposed Project, and identification of the environmentally superior alternative.

1. **Introduction.** Introduces the purpose for the EIR, explains the EIR process and intended uses of the EIR, and describes the overall organization of this EIR.
2. **Project Description.** Describes in detail the proposed General Plan, including the Proposed Project location and planning boundaries, purpose and objectives of the Proposed Project, buildout under the Proposed Project, and implementation of the Proposed Project.
3. **Environmental Analysis.** Analyzes the environmental impacts of the Proposed Project. Impacts are organized by major topic. Each topic area includes a description of the environmental setting, significance criteria, methodology and potential impacts.
4. **Analysis of Alternatives.** Presents a reasonable range of alternatives to the Proposed Project, provides discussion of environmental impacts associated with each alternative, compares the relative impacts of each alternative to those of the Proposed Project and other alternatives, discusses the relationship of each alternative to the Proposed Project's objectives, and identifies the environmentally superior alternative.
5. **CEQA Required Conclusions.** Summarizes significant environmental impacts, including growth-inducing, cumulative, and significant and unavoidable impacts; significant irreversible environmental change; and impacts found not to be significant.
6. **References.** Lists documents and other information sources used in the preparation of the EIR.
7. **List of Preparers.** Identifies the persons and organizations that contributed to the preparation of the EIR.

8. **Appendices**. Includes the NOP and compilation of agency and public comments received on the NOP, as well as other technical appendices related to data used for environmental analysis in this EIR.
   - Appendix A includes the NOP and responses.
   - Appendix B includes air quality modeling results.
   - Appendix C includes the tribal consultation letters sent to tribal contacts pursuant to AB 52.
   - Appendix D includes a technical memorandum on the development of the transportation model.
   - Appendix E includes a memorandum on the existing and future conditions data used in the transportation model.
   - Appendix F includes a technical memorandum on the wastewater infrastructure in the Planning Area and the improvements required from implementation of a land use plan similar to the Proposed Project and the Project Alternatives.
   - Appendix G includes a technical memorandum on the water infrastructure in the Planning Area and the improvements required from implementation of a land use plan similar to the Proposed Project and the Project Alternatives.
   - Appendix H includes a technical memorandum on the stormwater infrastructure in the Planning Area and the improvements required from implementation of a land use plan similar to the Proposed Project and the Project Alternatives.

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2 Project Description

This EIR analyzes the proposed Ceres General Plan (General Plan), referred to as the "Proposed Project." Under California Government Code §65300 et seq., cities are required to prepare a general plan that establishes policies and standards for future development, housing affordability, and resource protection for the entire planning area. By law, a general plan must be an integrated, internally consistent statement of city policies. California Government Code Section 65302 requires that the general plan include the following seven elements: land use, circulation, housing, conservation, open space, noise, and safety. In addition, the general plan must include either an environmental justice element or environmental justice goals, policies, and objectives in other elements. State law allows cities to include additional (or optional) elements in general plans as well. Optional elements included in the proposed General Plan address the community values related to economic and community development. All elements of the proposed General Plan have equal weight, and no one element supersedes another. The Proposed Project includes six of the seven elements. The Housing Element, last updated and certified by the State in 2016, is not being updated at this time and is not part of the Proposed Project.

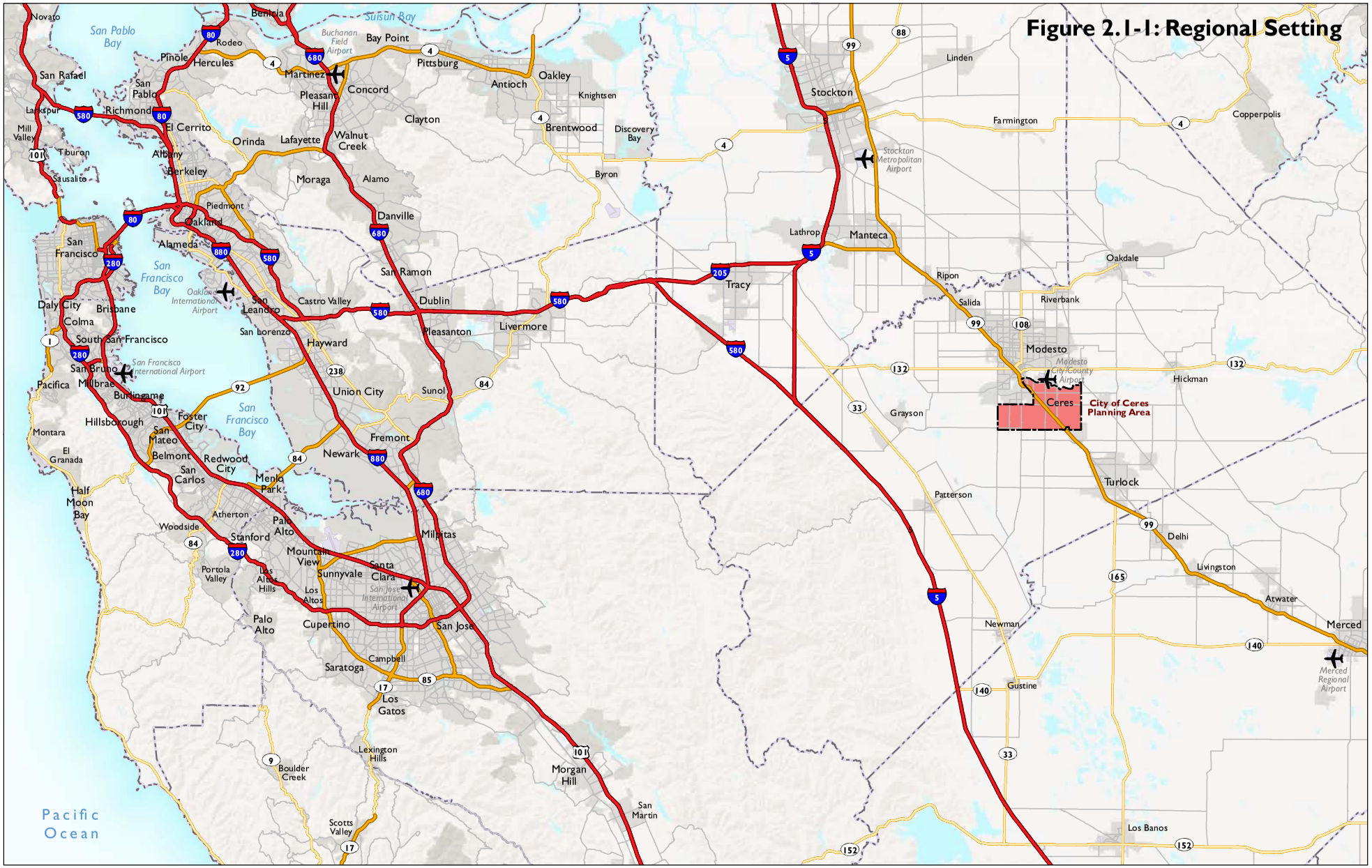
This chapter introduces the purpose and objectives of the Proposed Project and summarizes specific information to describe the Proposed Project and complete the EIR analysis. This includes a description of the existing regional and local project setting, an outline of the projected population and employment growth rates and development patterns through the planning horizon year, the proposed General Plan land use diagram, key data tables, and a description of the General Plan's policy direction. This project description provides the basis for the environmental analysis in Chapter 3.

2.1 Regional Location and Project Boundaries

REGIONAL LOCATION

The City of Ceres is located just southeast of Modesto in central Stanislaus County in the San Joaquin Valley of California. The city is almost 80 miles southeast of San Francisco by car, 60 miles from the nearest Bay Area Rapid Transit (BART) station in Dublin, 35 miles south of Stockton, and 10 miles north of Turlock. State Route 99 (SR-99) runs through the city. The regional setting is depicted in Figure 2.1-1: Regional Setting.

Figure 2.1-1: Regional Setting



Freeway
Major Highway
Minor Highway
Major/Minor Roads
County Boundary
Ceres Planning Area
Urban Areas
Water

0 5 10 20
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

PROJECT BOUNDARIES

The Proposed Project covers a Planning Area that encompasses 14,700 acres including the City of Ceres, its Sphere of Influence (SOI), adjacent unincorporated areas, and Mancini Park in the City of Modesto. The Planning Area is the same as that used for the 1997 Ceres General Plan. It is roughly bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east. Although Ceres does not have jurisdiction in areas outside of its city limits, what occurs in those areas bears a relation to the city's planning and must be considered in the General Plan, per California Government Code Section 65300. The Planning Area is shown in Figure 2.1-2: Planning Area.

2.2 Purpose and Objectives of the Proposed Project

CEQA Guidelines (§15124) require a description of the Proposed Project purpose and objectives.

PURPOSE

California Government Code Section 65300 requires each city and county in California to adopt a General Plan "for the physical development of the county or city, and any land outside its boundaries which…bears relation to its planning." The Ceres General Plan can be considered the city's development constitution, containing both a statement of the community's vision of its long-term development as well as the policies to support that vision by guiding the physical growth of the city. The proposed General Plan contains policies to guide decision-making related to development, housing, transportation, environmental quality, public services, parks, and open spaces. The proposed General Plan is a document to be adopted by the City Council that serves the following purposes:

- Establish a long-range vision that reflects the aspirations of the community and outlines steps to achieve this vision;
- Establish long-range development policies that will guide City departments, Planning Commission, and City Council decision-making;
- Provide a basis for judging whether specific development proposals and public projects are in harmony with plan policies;
- Plan in a manner that meets future land needs based on the projected population and job growth;
- Allow City departments, other public agencies, and private developers to design projects that will enhance the character of the community, preserve environmental resources, and minimize hazards; and
- Provide the basis for establishing and setting priorities for detailed plans and implementing programs, such as the zoning ordinance, subdivision regulations, specific and master plans, and the Capital Improvement Program.

Due to the general and long-range nature of the proposed General Plan, there will be instances where more detailed studies will be necessary in order to implement the Plan's policies.

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

OBJECTIVES

The Proposed Project's objective is to update the current City of Ceres General Plan, which dates to 1997, to reflect current conditions and community priorities, and to achieve the community's vision for the future. The community's collective vision, which informs and drives the goals and actions of the proposed General Plan, is expressed in the following statement, formulated based on an extensive public outreach program:

> *"In 2035, Ceres has a continued connection to its agricultural heritage, a balance of housing and retail choices, ample job opportunities, an attractive Downtown, rich cultural and community events and an abundance of recreational opportunities. Ceres is a place where families want to raise their children and businesses want to locate and flourish. In Ceres, people enjoy a safe and healthy city with first-rate community amenities and a clean and sustainable environment."*

The vision statement is supported by 10 Guiding Principles that provide further detail on the community's desires for various aspects of the city. The Guiding Principles are as follows.

- **Neighborly Character.** Knowing that "Together We Achieve," continue to cultivate a friendly, small town feel, inclusive, and civically engaged community as the population grows and changes.
- **Safe, Family-Friendly Hometown.** Promote Ceres strong and high performing school system, and support the City's safe neighborhoods and youth activities so that Ceres continues to be a desirable place for families.
- **Agricultural Identity**. Celebrate Ceres agricultural history, support the continued success of the agricultural industry, and consider how to balance the protection of prime agricultural lands with growth and economic development objectives.
- **Health and Sustainability.** Provide well-maintained and accessible parks, street trees and landscaping, and healthy food options; and prioritize clean air, clean water, and resource conservation to help keep the community—both the people and the environment—healthy.
- **Complete Community.** Support the development of a complete and balanced community where needs can be met locally, with new commercial options, industrial growth, and a diversity of housing options that attracts new business, industry, and associated professionals.
- **Strong Downtown.** Encourage and direct public and private investment in Downtown Ceres to restore it as the physical and cultural center of the city. Enhance Downtown so it becomes vibrant, active and a place for people to assemble, dine, and socialize in a mixed-use environment.
- **Attractive Destination.** Cultivate Ceres as a unique destination in the Central Valley and for travelers on Highway 99. To the extent possible, ensure that new development visible from Highway 99 offers attractive and unique views from that travel way.

- **Economic Development.** Strengthen job opportunities with industrial and commercial growth and promote education and job training. Continue to balance provision of streamlined services and entitlements with fiscal responsibility to support the future needs of the City.
- **Revitalization.** Encourage infill development and investment within existing neighborhoods and commercial corridors in order to revitalize areas within the city limits.
- **Balanced Circulation Network.** Make it safe and convenient for residents and workers to get where they need to go and for businesses to transport goods by providing well-maintained sidewalks, connected bicycle networks, efficient connections to major transportation corridors, and regional transit connections.

2.3 Proposed General Plan

PLANNING HORIZON

The planning horizon is the period of time for which the Proposed Project looks ahead in order to comprehensively plan for the city's next major phase of growth, change, and investment. The proposed General Plan establishes a horizon year of 2035. The horizon year does not signify an end point for the policies in the document; rather, it provides the context for long-term decision-making. As planning is a continuous and dynamic process, the proposed General Plan is intended to be reviewed regularly and amended as necessary as new information becomes available and the community's priorities shift.

PLANNING PROCESS

The planning process for the Proposed Project began in October 2015 and took place over the course of the following two years. Development of the proposed General Plan required a comprehensive reexamination of Ceres' planning context and the community's vision in order to reflect the community's goals and priorities through the 2035 planning horizon. Community members were invited to participate in the planning process from the beginning, and were involved in visioning, policy development, drafting of the proposed General Plan, and scoping of the EIR. Opportunities for community participation will continue to be available through the review and certification of the EIR and adoption of the proposed General Plan. The major stages of the planning process are described below.

- **Issue Identification and Visioning.** This stage of the General Plan update process included two days of interviews with key stakeholders in Ceres, a community-wide newsletter and mail-in survey, and interactive community workshops held in both English and Spanish.
- **Existing Conditions, Opportunities, and Challenges.** This stage included technical analysis of the existing conditions of the Planning Area, such as existing land use, fiscal conditions, and public facilities and services. A second community-wide newsletter was distributed by e-mail updating the community on the survey results and key findings of the technical analysis.

- **Alternatives and Evaluation.** This stage included the development of three alternative land use plans and analysis of each based on potential development and transportation, fiscal, and infrastructure impacts. The results of the analysis were discussed at two community workshops, one in English and the other in Spanish. Based on community input and the technical analysis, the City Council chose a Preferred Alternative land use plan to form the basis of the rest of the General Plan document.
- **General Plan and EIR.** This stage of the process is the culmination of the General Plan update process, and included community workshops in English and Spanish to review proposed goals and policies, several Planning Commission and City Council study sessions on the proposed General Plan, and a public EIR scoping meeting. It will also include a public review period for both the General Plan and EIR, and public hearings for the certification of the EIR and adoption of the proposed General Plan.

Study sessions with the Planning Commission and City Council were held regularly throughout the process, providing decision-makers the opportunity to give guidance at key points during plan development. All project documents, including technical analyses, the stakeholder interview report, and community workshop summaries, are available on the project website at www.ci.ceres.ca.us.

ORGANIZATION

The proposed General Plan is organized by topic in six chapters, or elements. The Housing Element is presented under separate cover due to its State-mandated revision schedule, and is not part of the Proposed Project. Each element of the proposed General Plan includes background information to establish the context for policies in the chapter, followed by goals and policies.

Goals are an ideal future end related to the public health, safety, or general welfare of the community; they set directions for policies and implementation actions. Policies are specified ends or conditions that are an intermediate step towards attaining a goal; they are specific statements to guide decision-making. Goals and policies provide guidance for development review, infrastructure planning, community facilities and services, and protection for the city's resources, by establishing planning requirements, programs, standards, and criteria for project review. Some policies are accompanied by explanatory material, such as tables or figures. In some cases, topics are addressed across more than one related element; in these cases, sections and policies are cross-referenced. An Implementation Plan is provided at the end of the General Plan to outline specific actions to be initiated after adoption in order to implement the policies.

The contents of the proposed General Plan are as follows:

1. **Introduction.** This chapter outlines the vision for the future of Ceres, provides a basic context for the General Plan Planning Area, and covers the proposed General Plan's purpose, relationships to other plans, organization, and requirements for administration.

2. **Land Use and Community Design.** This element describes the existing land use pattern and a brief explanation of the proposed General Plan's approach to citywide growth and neighborhood form, including a discussion of the city's demographics. The goals and policies in this element provide the physical framework for land use and development in the city, including urban design policies to improve the city's visual quality and livability. In addition, this element includes discussion of the location and infrastructure needs of disadvantaged unincorporated communities in the Planning Area and policies to ensure equitable service provision. *This element is required by State law*.
3. **Transportation and Circulation.** This element includes policies, programs, and standards to maintain safe and efficient circulation for all modes of travel. It identifies future street and traffic improvements, and addresses walking, biking, transit, and parking to enable a multi-modal circulation system. *This element is required by State law*.
4. **Agricultural and Natural Resources.** This element includes background information, goals, and policies relating to agricultural and soil resources, open space resources, biological resources, water resources, air quality, and cultural resources. *An Open Space Element and a Conservation Element are required by State law*.
5. **Health and Safety**. This element explains public health concerns related to the proposed General Plan, and includes goals and policies to improve public health through environmental health, active living, healthy food, and social connections. It also assesses environmental justice concerns and includes policies to improve the health of residents of disadvantaged communities. In addition, this element contains background information, goals, and polices related to seismic and geologic hazards, flood hazards, hazardous materials and operations, airport hazards, fire hazards, and noise. *A Safety Element and a Noise Element are required by State law.*
6. **Public Facilities and Services.** This element contains background information, goals, and policies related to schools, community facilities and libraries, parks and recreation, water supply and demand, public utilities, and public safety and emergency management. *This is an optional element not required by State law*.
7. **Economic and Community Development.** This element provides an overview of the demographic context in Ceres, current and potential employment, the City's fiscal health, and other economic issues, and outlines goals and policies to support economic development. In addition, this element outlines goals and policies to support community development through Downtown revitalization, tourism, and community engagement. *This is an optional element not required by State law*.
8. **Appendix A: Implementation.** The Implementation Plan outlines specific implementation actions that will be initiated after adoption of the General Plan. The plan outlines the responsibilities of decision-makers, boards and commissions, and departments in the City of Ceres, and presents implementation actions in a matrix referencing corresponding General Plan policies, the responsible party, and timeframe for implementation.

PROPOSED LAND USE FRAMEWORK

The General Plan Land Use and Community Design Element provides the framework for land use and development in Ceres. It is based on existing land uses and adopted specific plans, as well as a focus on encouraging growth near a planned, new interchange at SR-99 and Service Road. Therefore, expected new development is a mix of both infill development in existing

neighborhoods and developed areas, as well as development on previously undeveloped agricultural or vacant land. The Proposed Project Land Use Diagram (Figure 2.3-1) shows the land use designations for all parts of the Planning Area, as envisioned for 2035.

Much of the city is already developed with low density residential uses. Additional single-family housing is proposed in the area west of Crows Landing Road in the West Landing Specific Plan area, as well as in the southeastern portion of the Planning Area. Hatch Road and Mitchell Road are proposed to continue to serve as the major commercial corridors, providing services and retail opportunities. In addition to existing industrial uses in the northern portion of the Planning Area near Modesto, along SR-99, and in the southwest portion of the city, new industrial development is proposed in the southwest portion of the Planning Area.

The General Plan proposes mixed-use development of relatively high density in Downtown Ceres, near the geographic center of the city and adjacent to SR-99, to provide a center of activity for the community. Both non-residential and residential growth is proposed in the southeast portion of the Planning Area, along SR-99. In this area, regional commercial uses, commercial recreation uses, and other retail and office uses are proposed. The General Plan would also allow for higher-density residential growth surrounding this new non-residential development. The General Plan provides for continued agricultural use in the eastern, southern, and western portions of the Planning Area.

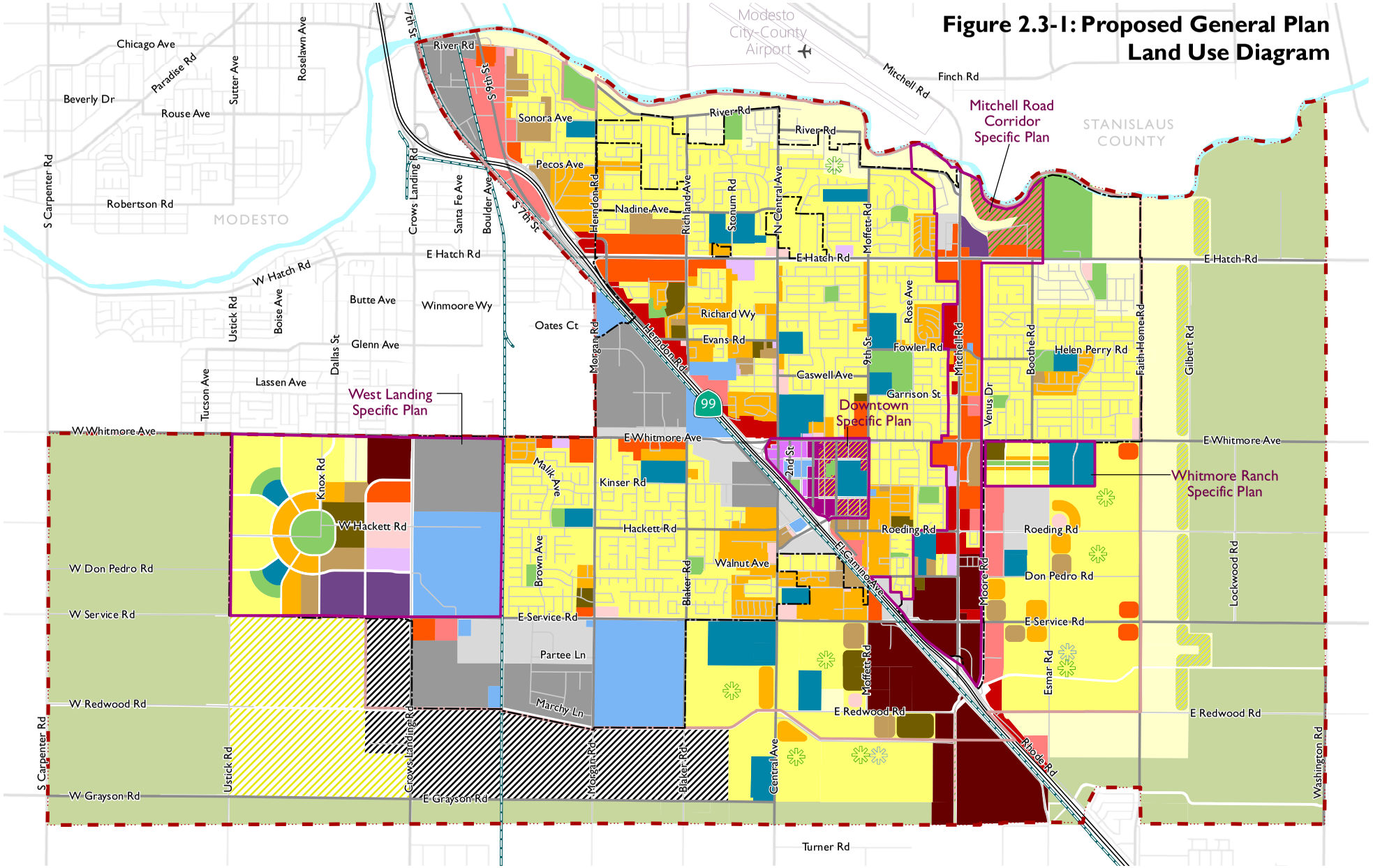
Land Use Diagram

The Land Use Diagram for the Proposed Project is shown in Figure 2.3-1: Proposed General Plan Land Use Diagram. The Land Use Diagram is a graphic representation of the proposed General Plan's land use goals and policies, and designates the proposed general location, distribution, and extent of land uses. The diagram is to be used and interpreted only in conjunction with the text and other figures contained in the proposed General Plan. Upon adoption of the proposed General Plan, the city's Zoning Ordinance would be updated as necessary for consistency with the Land Use Diagram, and therefore would regulate development in a manner consistent with the General Plan.

Density and Intensity Standards

Density and intensity standards regulate how much development is permitted on a site. For residential uses, the density standards are expressed as the number of housing units per gross acre (dwelling units/acre, or DU/A) and typical lot size. For non-residential uses, development intensity is controlled by a measure known as Floor Area Ratio (FAR), which refers to the ratio between a building's total floor area and the total area of the site. Dwelling units per acre, typical lot size, and FAR are standard measures of site intensity that are used to evaluate development during the site planning and development review process. FAR applies to the entire development on a site, inclusive of any residential component, unless otherwise noted. Table 2.3-1: Density and Intensity Standards and Acreage Totals for General Plan Land Use Designations, summarizes the density and intensity ranges for each land use designation, as well as the total acreage in each land use category as mapped on the Land Use Diagram.

Figure 2.3-1: Proposed General Plan Land Use Diagram



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2017.

Table 2.3-1: Density and Intensity Standards and Acreage Totals for General Plan Land Use Designations

General Plan Land Use Designation	*Residential Density (gross dwelling units/acre)*	*Non-Residential Intensity (FAR)*	*Acres*	*Percent of Planning Area*
Residential			**4,883**	**34.0%**
Residential Agriculture	0.2-0.5	-	123	0.9%
Very Low Density	Up to 4.5	-	919	6.4%
Low Density	Up to 7.0	-	2,964	20.6%
Medium Density	7.0 - 12.0	-	557	3.8%
Medium High Density	12.0 - 20.0	-	187	1.3%
Downtown Residential	10 - 30.0	-	27	0.2%
High Density	20.0 - 30.0	-	104	0.7%
Mixed Use			**146**	**1.0%**
Neighborhood Commercial	12.0 - 25.0	0.8	77	0.5%
Downtown Office	5.0 - 25.0	1.0	11	0.1%
Office	5.0 - 25.0	1.0	45	0.3%
Downtown Mixed Use	10.0 - 40.0	3.0	13	0.1%
Commercial			**979**	**6.8%**
Community Commercial	-	0.5	284	2.0%
Highway Commercial	-	0.5	102	0.7%
Regional Commercial	-	0.5; 3.0 in select cases	427	3.0%
Service Commercial	-	0.5	166	1.2%
Industrial			**858**	**6.0%**
General Industrial	-	0.65	538	3.7%
Business Park	-	0.3	86	0.6%
Light Industrial	-	0.5	234	1.6%
Other			**7,491**	**52.2%**
Commercial Recreation	-	0.2	55	0.4%
Community Facilities	-	-	439	3.1%
Schools	-	-	358	2.5%
Parks	-	-	246	1.7%
Residential Reserve	-	-	507	3.5%
Industrial Reserve	-	-	585	4.1%
Agriculture	-	-	3,504	24.4%
Right of Way	-	-	1,797	12.5%
Total Acres Within Planning Area			***14,357***	***100.0%***

Note: Numbers rounded to the nearest acre; totals may not sum precisely due to rounding.

Source: City of Ceres, 2017; Dyett & Bhatia, 2017.

Land Use Designations

The following land use descriptions apply to the land use designations shown with color, shade, or symbol on the Land Use Diagram. The designations are meant to be broad enough to give the City flexibility in implementing the General Plan. However, they are also meant to be clear enough to provide sufficient direction regarding the expected type and location of land uses planned in the city, as well as the relative similarities and differences between uses. The City's Zoning Ordinance contains more detailed provisions and standards. More than one zoning district may be consistent with a single General Plan land use designation.

Residential

- **Residential Agriculture (0.2 – 0.5 DU/A).** Applies to the use of land for agriculture and single family detached residences, including mobile home and manufactured homes. The typical lot size is two to five acres, and the density range is 0.2 to 0.5 units per gross acre.
- **Very Low Density (Up to 4.5 DU/A).** Applies to the use of land for single family detached residences. The typical lot size is 8,000 square feet to one acre, and the density range is up to 4.5 units per gross acre.
- **Low Density (Up to 7.0 DU/A).** Applies to the use of land for single family detached residences. The typical lot size is 5,000 to 7,000 square feet, and the density range is up to 7.0 units per gross acre.
- **Medium Density (7.0 – 12.0 DU/A).** Applies to the use of land for detached single family homes including mobile homes; attached single family homes including townhouses and zero lot lines; and multiple family residential uses including condominiums, duplexes, triplexes, and apartments. For detached single family homes, the typical lot size is 3,000 to 5,000 square feet, and the density range is 7.0 to 12.0 units per gross acre. There is no specific lot size for attached single family and multiple family residential.
- **Medium High Density (12.0 – 20.0 DU/A).** Applies to the use of land for attached single family homes including townhouses and to multiple family residential uses including condominiums, duplexes, triplexes, and apartments. The typical lot size is unspecified, and the density range is 12.0 to 20.0 units per gross acre.
- **High Density (20.0 – 30.0 DU/A).** Applies to the use of land for multiple family residential uses including condominiums, duplexes, triplexes, and apartments. The typical lot size is unspecified, and the density range is 20.0 to 30.0 units per gross acre.
- **Downtown Residential (10.0 – 30.0 DU/A).** Applies to the use of land for attached single family homes, including townhouses, and multiple family residential uses, including condominiums, duplexes, triplexes, and apartments. The density range is 10.0 to 30.0 units per gross acre.

Mixed Use

- **Neighborhood Commercial (Up to 0.8 FAR; 12.0 – 25.0 DU/A).** Applies to the use of land primarily for neighborhood retail and service uses such as supermarkets, pharmacies, and drycleaners, and other uses that generally serve nearby residential areas and carry products or offer services used by households on a regular basis. Office uses and business services are allowed provided that the overall character of the area retains its neighborhood orientation. Residential uses are also permitted above the ground floor as part of a vertical mixed-use development or at the rear of commercial uses as part of horizontal mixed use. The residential density range is 12.0 – 25.0 DU/AC, and the maximum FAR is 0.8.
- **Downtown Office (Up to 1.0 FAR; 5.0 – 25.0 DU/A).** Applies to the use of land for medical, professional, administrative, general office and limited commercial service uses such as restaurants, dry cleaners, and other similar uses that are intended to serve the employees and clientele of the office uses in the immediate surrounding areas. Residential uses are also permitted, when appropriately protected from harmful vehicle emissions from SR-99, as stand-alone residences and in conjunction with Downtown Office uses. The residential density range is 5.0 to 25.0 units per gross acre, and the maximum FAR is 1.0. Parking structures shall be excluded in calculating gross floor area.
- **Office (Up to 1.0 FAR; 5.0 – 25.0 DU/A).** Applies to the use of land primarily for medical, professional, administrative, general office, and limited commercial service including restaurants, dry cleaners, and other similar uses that are intended to serve the employees and clientele of the office uses and the immediate surrounding areas. Residential uses are permitted as stand-alone uses and in conjunction with Office uses. The residential density range is 5.0 to 25.0 units per gross acre, and the maximum FAR is 1.0, excluding parking structures.
- **Downtown Mixed Use (Up to 3.0 FAR; 10.0 – 40.0 DU/A).** Applies to the use of land for a full range of ground-floor retail and service uses, including apparel stores, restaurants, specialty shops, entertainment uses, bookstores, and similar retail. It also allows for financial services and upper-floor residential and professional office uses. Residential development as a mixed use in conjunction with nonresidential development is permitted and encouraged with ground-floor retail and upper-floor residential or professional. If appropriate, residential development may be allowed on ground floors. The residential density range is 10.0 to 40.0 units per gross acre, and the maximum FAR for nonresidential development is 3.0, excluding parking structures.

Commercial

- **Community Commercial (Up to 0.5 FAR).** Applies to the use of land for a full range of retail and service uses, including retail stores, food and drug stores, apparel stores, specialty shops, motor vehicle sales and service, home furnishings, real estate offices, restaurants, hotels/motels, and other similar uses that serve a community-wide market. The maximum FAR is 0.5.

- **Highway Commercial (Up to 0.5 FAR).** Applies to the use of land for uses designed to serve motorists traveling along State Route 99 at or near interchanges that are convenient and safe for such uses and for uses that depend on high visibility from the freeway including service stations, hotels/motels, restaurants, and other similar uses primarily oriented toward visitors and travelers. The maximum FAR is 0.5.
- **Regional Commercial (Up to 0.5 FAR, and up to 3.0 FAR in select cases).** Applies to the use of land for region-serving commercial uses, including large-scale shopping centers, wholesale "club" type stores, factory outlets, and other commercial uses including retail stores, food and drug stores, apparel stores, specialty shops, motor vehicle sales and service, home furnishings, durable goods, real estate offices, restaurants, entertainment uses, florists, hotels/motels, and other similar uses that serve a community wide and/or regional market. In addition, Business Park uses may be permitted. Where appropriate, residential uses on upper floors will be permitted by discretionary approval. The maximum FAR is 0.5. An FAR of up to 3.0 may be permitted in select cases of substantial community benefit, as long as adequate vehicular access and adequate public safety response can be provided.
- **Service Commercial (Up to 0.5 FAR).** Applies to the use of land for heavy and wholesale commercial uses that do not need highly visible locations or are suitable in locations where noise levels or other conditions may limit the suitability for other commercial uses. Service Commercial uses can serve as a buffer between the freeway and residential or retail-oriented commercial areas. Allowable uses in this designation include repair facilities, distributing uses, sales of building materials, motor vehicle sales, and storage-oriented uses. The maximum FAR is 0.5.
- **Commercial Recreation (Up to 0.2 FAR).** Applies to the use of land for publicly and privately-operated recreational uses, including golf courses, arcades, miniature golf courses, amusement parks, and sports complexes. Supporting and accessory uses such as single and multi-family dwellings, clubhouses, restaurants, specialty retail sales, and hotels and motels may be permitted by discretionary approval. The maximum FAR is 0.2.

Industrial

- **Light Industrial (Up to 0.5 FAR).** Applies to the use of land for light industrial and heavy commercial uses, including light manufacturing and fabricating, contractors' yards and offices, motor vehicle service and repair, wholesale uses, lumber yards, hardware stores, other similar industrial and heavy commercial uses, offices, and recreational uses. Incidental employee-serving retail and services may also be permitted. The maximum FAR is 0.5.
- **General Industrial (Up to 0.65 FAR).** Applies to the use of land for large-scale, extensive types of industrial/ manufacturing uses, including manufacturing, food processing, motor vehicle service and repair, contractors' yards, feed and fuel facilities, truck yards and terminals, warehousing and storage uses, wholesale uses, solid waste management and recycling facilities, construction supplies and building material facilities, and offices. Incidental employee-serving retail/service and on-site specialty retail uses may also be permitted. The maximum FAR is 0.65.

- **Business Park (Up to 0.3 FAR).** Applies to the use of land for limited industrial uses, office centers, research and development facilities, medical and institutional uses, warehousing and distributing, "back-office" uses, and other similar uses located in a low intensity, landscaped setting with high design and development standards. The maximum FAR is 0.3.

Other

- **Community Facilities.** Applies to the use of land for the city's major public and private facilities and institutional uses. Most common are public safety facilities (i.e., fire stations). The Land Use Diagram shows the specific locations of existing major community facilities. Except for sites that have been acquired, the Land Use Diagram shows only the general location of future public or institutional uses in the area where they will be needed. Selection of specific sites is the responsibility of the respective governmental agencies or private institutions serving the Ceres area. The density is unspecified.

  The designation on the Land Use Diagram of any future public or institutional site that has not been acquired shall not be construed to limit the existing or future use of the designated land in any way. The predominant land use designation surrounding any property designated for a future community facilities use shall be used to determine the potential use of the property prior to its acquisition by a governmental agency or private institution.

- **Schools.** Applies to the use of land for existing and proposed public schools. Schools are further labeled as elementary schools (ES), junior high schools (JHS), and high schools (HS). The Land Use Diagram shows the specific locations of existing schools. Except for sites that have been acquired, the General Plan Land Use Diagram shows only the general location of future schools in the areas where they may be needed. The density is unspecified.

  The designation on the General Plan Land Use Diagram of any future school site that has not been acquired shall not be construed to limit the existing or future use of the designated land in any way. The predominant land use designation surrounding any property designated for a future school shall be used to determine the potential use of the property prior to its acquisition by a public school district.

- **Parks.** Applies to the use of land for existing and proposed public parks. The Land Use Diagram shows the specific locations of existing parks. Except for sites that have been acquired, the General Plan Land Use Diagram shows only the general location of future parks in the areas where they may be needed.

  The designation of any future park site on the General Plan Land Use Diagram that has not been acquired shall not be construed to limit the existing or future use of the designated land in any way. The predominant land use designation surrounding any property designated for a future park shall be used to determine the potential use of the property prior to its acquisition by the City of Ceres.

- **Residential Reserve.** Applies to those properties within the Planning Area to be considered for development with residential uses beyond the time frame of the General Plan (2035). This land is intended to generally remain in agricultural, open space, or existing rural residential uses through the time frame of this General Plan. Limited unincorporated development consistent with County zoning of these areas is permissible; however, no substantial urban development or annexation may occur on lands designated as Residential Reserve before the General Plan is amended to specify a primary land use designation for the property. Allowable uses and densities shall include those specified under the Agriculture (A) designation, underlying County zoning, and existing rural residential uses.
- **Industrial Reserve.** Applies to those properties within the Planning Area to be considered for development with industrial uses beyond the time frame of the General Plan (2035). This land is intended to remain in agricultural, open space, or existing residential, commercial, and industrial uses through the time frame of this General Plan. Limited unincorporated development consistent with County zoning of these areas is permissible; however, no substantial urban development or annexation may occur on lands designated as Industrial Reserve before the General Plan is amended to specify a primary land use designation for the property. Allowable uses and densities shall include those specified under the Agriculture (A) designation, underlying County zoning, and existing urban uses.
- **Agriculture.** Applies to the use of land for agriculture and agriculturally-related uses with a 10-acre minimum lot size. Although territory outside of the Ceres SOI is not under the direct control of the City of Ceres, the agricultural designation of these lands is intended to express Ceres' preference that these areas remain in agricultural use and production.

Land Use Changes

The proposed Land Use Diagram is similar to the land use diagram included in the 1997 Ceres General Plan, with some changes. Changes to land use designations in the Proposed Project include the following: a new Medium High Density land use designation (allowing residential development from 12 to 20 dwelling units per acre); greater allowable density in the High Density land use designation (new allowable range of 20 to 30 dwelling units per acre); and the potential for a wider variety of allowable uses in the Regional Commercial designation (for example, business parks may be permitted). Changes from the current land use diagram in the Proposed Project include the following:

- Redesignating the area around the interchange of Service Road and Mitchell Road as Regional Commercial from its current designation of Business Park and Commercial Recreation
- Changing the designation of two parcels near the intersection of Roeding Road and Moore Road from Low Density Residential to Light Industrial;
- Changing the designation of three parcels on the north side of the intersection between Hatch Road and Boothe Road from Business Park to Community Commercial;

- Changing the designation of one parcel on the northeast side of the intersection of Service Road and Central Avenue from Medium Density Residential to Neighborhood Commercial; and
- Changing the designation of one parcel in the southeast of the Planning Area from Agriculture to Regional Commercial.

BUILDOUT UNDER THE PROPOSED PROJECT

Buildout refers to the estimated amount of new development and corresponding growth in population and employment that is likely to take place under the proposed General Plan through the horizon year of 2035. Buildout estimates should not be considered a prediction for growth, as the actual amount of development that will occur through 2035 is based on many factors outside of the City's control, including changes in regional real estate and labor markets and the decisions of individual property owners. Therefore, buildout estimates represent potentialities rather than definitive figures. Additionally, the designation of a site for a specific land use in the proposed General Plan does not guarantee that a site will be developed or redeveloped with that use or at the assumed density during the planning period, as future development will rely primarily on each property owner's initiative. Outside of city limits, though the City of Ceres has the purview to plan for areas within its SOI, lands remain under the development control of Stanislaus County unless annexed. The Stanislaus County General Plan requires that development within a city's SOI must be approved by that city (Policy 26 of the 2015 Stanislaus County General Plan Land Use Element).

For this EIR, buildout projections do not include the total amount of potential development that could be accommodated by the Proposed Project. Rather, the buildout assumes that only a portion of the total potential development will occur by 2035, as described below.

Methodology

Buildout is calculated by summing existing development and an estimated amount of potential new development in the Planning Area. New development is generally expected to occur on vacant and "underutilized" sites of greater than 8,000 square feet; current development projects; parcels identified in the 2015 Housing Element's vacant site inventory; and agricultural or agricultural residential sites within the Ceres SOI.

For this analysis, all parcels identified as "vacant" by the Stanislaus County Assessor, most of which are cleared and not currently being used, are considered vacant sites. In addition, the County Assessor's data was used to preliminarily identify underutilized land by identifying parcels with a low assessed value ratio, or AV ratio. AV ratio is defined here as the ratio of the value of existing permanent improvements (i.e. buildings) to the value of the land. A parcel is considered to be underutilized where this ratio is less than one. A ratio of less than 0.5 indicates even greater potential. In other words, where the value of the land is worth substantially more than the value of the structure on it, a site may be a candidate for redevelopment.

To estimate buildout for the planning horizon, assumptions were made about the density of development in each proposed land use designation, as well as the percentage of parcels that would actually develop depending on location and land use designation. Not all parcels identified

as vacant or underutilized were assumed to fully develop by the planning horizon year of 2035. The density of development is generally assumed to be the average of the maximum and minimum allowable density. This analysis generally assumes that a higher percentage of land inside the current city limits would develop rather than land outside of the city limits or outside of the current SOI. In addition, it was assumed that residential opportunity sites would have a higher rate of development than commercial, office, and industrial sites. For example, it was assumed that all of the residential opportunity sites within the city limits would develop, while 60 percent of the opportunity sites designated for regional commercial and industrial uses in the unincorporated areas within the SOI would develop, 10 percent of the industrial reserve, and none of the residential reserve is assumed to develop by 2035.

Residential Buildout

Table 2.3-2: Projected Residential Units at Buildout (2035), describes potential residential development resulting from application of land uses shown on the proposed General Plan Land Use Diagram, according to analysis undertaken for the proposed General Plan.

Table 2.3-2: Projected Residential Units at Buildout (2035)[1]

	Ceres			*Unincorporated County*			*Planning Area Total*		
	SFR[2]	*MFR[3]*	*Total*	*SFR*	*MFR*	*Total*	*SFR*	*MFR*	*Total*
Existing (2015)[4]	11,200	2,600	13,800	2,000	400	2,400	13,100	3,000	16,200
Future Development	2,400	1,300	3,700	2,500	1,000	3,500	4,900	2,300	7,200
Total at Buildout	**13,600**	**3,900**	**17,500**	**4,500**	**1,400**	**5,900**	**18,100**	**5,400**	**23,400**

Notes:

1. Numbers have been rounded to the nearest hundred.
2. SFR = Single-Family Residential
3. MFR = Multi-Family Residential
4. Existing residential units within the city of Ceres is from the California Department of Finance, January 2015 estimate; and existing residential units within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and unit type assumptions.

Sources: CA Department of Finance, 2015; Dyett & Bhatia, 2017.

Projected Buildout Population

The buildout population takes into consideration the population in 2015, as well as the new housing units projected in the Planning Area. The population projection assumes 3.3 persons per housing unit in the Planning Area, which was calculated using population and total housing unit estimates from the 2010-2014 American Community Survey 5-Year Estimates. Table 2.3-3: Projected Population at Buildout (2035), describes the projected population at buildout of the proposed General Plan.

Table 2.3-3: Projected Population at Buildout (2035)[1]

	Ceres	*Unincorporated County*	*Planning Area Total*
Existing (2015)[2]	47,000	8,000	55,000
Future Development[3]	12,000	12,000	24,000
Total at Buildout	**59,000**	**20,000**	**79,000**

Notes:

1. Numbers have been rounded to the nearest thousand.
2. Existing population within the city of Ceres is from the California Department of Finance, January 2015 estimate; and existing population within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and an assumption of 3.3 persons per housing unit.
3. Future population was calculated assuming 3.3 persons per housing unit.

Sources: CA Department of Finance, 2015; Dyett & Bhatia, 2017.

Non-Residential Buildout

Non-residential development potential was calculated by multiplying parcel acreage by floor area ratio (FAR) allowances from proposed General Plan land use designations, and converting this figure to square footage. The total number of future jobs was calculated based on jobs-per-square-foot assumptions for commercial, industrial, and public jobs. The total number of future jobs was added to the total number of existing jobs (as of 2015). Table 2.3-4: Projected Non-Residential Buildout and Jobs (2035), describes projected non-residential development in terms of square feet and potential jobs.

Table 2.3-4: Projected Non-Residential Buildout and Jobs (2035)[1]

	Ceres		*Unincorporated County*		*Planning Area Total*	
	Developed Square Feet	*Jobs*	*Developed Square Feet*	*Jobs*	*Developed Square Feet*	*Jobs*
Existing (2015)[2, 3]	8,500,000	8,700	3,600,000	1,300	12,100,000	10,000
Total Future Development	8,800,000	13,400	5,100,000	7,400	13,900,000	20,800
Commercial (including Office)	*5,300,000*	*9,800*	*2,800,000*	*4,200*	*8,100,000*	*14,100*
Industrial	*3,000,000*	*2,500*	*1,500,000*	*1,400*	*4,400,000*	*4,000*
Public/ Institutional	*500,000*	*1,100*	*800,000*	*1,700*	*1,400,000*	*2,700*
Total at Buildout	17,300,000	22,100	8,700,000	8,700	26,000,000	30,800

Notes:

1. Development numbers are rounded to the nearest hundred thousand, and job numbers are rounded to the nearest hundred.
2. Existing development within the city of Ceres is from Economic & Planning Systems, Inc, 2016; and existing development within the unincorporated County is derived from Stanislaus County Assessor's data from 2014
3. Existing jobs within the city of Ceres is from the 2015 Q2 California Employment Development Department; and existing jobs within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and job density assumptions.

Sources: Economic & Planning Systems, Inc, 2016; Employment Development Department, 2015; Dyett & Bhatia, 2017.

POLICY GOALS

A summary of the goals of the proposed General Plan elements are presented in this section. Policies and implementation actions to achieve the goals are incorporated by reference into this project description and analyzed in this EIR.

Land Use and Community Design Element

The goals in this element implement and complement the proposed land use framework described above. Some of the goals are over-arching and guide other goals and policies of the proposed General Plan. These goals include improving quality of life for Ceres residents; enhancing the existing aspects of Ceres that residents love; fostering a distinctive identity for the city; supporting Downtown Ceres as the heart of the city; promoting infill; balancing the different function of streets as public spaces, potential commercial corridors, and thoroughfares; and ensuring equitable land use planning and public services. This element also includes goals related to different land uses, ensuring high quality urban design, and minimizing impacts on the environment.

Transportation and Circulation Element

The main goal of this element is to ensure the safe and efficient movement of people and goods through a variety of travel modes. Other goals include protecting residential areas from high-volume and high-speed traffic, providing a sufficient amount of parking, and ensuring a financially sustainable transportation system.

Agriculture and Natural Resources Element

Goals in this element aim to protect agricultural production, Ceres' agricultural heritage, open space lands, and natural resources, including biological and hydrological resources and air quality. In addition, this element includes goals to preserve the city's cultural resources, including historic, archaeological, and paleontological resources.

Health and Safety Element

The goals in this element include promoting public health with a focus on residents with the greatest vulnerability to health risks. Policies aim to promote public health through encouraging active lifestyles, improving access to healthy food options, and promoting social cohesion. This element also includes goals related to climate change, including reducing greenhouse gas emissions and increasing the community's resiliency and adaptive capacity for climate change impacts. Goals related to public safety include minimizing the threat of seismic and geologic hazards, flood hazards, hazardous materials, airport hazards, and fires. This element also includes goals to protect Ceres from harmful and annoying noise levels.

Public Facilities and Services Element

Goals in this element aim to provide sufficient school facilities, community facilities and libraries, and park and recreation facilities. This element also includes goals related to ensuring a safe and reliable potable water supply and delivery system, wastewater collection and treatment system, waste disposal systems, and other utility systems, and to reduce the burden on existing stormwater facilities. Goals in this element also aim to provide adequate police and fire services.

Economic and Community Development Element

The main goal in this element is to support economic growth that capitalizes on the city's location and benefits existing residents and businesses. More specific goals include attracting new and retaining existing businesses and partnering with other institutions, organizations, and agencies. Another goal is to achieve fiscal sustainability while providing public services and facilities. This element also includes goals related to celebrating Ceres' heritage, encouraging civic pride, promoting tourism, attracting investment to Downtown Ceres, and engaging the community in public decisions.

POLICY AND REGULATORY IMPLEMENTATION

The City would use a variety of regulatory mechanisms and administrative procedures to implement the Proposed Project. Under California law, Ceres is required to ensure that its Zoning Ordinance is consistent with the General Plan. In fact, the consistency requirement is the

keystone of General Plan implementation. Without a consistency requirement, there is no assurance that proposed General Plan policies broadly related to land use would be implemented.

Zoning Ordinance

The City's Zoning Ordinance translates General Plan policies into specific use regulations, development standards, and performance criteria that govern development on individual properties. The General Plan establishes the policy framework, while the Zoning Ordinance prescribes standards, rules, and procedures for development. The Zoning Map provides more detail regarding the desired location of specific uses than the General Plan Land Use Diagram. The proposed General Plan provides for the adoption of new or revised ordinances pertaining to the proposed land use designations; accessory dwelling units; development incentives to encourage affordable, special needs, and senior housing; highway-oriented commercial signage; bicycle parking; the Stanislaus County Right-to-Farm Ordinance; special event noise; a historic overlay zone; and parking requirements.

Specific Plans

The proposed General Plan states that existing specific plans, including the Downtown Specific Plan and Mitchell Road Corridor Specific Plan, would need to be updated to reflect land use and other policy changes that are part of the Proposed Project.

Other Plans and Regulatory Items

Other plans and regulatory items specified in the proposed General Plan that will require updates to comply with the proposed General Plan include the Public Facility Fee Program, Engineering Improvement Standards, Water Efficient Guidelines and Standards, Parks and Recreation Master Plan, Urban Water Management Program, Sewer System Master Plan, and Storm Drainage Master Plan. In addition, the Proposed Project calls for the development or potential development of several plans and regulatory items as follows:

- Street Tree Master Plan
- Design guidelines for residential development and agricultural buffers
- Transportation Impact Study Guidelines including vehicle miles traveled significance threshold for CEQA analysis
- Neighborhood Transportation Management Program
- Short Range Transit Plans
- Active Transportation Plan
- Downtown Ceres Marketing Strategy
- Planting requirements and species guidelines

3 Environmental Settings and Impacts

Overview

Sections 3.1 through 3.15 analyze the potential environmental impacts that may occur as a result of implementation of the Proposed Project. The environmental issues subject to detailed analysis in the following sections include those that were identified by the City as potentially significant in response to the NOP. There are 14 environmental issues addressed in the following sections, as well as a brief discussion of additional impacts that were determined to be not potentially significant. The environmental topics addressed are as follows:

3.1 Aesthetics
3.2 Agricultural Resources
3.3 Air Quality
3.4 Biological Resources
3.5 Energy, Greenhouse Gases, and Climate Change
3.6 Geology, Soils, and Seismicity
3.7 Hazards and Hazardous Materials
3.8 Historic and Cultural Resources
3.9 Hydrology and Water Quality
3.10 Land Use, Population, and Housing
3.11 Noise
3.12 Public Services and Recreation
3.13 Transportation
3.14 Utilities
3.15 Impacts Not Potentially Significant

These assessments do not satisfy the need for project-level CEQA analysis for individual projects. Individual projects under the Proposed Project will require project-level analysis at the time they are proposed based on the details of those projects and the existing conditions at the time such projects are pursued.

Impacts Considered

According to the CEQA Guidelines, the following general types of environmental impacts must be considered in this program EIR:

- **Direct or primary impacts,** which are caused by the project and occur at the same time and place as the project.
- **Indirect or secondary impacts,** which are caused by the project and occur later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate, and related impacts on air and water and other natural systems, including ecosystems. Indirect or secondary impacts may also include cumulative impacts.
- **Short-term impacts,** which are those of a limited duration, such as the impacts that would occur during the construction phase of a project.
- **Long-term impacts,** which are those of greater duration, including those that would endure for the life of a project and beyond.
- **Significant unavoidable impacts,** which cannot be mitigated to a level that is less than significant.
- **Irreversible environmental changes,** which may include current or future irretrievable commitments to using non-renewable resources, or growth-inducing impacts that commit future generations to similar irretrievable commitments of resources. Such changes are addressed in Chapter 5: CEQA Required Conclusions.
- **Cumulative impacts,** which include two or more individual impacts that when considered together are considerable or which compound or increase other adverse environmental effects. The individual impacts may be changes resulting from a single project or a program of projects. The cumulative effect from several projects is the change in the environment that results from the incremental effect of the Proposed Project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time. Cumulative impacts are addressed in Chapter 5: CEQA Required Conclusions.

Organization

Each section is formatted to include a summary of existing conditions, including regulatory context; the criteria for determination of significance for each impact; evaluation of potential project impacts; a mitigation framework, if applicable; and a conclusion of significance after mitigation for impacts identified as significant.

The goals, policies, and implementation programs of the proposed General Plan reduce some impacts of the Proposed Project, and cases in which existing and proposed policies and regulations reduce the impacts to a less-than-significant level are documented.

Physical Setting

This subsection provides relevant information about the existing physical environment related to the particular environmental topic. In accordance with Section 15125 of the CEQA Guidelines, the discussion of the physical environment describes existing conditions within the Planning Area at the time the NOP was filed on May 24, 2017, unless otherwise noted.

Regulatory Setting

This subsection describes federal, State, regional, and local plans, policies, regulations, and laws that may apply to the environmental topic under evaluation.

Impact Analysis

This subsection focuses on an analysis of the potential environmental impacts of the Proposed Project described in Chapter 2, "Project Description," of this EIR. All potential direct and indirect impacts in Chapter 3 are evaluated in relation to applicable City, State, and federal standards. Thresholds of significance based on Appendix G of the CEQA Guidelines are used to identify the potential environmental impacts of the Proposed Project; the methods used to conduct the impact analysis are summarized; and the impacts analyzed in the respective sub-section are summarized. Following this is a more in-depth analysis of the potential environmental impacts, divided by impact significance criterion, presented in the following format:

Impact 3.X-X **The impact statement briefly summarizes the findings of the impact discussion based on the identified threshold of significance. The level of significance is included at the end of the impact statement. Levels of significance listed in this EIR (as described below) are *no impact, less than significant,* or *significant and unavoidable*.)**

The impact discussion is contained in the paragraphs following the impact statement. The analysis compares implementation of the Proposed Project to existing conditions. In addition, the effects of policies in the Proposed Project that will reduce the impacts are discussed.

Proposed General Plan Policies that Would Reduce the Impact

If applicable, relevant proposed General Plan policies that would reduce the impact are summarized.

Mitigation Measures

If the impact is found to be less than significant, no mitigation measures are required. Where no mitigation measures have been identified that could reduce an impact to less than significant, the reason is stated and no mitigation measures are listed.

Determining Level of Significance

For each potential environmental impact identified in this EIR, a statement of the level of significance of the impact is provided. Impacts are assessed as one of the following categories:

The term "no impact" is used when the environmental resource being discussed would not be adversely affected by implementation of the Proposed Project. It means no change from existing conditions. This impact level does not need mitigation.

A "less-than-significant impact" would cause a minor change in the physical environment but the impact would not meet or exceed the significance threshold. This impact level does not require mitigation, even if feasible, under CEQA.

A "significant and unavoidable impact" would cause a substantial adverse effect on the environment, and no known feasible mitigation measures are available to reduce the impact to a less-than-significant level. Under CEQA, a project with significant and unavoidable impacts may be approved, but the lead agency (in this case, the City) must prepare a "statement of overriding considerations" in accordance with Section 15093 of the CEQA Guidelines, explaining how the benefits of the project outweigh the potential for significant impacts.

3.1 Aesthetics

This section assesses potential local and regional impacts on aesthetics from future development under the Proposed Project, including those related to scenic vistas, visual character, and light and glare. The section provides context regarding the Planning Area's existing visual character and scenic resources, as well as relevant federal, State, and local regulations and programs. There were no responses to the NOP regarding topics addressed in this section of the EIR.

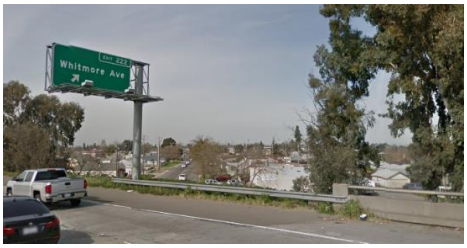
Environmental Setting

PHYSICAL SETTING

Visual Character Overview

Ceres is located in the San Joaquin Valley, among flat, agricultural land. The Tuolumne River defines the northern boundary of both the City of Ceres and the Planning Area, delineating the border between Modesto and Ceres. Agricultural lands surround the Planning Area to the east, south, and west, although there is some developed land outside of the southeast portion of the city limits. The eastern, southern, and western edges of development in the city are relatively well defined, with areas developed with residential neighborhoods or community facilities adjacent to agricultural uses.

Like many other cities in the San Joaquin Valley, Ceres is bisected by State Route 99 (SR 99). Therefore, all of Ceres has close proximity to SR 99, and many visitors are introduced to Ceres from the freeway. Because development in the Planning Area is predominantly low-rise and changes in the elevation of the highway are minor, the views from SR 99 through the city are characterized by the tree buffer along the railroad and facades of directly adjacent development. South of Service Road, the western side of SR 99 provides views of orchards through the agricultural portion of the Planning Area.



View from SR 99

The city is generally composed of large square areas of development of about a square-mile or 640 acres in size that are lined by transportation arterials running north/south or east/west, such as Hatch Road, Mitchell Road, Central Avenue, Service Road, Morgan Road and Whitmore Avenue. These areas are further divided into quadrants of about 40 acres. Within these blocks, the development is relatively compact. For example, in 2014, there were more residents per square mile in Ceres than in Sacramento or Modesto (2010-2014 American Community Survey 5-Year Estimates, 2014).

Downtown Ceres represents the earliest urban development in Ceres and retains its traditional street grid pattern with small, rectangular blocks. In exception, there is one relatively large block mostly occupied by Argus High School and other Ceres Unified School District buildings. Downtown blocks are 260 feet by 480 feet, although many are bisected by north/south alleyways 20 feet in width, resulting in two smaller blocks of 120 feet by 480 feet. Almost all of the streets extend through the area, resulting in a high number of intersections and entries. Three of the main intersections have landscaped roundabouts that help define the district. However, in the summer of 2017 the City began a project along 4th Street in Downtown that would remove two of these roundabouts and replace them with pedestrian oriented crossings and stop sign-controlled intersections. Downtown includes a mix of older and new civic buildings including the Ceres Community Center; pedestrian-oriented commercial uses along 4th Street and 3rd Street; single family homes; and the Ceres-Whitmore Park.

Downtown street view

To the north and east of Downtown, there are older residential neighborhoods with either traditional street grid patterns or a blending of the traditional urban grid with a curvilinear street pattern more typical of the post-war period. In these neighborhoods, single-story bungalow houses are common. Newer neighborhoods farther from Downtown and on the west side of SR-99 have more curvilinear street patterns, and two-story single-family homes are common.

Older bungalow developments

Newer residential development

Most of the land in the Planning Area outside of the city limits is agricultural. There is very low density residential development interspersed with farmland in the southeast portion of the Sphere of Influence (SOI).

Residential development in agricultural area

Scenic Resources and Vistas

The Planning Area's topography is almost completely level, providing no natural raised vistas of its surroundings. Because the city has maintained its status as a stand-alone urban area surrounded by agricultural uses, farms with row crops and orchards are visible from ground level around the circumference of the urbanized city and from all areas in the unincorporated County land within the Planning Area. On clear days, the Sierra Nevada mountain range is visible to the east, and Mount Diablo and the surrounding foothills are visible to the west.

Agricultural vista from Faith Home Rd. (top left), Service Rd. (top right), and Ustick Rd. (bottom)

The open space in the Planning Area consists primarily of passive recreation areas in public parks, which serve both recreational and some conservation purposes; the agricultural land surrounding the city and the Planning Area; and the Tuolumne River. Although the Tuolumne River defines the northern boundary of the Planning Area, there is limited access to the river and its banks. Therefore, views of the river are limited. There are no State or County Scenic Highways in the vicinity of the Planning Area (Caltrans, 2011).

Community Character

With its residential neighborhoods, traditional Downtown street grid, and agricultural surroundings, Ceres's community character reflects that of the Central Valley more generally. Retail signs in Spanish are common, reflecting the population, almost half of which speaks Spanish at home (ACS, 2015). Most of the city is residential with single-story or two-story single-family homes. Downtown Ceres has limited commercial activity, but serves an important role in the current lives of residents as the site of several municipal buildings, as well as in the memory of residents as the center of commercial and civic activity—some residents remember being able to meet all one's needs within the Downtown, including shopping for groceries and new clothes. With the reconstruction of 4th Street, the City is investing to increase day time and nighttime activities, via a mix of restaurant and other uses to provide amenities that Ceres does not have.

Light and Glare

Light and glare sources within the Planning Area are primarily associated with residential, commercial, and industrial land uses. Street lights are provided at greatest frequency along major streets, such as Hatch Road and Mitchell Road. In commercial and industrial areas, signage and cars in parking lots may produce light. The light and glare that exist in developed areas of the city are typical for an urban setting.

REGULATORY SETTING

Federal Regulations

There are no relevant federal laws, policies, plans, or programs that apply to the Proposed Project.

State Regulations

California Scenic Highways Program

Recognizing the value of scenic areas and the value of views from roads in such areas, the California State Legislature established the California Scenic Highway Program in 1963. This legislation sees scenic highways as "a vital part of the all-encompassing effort…to protect and enhance California's beauty, amenity and quality of life" (State of California, 1965). Under this program, a number of State highways have been designated as eligible for inclusion as scenic routes. An eligible highway may change to an officially designated highway when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation for scenic highway approval, and receives notification from the California Department of Transportation (Caltrans) that the highway has been designated as a Scenic Highway. Only one highway section in Stanislaus County is listed as a Designated Scenic Highway by the Caltrans Scenic Highway Mapping System, the segment of Interstate 5 (I-5) from the San Joaquin to Merced County lines. Views from this route are primarily agricultural with distant views of the Coast Range. The City of Ceres is not visible from this roadway segment. There are no Eligible State Scenic Highways in Stanislaus County (California Department of Transportation, 2011).

Local Regulations

Stanislaus County General Plan

The County General Plan applies to the unincorporated County land within the Planning Area, including much of the agricultural land that provides scenic vistas within the Planning Area. The Conservation/Open Space Element of the Stanislaus County General Plan aims to conserve and manage natural resources and preserve open space lands in the county. Goals and policies relevant to aesthetics in the Planning Area include:

- **Goal 3.** Provide for the long-term conservation and use of agricultural lands.
- **Policy 10.** Discourage the division of land which forces the premature cessation of agricultural uses.

The Agricultural Element of the Stanislaus County General Plan aims to promote and protect local agriculture. Goals and policies related to aesthetics in the Planning Area include:

- **Goal 2.** Conserve our agricultural lands for agricultural uses.
- **Policy 2.4.** To reduce development pressures on agricultural lands, higher density development and in-filling shall be encouraged.
- **Policy 2.7.** Proposed amendments to the General Plan Diagram (map) that would allow the conversion of agricultural land to non-agricultural uses shall be approved if they are consistent with the County's conversion criteria.
- **Policy 2.10.** Minimum parcel sizes allowed for lands designated Agriculture shall not promote the expansion of existing, or creation of new, ranchette areas.
- **Policy 2.11.** The County recognizes the desire of cities and unincorporated communities to grow and prosper and shall not oppose reasonable requests consistent with city and county agreements to expand, provided the resulting growth minimizes impacts to adjacent agricultural land.
- **Policy 2.13.** In recognition that unincorporated land within spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities ultimately will be urbanized, the County shall cooperate with cities and unincorporated communities in managing development in sphere of influence areas.

Stanislaus County Code

Zoning Ordinance

Section 21.08.070 Signs within the General Provisions chapter defers to local municipalities' sign regulations when signs are erected within jurisdictional spheres of influence: "Within the adopted sphere of influence of any city where a use or sign is permitted by the regulations of the zoning district in which it is located, or when a use permit, rezoning or other approval has been granted, any signs to be installed in connection with such use shall be permitted, consistent with any applicable sign regulations of that city."

Chapter 21.20 General Agriculture District (A-2) establishes the General Agriculture District (A-2), the intent of which is to "support and enhance agriculture as the predominant land use in the

unincorporated areas of the county" and "ensure that all land uses are compatible with agriculture and open space, including natural resources management, outdoor recreation and enjoyment of scenic beauty." The vast majority of unincorporated county land within the Sphere of Influence (SOI), outside of the SOI within the Planning Area, and surrounding the Planning Areas to the east, south, and west is zoned A-2.

Subdivision Ordinance

Chapter 20.52 Design Standards establishes design standards for subdivisions, including maximum block lengths, and minimum lot width and depth.

Section 20.56.200 Signs establishes the following regulations for signs within subdivisions:

- "Warning signs shall conform to the uniform signing code of the state and shall be installed by the subdivider at all locations specified by the director.
- "Street barricades, when required by the director, shall conform to county standards.
- "Street names signs shall be installed at all intersections and shall conform to the standards of the adjacent city or to that required by the director. The location of all signs shall be first approved by the director."

City of Ceres Small Lot Design Guidelines

The Ceres Small Lot Design Guidelines were adopted in 2007 to provide a clear set of design policies and expedite the planning review process. The Design Guidelines apply to single-family detached residential development on lots of 4,999 square feet or less, which can only occur in Planned Community Zones. Small-lot housing is often more affordable than larger-lot development and easier to maintain. The objectives of the guidelines include, but are not limited to: "providing for small-lot single-family projects that feature a variety of lot types, home sizes, housing types, designs and building materials;" "small lot single-family developments that include interconnected, short blocks that diffuse traffic and provide easy, direct routes for pedestrians, bicyclists, and drivers around the neighborhood;" and "small-lot single-family developments that emphasize pedestrian-oriented streetscapes, not dominated by garages and including street systems designed for pedestrians and bicyclists as well as for automobile use."

City of Ceres Specific Plans

Ceres Downtown Specific Plan

The Ceres Downtown Specific Plan was adopted in 2011 and outlines the following vision for Downtown:

> "Downtown will once again become the vibrant heart of the City of Ceres, as this area was during Ceres' beginning…Downtown will be the go-to location for local residents wishing to take in a movie, entertain visitors, host an event or socialize with their neighbors."

The seven goals of the Downtown Specific Plan are:

1. A Sustainable Downtown
2. An Economically Viable Downtown
3. An Historic Downtown
4. A Diverse and Unique Downtown
5. A Celebrated and Vibrant Downtown
6. A Multi-Modal Downtown
7. A Safe Downtown

The Downtown Specific Plan includes an Urban Design Framework, including distinctive north-south streets, green infrastructure, east-west connections, and gateways and wayfinding. Based on this framework, the Downtown Specific Plan includes a Conceptual Illustrative Plan, with mixed use development along Fourth Street, a Fourth Street Cinema, an expanded Civic Center, commercial development near a SR-99 gateway, new office development, new green space and residential development at the Whitmore Mansion, and street improvements. To support this vision, the Downtown Specific Plan establishes policies, including the following:

- **Land Use and Community Design**
  - **Policy LUD 4.** Encourage residential development that respects the historic resources of Fifth Street.
  - **Policy LUD 9.** Ensure that new development engages the street by being built to or along parcel lines when not in conflict with a Public Utility Easement and by ensuring architecture that provides visual interest and transparency. To the extent feasible, new development should provide amenities on the street that can be accessed by the public, such as small plazas, benches or landscaping.
  - **Policy LUD 12.** Encourage development to include special architectural features at prominent corners, such as the intersections of Fourth Street and El Camino Avenue, Fourth Street and North Street, and Fourth Street and Whitmore Avenue. Special architectural features should consist of a vertical tower element including colors and finishes, a diagonal wall or "chamfer" facing the corner, a dedicated public space at the corner, or a combination of any of these.
  - **Policy LUD 14.** Ensure that new retail and residential development respect adjacent residential development, particularly single-family homes exhibiting architectural integrity.

- **Transportation and Circulation**
  - **Policy TRAN 7.** Ensure special landscape features in the right-of-way on Fifth Street as properties redevelop. For example, the street could shift at certain locations to accentuate key properties and to help highlight the overall historic character of the street.

- **Preservation**
  - **Policy PRES 1.** Preserve and enhance the Whitmore Home on Fifth Street by ensuring that new development does not prevent views to the structure.
  - **Policy PRES 2.** Work with owners of the Whitmore Mansion property to renovate the Mansion grounds to become a key open space in Downtown. Renovation of the grounds might include alterations or removal of surrounding fencing, creative landscaping, or the addition of intermittent entrances, all of which are intended to provide a new Downtown open space and enhance the visibility of the Whitmore Mansion.
  - **Policy PRES 3.** Enhance the Ceres Water Tower by considering the development of a small neighborhood park near the structure to celebrate this structure.
  - **Policy PRES 4.** Require architectural assessment of potentially historic structures prior to redevelopment or demolition that may impact them.
  - **Policy PRES 5.** Where appropriate, ensure that new development protects and respects important historic properties within the Specific Plan Area through design features, setbacks, and other development features, as well as through the implementation of Development Standards and design guidance in Chapter Seven and Appendix A of this Specific Plan.
  - **Policy PRES 6.** Require developers to provide an assessment of historical, geological, archaeological and paleontological resources on or adjacent to a project site prior to construction for all projects involving sub-grade disturbance or excavation.

The Downtown Specific Plan also establishes land use designations and development standards that specify density, floor area ratio (FAR), height, setbacks, parking, landscaping, and access.

Eastgate Planned Community Master Plan

The Master Plan for the Eastgate Community was adopted in 2000 and revised in 2004 based on the City's acquisition of adjacent parkland. The Eastgate Master Plan included annexation of 377 acres in the Ceres's Phase 1 Urban Growth Area and a projection of 1,539 new housing units, with a goal of creating a "unique and innovative community design" around an existing elementary school. The Eastgate Master Plan also included land use designations and development standards, including minimum lot standards, setbacks, parking, landscaping, and architecture standards. The area is almost completely developed.

Mitchell Road Corridor Specific Plan

The Mitchell Road Corridor Specific Plan covers approximately 450 acres along two and a half miles of Mitchell Road. The plan is intended to guide development to produce an urban corridor that integrates industrial, commercial, and residential uses. The plan emphasizes large-scale commercial development in the southern portion of the specific plan area near SR-99; a mix of local-serving uses in the central portion; and a mix of recreational, residential, and other uses in the area north of Hatch Road near the Tuolumne River. Accompanying the plan are design guidelines that cover site planning, architecture, circulation, open space, and other aspects of physical planning and design.

West Landing Specific Plan

The West Landing Specific Plan encompasses about 960 acres of land. Although the land was annexed in 2012, most of the West Landing Specific Plan area has not yet been developed, with the exception of Stanislaus County facilities, including the Public Safety Center, County Sheriff/Detention Center (Jail), Community Services Agency, Animal Shelter, and Agricultural Center. The goal of the West Landing Specific Plan is to "create a vibrant, livable community that will function as a series of neighborhoods and maintain the small town character of Ceres," and the vision includes two elementary schools, a mixed-use and compact development pattern, and a diversity of housing choices. The West Landing Specific Plan would permit the development of up to about 1,992 single family homes; 1,667 multi-family homes; 171 acres of new commercial, office, and business park uses; 47 acres of parks; and two elementary schools on 16 acres.

The West Landing Specific Plan includes Design Guidelines, establishing the vision and regulations of the residential, commercial, and business park architecture in the area. The Design Guidelines address site design and architecture, including placement and orientation, public spaces and pedestrian amenities, and style and design details.

Whitmore Ranch Specific Plan (WRSP)

Development of the Whitmore Ranch Specific Plan (WRSP) was initiated in 2016 and, as of publication of this Draft EIR, is in the Public Review Draft phase. The plan covers approximately 94 acres located south of Whitmore Avenue and east of Moore Road. Sixty acres of the WRSP area is planned for future residential development, and approximately 40 acres includes two developed school sites: La Rosa Elementary School and Cesar Chavez Junior High School.

City of Ceres Municipal Code

Chapter 15.14 California Green Building Standards Code

The City of Ceres has adopted the 2013 California Green Building Standards Code (California Code of Regulations, Title 24, Park 11) as Chapter 15.14 of the Municipal Code. The purpose of the California Green Building Standards Code (CALGreen) is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories:

- Planning and design,
- Energy efficiency,
- Water efficiency and conservation,
- Material conservation and resources efficiency,
- Environmental quality.

CalGREEN includes both mandatory and voluntary measures for both residential and non-residential development. These include a nonresidential mandatory light pollution reduction measure that establishes maximum allowable light and glare standards for outdoor lighting

systems for new nonresidential projects (2016 California Green Building Standards Code, 5.106.8 Light pollution reduction).

Section 17.26.080 Street Lights

Section 17.26.080 of the Ceres Municipal Code regulates street lights: "Street lights shall be to the standard approved by the City Council. All light standards shall be placed at locations first approved by the Director."

Section 18.42.240 Illumination

Section 18.42.240 of the Ceres Municipal Code regulates the illumination of signs: "Direct or indirect lighting methods are allowed; provided, that that they are not harsh, unnecessarily bright and shall be so located or shielded to prevent glare to surrounding properties or streets."

Section 18.40.040 Off-Street Loading Facilities

Section 18.40.040 of the Ceres Municipal Code regulates lighting in off-street loading facilities: "Lighting: If the loading area is illuminated, lighting shall be deflected away from adjacent uses so as to cause no annoying glare."

Section 18.38.060 Dangerous and Objectionable Elements

Section 18.38.060 of the Ceres Municipal Code establishes: "Glare: Every use shall be so operated that they do not emit direct or indirect glare in such quantities or degree so as to constitute a nuisance to adjacent or adjoining properties."

Section18.60 Historic Preservation

The purpose of the Historic Preservation Ordinance in Ceres is to "promote the public health, safety, and general welfare by providing for the identification, protection, enhancement, perpetuation, and use of improvements, buildings, structure, signs, objects, features, sites, and places within the City that reflect special elements of the City's historic, architectural, aesthetic, and other heritage." The Planning Commission is responsible for the administration of the Historic Preservation Ordinance, including maintaining a current survey of historic and cultural resources; adopting guidelines for the designation of landmarks; review public land use and development decisions as they relate to historic and cultural resources; adopt standards for reviewing applications for alternating a historic or cultural resource; recommend to the City Council to purchase sites for historic preservation; investigate the use of federal, State, and local funds for historic preservation; and provide guidance to property owners on altering historic sites.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Have a substantial adverse effect on a scenic vista;**

Criterion 2: **Substantially degrade the existing visual character or quality of Ceres and its surroundings; or**

Criterion 3: **Create a new source of substantial light or glare that would adversely affect day- or night-time views in the area.**

METHODOLOGY AND ASSUMPTIONS

Aesthetics and visual resources are generally subjective by nature, and therefore the extent of visual impact associated with adoption and implementation of the Proposed Project is difficult to quantify. In addition, it is difficult to estimate the impact future development would have on scenic resources, since individual development projects can be designed to be compatible with and/or enhance the aesthetic quality of an area. As such, this analysis was based on the overall amount of new development at buildout of the Proposed Project, the potential location of new development, and policies in the proposed General plan.

SUMMARY OF IMPACTS

Scenic views within the Ceres Planning Area consist of the farmland in the unincorporated county land surrounding the built environment in Ceres. Implementation of the Proposed Project could result in substantial new residential and non-residential development in these areas that are currently in agricultural use. Although this development could obstruct current views, the Proposed Project maintains agricultural uses around the eastern, southern, and western periphery of the Planning Area. Therefore, as the urban area expands, views of farmland would be preserved. Both infill development and development in new growth areas could change the visual character of the Planning Area. However, policies in the Proposed Project promote high quality design and require the City to adopt design guidelines. Therefore, the Proposed Project would not degrade the existing visual character or quality of Ceres. The City's Municipal Code adopted the CALGreen by reference, which includes light and glare standards for new nonresidential development. Although implementation of the Proposed Project would result in new light sources, these standards would reduce the light and glare impacts to a less than significant level.

IMPACTS

Impact 3.1-1 Implementation of the Proposed Project would not have a substantial adverse effect on a scenic vista. (*Less than Significant*)

Ceres' relatively flat topography results in few scenic vistas, with views consisting mainly of the farmland surrounding the built environment seen from some adjacent properties at the urban edge and views to the Sierra Nevada mountain range and Mount Diablo on clear days.

Development under the Proposed Project would have the potential to obstruct views of farmland currently available to the public. These views could be partially or fully blocked in some public areas by new construction occurring beyond the current edge of development. However, while views may be obstructed in localized areas due to proposed new development, as the urban edge expands, new views of agricultural areas would become available.

Existing regulations in the Stanislaus County Code would limit potential impacts from signs and development in the A-2 zoning district outside of city limits. Policies in the Proposed Project would reduce the potential impact by supporting a compact development pattern and protecting the agricultural land in the Planning Area. A proposed greenbelt between Ceres and the City of Hughson included in the Proposed Project would help protect scenic vistas towards the east.

Therefore, with implementation of existing regulations and the proposed policies below, the impact of on scenic vistas from implementation of the Proposed Project would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.2 **Prioritize Growth in SOI.** Prioritize growth within the Ceres Sphere of Influence. Permit development outside of the Sphere of Influence only when there is a demonstrated need for additional land and there is less than a five-year supply of appropriately-designated land within the existing Sphere of Influence, in accordance with Stanislaus Local Agency Formation Commission (LAFCO).

2.A.3 **Compact Footprint.** Promote compact development patterns, mixed land uses, and higher-development intensities and limit "leap frog" development to conserve agricultural land, reduce vehicle trips, and improve air quality.

2.B.2 **Visual Distinction.** Provide visual distinction for key entry points to the City.

2. B.3 **Greenbelt.** In cooperation with Stanislaus County and the City of Hughson, seek to establish a permanent greenbelt between Ceres and Hughson.

Goal 2.D Promote infill development to protect farmland; enhance community character; optimize city investment in infrastructure; provide pedestrian- and bicycle-friendly neighborhoods; and enhance economic vitality.

2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery.

2.D.3 **Sensitivity to Context.** Encourage design in new development that enhances and blends with the established fabric of the natural, social, and built environment, while allowing for innovative and unique architectural styles and projects that meet the community's needs. *See in Section 2.4 Urban Design of [the proposed General Plan] for urban design guidelines.*

2.E.2 **Conceal Unsightly Uses.** Enhance the visual quality of major corridors by requiring new and expanding development to conceal unsightly uses and equipment, (i.e., screening of rooftop equipment and outdoor storage, and undergrounding of utilities).

Agricultural and Natural Resources Element

Goal 4.A Promote the productivity of agricultural lands surrounding Ceres and the continued viability of agriculture in Stanislaus County, and, recognizing the community's agricultural heritage and its contribution to the local economy, support the preservation of agricultural character where it has cultural or scenic significance.

4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface.

4.A.2 **Urban Expansion in Agricultural Areas.** Ensure that development and the expansion of infrastructure in urban areas do not encourage the expansion of urban uses into areas designated for Agriculture on the Land Use Diagram, or otherwise reduce the viability of agricultural operations on lands designated for Agriculture.

4.A.10 **Strategic Conservation.** Work with land trusts to strategize and coordinate resources for the conservation of farmland in and around the Planning Area.

Mitigation Measures

None required.

Impact 3.1-2 Implementation of the Proposed Project would not substantially degrade the existing visual character or quality of Ceres and its surroundings. (*Less than Significant*)

Implementation of the Proposed Project could substantially degrade the existing visual character or quality of the Planning Area if new development occurring under the proposed General Plan introduced built elements that were significantly out of character with existing development in terms of height, massing, or low quality of design or materials. Existing regulations in the Stanislaus County Code would limit impacts related to signs, subdivision development, and development in the A-2 zoning district outside of city limits. The existing City of Ceres Historic Preservation Ordinance would serve to ensure that any historically significant structures or districts would adequately maintain their character.

The Proposed Project's land use designations and policies are intended to limit any visually incompatible development in the Planning Area while enhancing the area's overall visual quality. While in some cases the Proposed Project would permit higher densities and intensities than what currently exists in the Planning Area, any new development would be subject to policies in the proposed General Plan that emphasize compatibility with surrounding development. The

proposed land use map and policies would also provide for buffering and transitions between land uses of differing intensities. Additionally, proposed policies that support maintenance and improvement of existing structures, highlight preferred characteristics of existing neighborhoods, and provide for design guidelines and design review would serve to improve the overall visual quality of the Planning Area. Therefore, with compliance with existing regulations and implementation of the proposed policies below, the impact of on the visual quality of the Planning Area from implementation of the Proposed Project would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals 2.D and 4.A; and policies 2.B.2, 2.D.1, 2.D.3, 2.E.2, 4.A.1, and 4.A.2, as listed under Impact 3.1-1 above; as well as the following policies.

Land Use and Community Design Element

Goal 2.A Support growth that improves quality of life for all residents and enhances the qualities of Ceres that residents love.

2.A.7 **Diversity.** Embrace diversity—physical, cultural, language, and social—and sensitively integrate new development with the old.

2.A.13 **Protect Beloved Qualities.** Preserve the vital qualities of existing residential neighborhoods, such as street trees, sidewalks, bikeways, well-located parks, and personal safety.

2.A.14 **Maintenance.** Maintain and invest in the public realm, including parks, sidewalks, and streets to enhance safety and character and to encourage upkeep and investment by private property owners.

Goal 2.B Foster a distinctive city identity to support civic pride and Ceres' appeal.

2.B.1 **Place-Based Development.** Encourage development consistent with Ceres' history, location in the Central Valley, and evolving demographics to promote community identity and pride.

2.C.7 **Improve Appearance.** Support programs to improve the appearance of downtown, including alley clean-ups, abatement of building code violations, redevelopment activities to reduce blight, and enhancement and consolidation of parking.

2.D.3 **Sensitivity to Context.** Encourage design in new development that enhances and blends with the established fabric of the natural, social, and built environment, while allowing for innovative and unique architectural styles and projects that meet the community's needs. *See in Section 2.4 Urban Design of this chapter for urban design guidelines.*

Goal 2.F Support Ceres' neighborly and family-friendly character with complete and well-designed neighborhoods.

2.F.6 **Integrated Neighborhoods.** Require new residential developments to be physically and socially integrated with the existing community.

2.F.7 **Street Trees.** Support a robust system of street trees in order to increase shade, minimize runoff, and create a comfortable and visually attractive environment.

Goal 2.I Ensure new growth areas contribute to Ceres' proud identity and promote community health.

2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following:

- The distribution, location, and extent of land uses, including standards for land use intensity.
- Compatibility of new development with adjacent existing and proposed development.
- Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs.
- Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary.
- Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods.
- Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas.
- Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities.
- Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways.
- Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences.
- Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand.
- Provisions for minimizing conflicts between new development and adjacent agricultural uses.

- Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements.

2.G..3 **Enhanced Design of Existing Commercial.** Encourage the renovation, infill, and reuse of existing commercial centers and strip malls. Redesign and modernization of architectural treatment is encouraged as well as utilization of parking lots to make the centers more pedestrian friendly, and enhance the definition and character of the street frontage and associated streetscape.

Goal 2.L Ensure quality design that supports the goals of the General Plan.

2.L.1 **Design Guidelines.** Ensure quality design by adopting simple and effective Design Guidelines that clearly express desirable, in addition to discouraged, outcomes.

2.L.2 **Design Review.** Require an efficient design review process, as appropriate, that focuses on achieving form and function for new, reuse and reinvestment projects to promote creativity, sustainability, health, and design quality.

2.L.5 **Single Family Residential Design.** Ensure architecture and landscaping in single family residential projects contribute to a neighborhood identity with visual interest and variety. Encourage the following characteristics in single family residential development:

- Architectural variety between residences to contribute to neighborhood identity. Discourage monotonous developments with repetitive residential design;
- Development oriented to the street;
- Reduced priority given to garages and parking;
- Attractive architectural features such as front porches, articulated facades, formers, trim and moldings, and high-quality building materials;
- Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building.

2.L.6 **Multi-Family Residential Design.** Ensure attractive architecture and design of multi-family buildings provide a variety of high-quality housing options with convenient facilities to foster a high quality of life. Encourage the following characteristics in multi-family developments:

- Variety of unit sizes including studios and three bedrooms;
- Building mass broken into small units;
- Sheltered and well-lit entrances to units and main entrances that are oriented to the street;
- Sufficient private outdoor space for each unit, such as balconies or decks;
- Functional and accessible interior site open space that may include a community garden;

- Attractive landscaping, including larger trees;
- Parking provided in rear of building or screened with landscaping;
- Consolidated parking in higher density residential projects that shares one or two entrances/exits from the property in order to minimize curb cuts;
- Good site and building management and maintenance;
- Screened, secure, and accessible areas for waste disposal and recycling;
- Building scale and mass transitions appropriate to adjacent single family neighborhoods, where applicable; and
- Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building.

2.L.7 **Downtown Commercial and Mixed Use Development Design.** Ensure commercial and mixed use development in Downtown Ceres cultivates an attractive destination and pedestrian-oriented center of activity. Encourage the following characteristics in commercial and mixed use buildings in Downtown Ceres:

- Main facades with entrance doors and windows that front the primary street;
- Buildings on larger lots broken down in scale to create a small-scale frontage rhythm;
- Ground-floor facades designed to give interest to pedestrians and visitors, for example with transparent glass storefronts;
- Parking in rear (preferred) or side of building;
- Shared facilities, such as driveways, parking areas, and pedestrian plazas, between adjoining properties; and
- Materials chosen and detailed to respect the climate and traditions of the San Joaquin Valley.

See the Ceres Downtown Specific Plan for further guidelines.

2.L.8 **Neighborhood Commercial Design.** Ensure development in the Neighborhood Commercial land use designation complements nearby residential neighborhoods with attractive commercial and mixed use buildings that are conveniently accessible by walking or biking. Encourage the following characteristics in development in the Neighborhood Commercial land use designation:

- Building entrances oriented toward the street rather than parking lot;
- Parking located to the side or rear of building where possible;
- Shaded walkways and small gathering spaces that help strengthen community character and identity, and facilitate accessing the commercial area on foot.

2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations:

- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility;
- Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility;
- Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate;
- Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings;
- Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate;
- A continuous, safe, and convenient walkway from the public right of way to building entrances;
- Building entrances oriented to the walkway;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

2.L.10 **Service and Highway Commercial Design.** Ensure development in the Service Commercial and Highway Commercial land use designations are designed to conveniently serve potential consumers and are appropriately buffered from adjacent residential and sensitive uses. Encourage the following characteristics in development in the Service Commercial and Highway Commercial land use designations:

- Attractive building frontages;

- Attractive frontages and signage promoting visibility from SR 99, where appropriate;
- Integrated on-site circulation;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement;
- Loading bays and outdoor storage areas that are not readily visible from the public right of way; and
- Comprehensive sign program.

2.L.11 **Regional Commercial Design.** Ensure development in the Regional Commercial land use designation provides a commercial destination and other development attractive to the regional market. Encourage the following characteristics in development in the Regional Commercial land use designation:

- Distinctive gateway or entry features that contribute to the character of Ceres;
- Attractive landscaping with shade trees to provide substantial tree canopy in and around parking areas that enhance regional center identity;
- Plaza and outdoor patio areas with public art that create focal points;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;
- Convenient pedestrian connections from adjoining neighborhoods;
- Parking located to the side or rear of building where possible;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

2.L.12 **Business Park Design.** Ensure business park use developments attract businesses and provide a convenient and pleasant environment for workers. Encourage the following characteristics in development in the Business Park land use designation:

- Articulation in the walls, including insets, canopies, wing walls, and trellises;
- Large buildings "broken up" by variations in building form and architectural design;
- Distinctive gateway or entry features that contribute to the character of Ceres;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Blocks of no more than 1,000 feet in length with block perimeters of no more than 4,000 feet. Where larger blocks exist, improve convenience of walking and bicycling with shaded, internal connections, such as sidewalks, bicycle paths, and multi-use trails;
- A shaded pedestrian rest area with seating, landscaping, and trash receptacles near building entrances;
- Attractive landscaping, including larger trees;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;
- Parking located to the side or rear of building where possible;
- Loading bays and outdoor storage areas that are not readily visible to the public.

2.L.13 **Industrial Design.** Ensure industrial development provides safe work environments and does not result in impacts on public health or quality of life of surrounding neighborhoods. Encourage the following characteristics in industrial development:

- Attractive building frontages (facades of preferably brick, wood, glass, or other quality material) that are readily visible from the public street;
- Large parking areas with tree coverage separated into a series of small parking areas with the use of landscaping and the location of buildings;
- Outdoor services areas, loading bays, and outdoor storage areas located in the rear of buildings or screened from the public right of way;
- Attractive landscaping to enhance the business by softening buildings and parking areas.

Mitigation Measures

None required.

Impact 3.1-3 Implementation of the Proposed Project would create new sources of substantial light or glare that could adversely affect day- or night-time views in the area. (*Less than Significant*)

Developed areas in Ceres currently generate some light and glare, and any new infill development from implementation of the Proposed Project would contribute to the amount of light already generated. Development in new growth areas, including in the West Landing Specific Plan area and the southern and eastern portions of the SOI would produce new light and glare in areas that currently have relatively little or no light and glare. Some elements of the built environment, such as parking lots, commercial buildings, and signs, may emit light for 24 hours a day. Therefore, potential new development in the area designated Regional Commercial along SR 99 could add substantial new light sources compared to new residential development, which would only be anticipated to emit light during limited times of the evening.

New sources of daytime glare could include new buildings with reflective surfaces, such as office buildings with glazed windows. Under the Proposed Project, office uses would be allowed in the Business Park, Downtown Mixed Use, Office, and Neighborhood Commercial land use designations, in various parts of the Planning Area.

Existing City regulations reduce the amount of new light and glare generated by new development. The City's Green Building Standards (which adopt CALGreen by reference), include light and glare standards for new non-residential development, which would reduce the amount of new light from development; and provisions of the Subdivisions and Zoning ordinances would limit light pollution from street lights, signs, and off-street loading facilities. The Zoning Ordinance also includes a provision to prohibit dangerous levels of glare. Additionally, the Proposed Project contains a policy that would minimize light pollution from exterior lighting for new development. Therefore, with adherence to existing regulations and proposed General Plan policies, the impact from light and glare from implementation of the Proposed Project is considered less than significant.

Proposed General Plan Policies that Reduce the Impact

5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction.

2.L.15 **Exterior Lighting Standards.** Establish standards for the evaluation of exterior lighting for new development and redevelopment to ensure that exterior lighting (except traffic lights, navigational lights, and other similar safety lighting) is minimized, restricted to low-intensity fixtures, shielded, and concealed to the maximum feasible extent, and that high-intensity perimeter lighting and lighting for athletic fields and other private recreational facilities is limited to reduce light pollution visible from public viewing areas.

Mitigation Measures

None required.

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3.2 Agricultural Resources

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

Responses to the NOP regarding topics addressed in this section included the following:

- The California Department of Conservation Division of Land Resource Protection recommended that the EIR assessment of agricultural impacts discuss incremental impacts leading to cumulative impacts on agricultural land, include an inventory of lands enrolled in the Williamson Act program, and acknowledge that impacts on agricultural operations can include land conflicts, increase in land values and taxes, and loss of support infrastructure, such as processing facilities. This section includes information and analysis addressing each recommendation. The NOP comment also advised that conversion of agricultural land represents a permanent reduction in the state's agricultural land resources, which is noted in the impact analysis for this section.
- The Stanislaus Local Agency Formation Commission (LAFCO) recommended that the EIR assessment of agricultural impacts discuss the location of Williamson Act lands as it relates to policies, development, and financing scenarios that would preserve the agricultural viability of those and surrounding lands. This section of the EIR provides an inventory of Williamson Act lands in the Planning Area and discusses the impact of the Proposed Project on existing contracts, as well as proposed policies that would affect implementation of the Williamson Act program in the Planning Area.
- A member of the public commented that agricultural land in the Planning Area is an important commodity. This section of the EIR addresses potential impacts of the Proposed Project on agricultural land resources in the Planning Area.

Environmental Setting

PHYSICAL SETTING

Farmland Classification

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

- **Prime Farmland.** Land that has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when managed (including water management) according to current farming methods. Prime Farmland must have been used for the production of crops within the last three years.
- **Farmland of Statewide Importance.** Land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production. Similar to Prime Farmland, Farmland of Statewide Importance must have been used for crop production within the last three years.
- **Unique Farmland.** Land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, but which is currently used for the production of specific high economic value crops (as listed in the last three years by the California Department of Food and Agriculture). It has the special combination of location, soil quality, growing season, and moisture supply to produce sustained high quality or high yields of a specific crop (e.g., oranges, olives, avocados, rice, grapes, and cut flowers) when treated and managed according to current farming practices.
- **Farmland of Local Importance.** Land that is either currently producing crops or has the capability to do so. It is land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, but it may be important to the local economy due to its productivity.
- **Grazing Land.** Land on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing.

All categories exclude publicly owned land for which there is an adopted policy preventing agricultural use. The FMMP designations are informational only and do not constitute any regulatory policy.

Agricultural Context

California is the country's leading agricultural producer and exporter. The Planning Area is located in Stanislaus County, which ranked fifth in the state for gross value of agricultural production in 2015 at $2.9 billion (CDFA, 2016). The county's top four commodities by gross value in 2015 were almonds, milk, chickens, and walnuts. In 2015, there were 4,143 farms operating on 768,000 acres in Stanislaus County (Stanislaus County, 2015).

In the state of California, productive farmland acreage has been gradually declining, due primarily to the conversion of farmland to non-agricultural uses. Between 1984 and 2010, the area of farm

and grazing lands in the state declined by more than 1.4 million acres, including a loss of 662,000 acres of Prime Farmland, the farmland type with the best soils for agricultural production (Department of Conservation, 2014). While the value of agricultural commodities produced in Stanislaus County experienced an increase to a peak of $4 billion in 2014, the county has also seen a decline in the total area of farmland. In Stanislaus County, nearly 11,000 net acres of agricultural land were lost between 2004 and 2014. This net loss accounts for a loss of over 9,000 acres of Prime Farmland, nearly 7,000 acres of Farmland of Local Importance, and almost 33,000 acres of grazing land, as well as a gain of approximately 38,000 acres of Farmland of Statewide Importance and Unique Farmland (FMMP, 2016).

Existing Farmland in the Planning Area

Early in Ceres's history during the mid-19th century, Ceres's economy was based on non-irrigated wheat farming, which later grew into a wider variety of crops after the introduction of irrigation to the area. In 2017, the majority of the Planning Area's farmland is located outside of Ceres city limits. Most of the agricultural uses that are within the city limits are located west of Crow's Landing Road and in the northeast of the city near Faith Home Road. Agricultural uses are found throughout the unincorporated portion of the Planning Area. The FMMP has identified 6,800 acres of agricultural land in the Planning Area, meaning that nearly half of the land in the Planning Area falls under one of the classifications described above. Only 700 of those acres (approximately 10 percent) are located within city limits. Of the agricultural land in the Planning Area, 95 percent is classified as Prime Farmland, including 620 acres in the city. Table 3.2-1: Farmland Types and Acreages (2014) summarizes the Planning Area's FMMP classifications. Figure 3.2-1: Agricultural Resources shows the locations of the various farmland types, as well as other rural land categories as mapped by the FMMP. The total area classified as Agricultural Land by the FMMP may differ from the area identified in Table 3-10.1: Existing Land Uses in the Planning Area (2015) as existing agriculture due to different classification methodologies (California Department of Conservation Farmland Mapping and Monitoring Program, 2014).

As of 2017, there were 3,189 acres of farmland under Williamson Act contracts in the Planning Area (Stanislaus County, 2017). The locations of these properties are shown in Figure 3.2-1: Agricultural Resources and listed in Table 3.2-2: Williamson Act Contracts in the Planning Area. The majority of Williamson Act lands in the Planning Area, nearly 3,000 acres, are located outside of the Ceres SOI. Within city limits, there are three parcels (187 acres) under Williamson Act contract in the western portion of the city near Ustick Road. An additional 50 acres of Williamson Act land is located outside of city limits within the SOI. As of October 2017, none of the contracts in the Planning Area are in non-renewal. The Williamson Act is discussed in further detail in the Regulatory Setting below.

Table 3.2-1: Farmland Types and Acreages (2014)

	City of Ceres		*Unincorporated*		*Planning Area Total*	
FMMP Categories	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Agricultural Land	**735.3**	**12.3%**	**6,055.4**	**72.2%**	**6,790.7**	**47.3%**
Prime Farmland	618.6	10.3%	5,844.0	69.8%	6,462.6	45.0%
Farmland of Statewide Importance	0.6	0.0%	87.5	1.0%	88.1	0.6%
Unique Farmland	76.7	1.3%	45.6	0.5%	122.3	0.9%
Grazing Land	39.4	0.7%	78.3	0.9%	117.7	0.8%
Other Rural Land	**259.9**	**4.4%**	**810.7**	**9.8%**	**1,070.5**	**7.5%**
Confined Animal Agriculture	0.2	0.0%	89.2	1.1%	89.4	0.6%
Non-Agricultural and Natural Vegetation	39.6	0.7%	97.3	1.2%	136.9	1.0%
Semi-Agricultural/Rural	0.0	0.0%	99.3	1.2%	99.3	0.7%
Vacant or Disturbed Land	203.8	3.4%	68.1	0.8%	271.9	1.9%
Rural Residential Land	16.3	0.3%	456.8	5.5%	473.0	3.3%
Urban/Built Up Land	**4,994.2**	**83.4%**	**1,501.8**	**17.9%**	**6,495.9**	**45.2%**
Total	**5,989.3**	**100%**	**8,367.9**	**100%**	**14,357.2**	**100%**

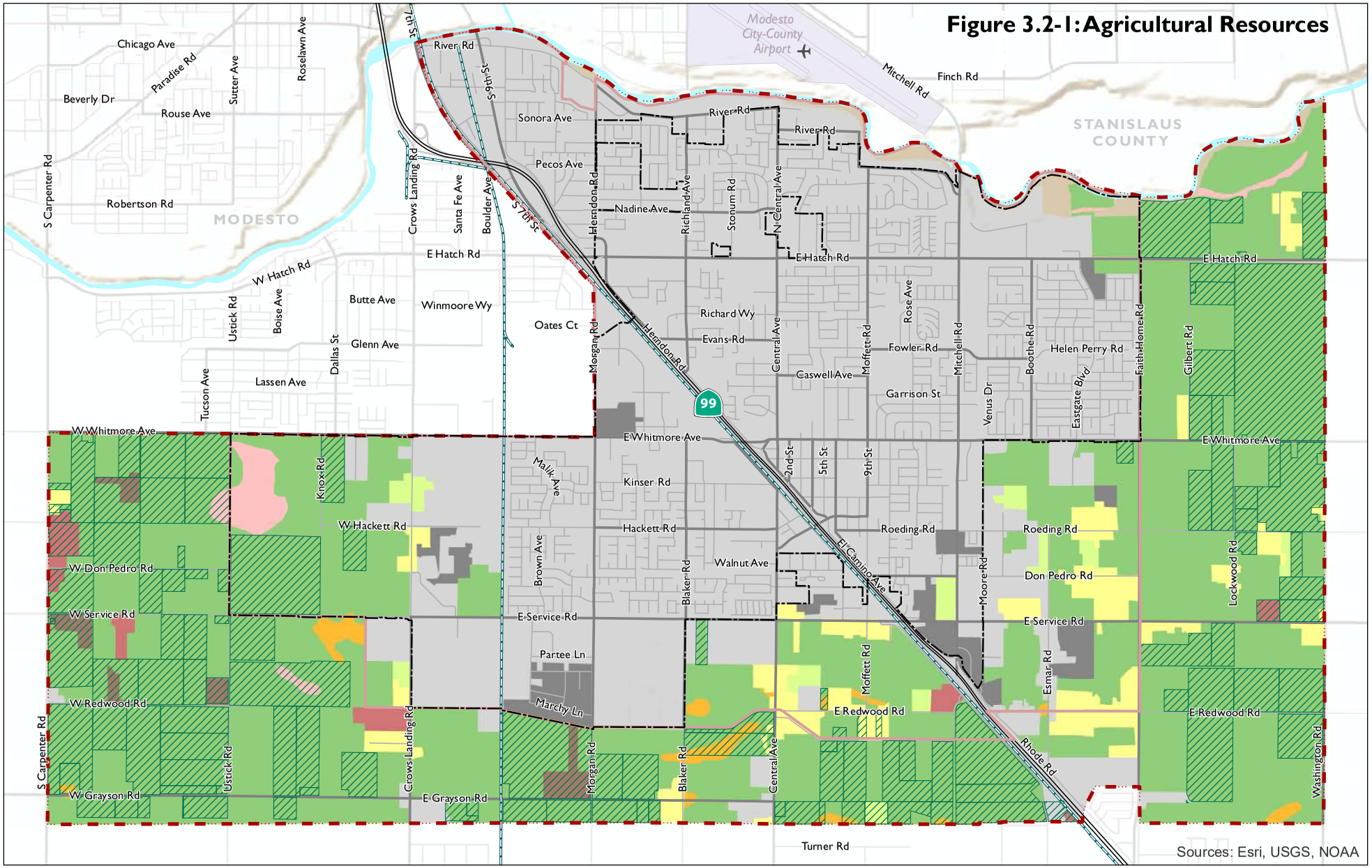
Source: FMMP, 2014; City of Ceres, 2015; Dyett & Bhatia, 2015.

Table 3.2-2: Williamson Act Contracts in the Planning Area

Location	*Acres*
Within City Limits	187
Within Sphere of Influence (Outside City Limits)	50
Outside Sphere of Influence	2,952
Total	**3,189**

Source: Stanislaus County, 2017.

Figure 3.2-1: Agricultural Resources



- Highway
- Ramps
- Major Roads
- Local Roads
- Railroads
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Confined Animal Agriculture
- NonAgricultural and Natural Vegetation
- Semi-Agricultural/Rural
- Vacant or Disturbed Land
- Rural Residential Land
- Urban/Built Up Land
- Williamson Act Parcels
- River
- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: Farmland Mapping and Monitoring Program, Department of Conservation, 2014; City of Ceres, 2015; Stanislaus County GIS, 2017; Dyett & Bhatia, 2017.

REGULATORY SETTING

Federal Regulations

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

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) oversees the Farmland Protection Policy Act (FPPA) (7 U.S. Code [USC] Section 4201 et seq.; see also 7 Code of Federal Regulations [CFR] 658). The FPPA (a subtitle of the 1981 Farm Bill) is national legislation with the following stated purpose: "to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses." The FPPA applies to projects and programs that are sponsored or financed in whole or in part by the federal government and does not apply to private construction projects subject to federal permitting and licensing, projects planned and completed without assistance from a federal agency, federal projects related to national defense during a national emergency, or projects proposed on land already committed to urban development. The FPPA spells out requirements to ensure federal programs to the extent practical are compatible with state, local, and private programs and policies to protect farmland and calls for the use of the Land Evaluation and Site Assessment (LESA) system to aid in analysis.

U.S. Department of Agriculture Natural Resources Conservation Service

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

State Regulations

Farmland Mapping and Monitoring Program

The California Department of Conservation FMMP classifies farmland into five different categories based on soil type and current land use: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The minimum mapping unit is 10 acres, with the exception of grazing land, which is 40 acres. Two additional categories, Urban and Built-up Land and Other Land, are used for mapping purposes. See Table 3.2-1: Farmland Types and Acreages (2014) for a listing of acreage by farmland classification in the Planning Area.

California Farmland Conservancy Program

The California Farmland Conservancy Program (Public Resources Code Section 10200 et seq.) supports the voluntary granting of agricultural conservation easements from landowners to qualified nonprofit organizations, such as land trusts, as well as local governments. Conservation easements are voluntarily established restrictions that are permanently attached to property deeds, with the general purpose of retaining land in its natural, open-space, agricultural, or other condition while preventing uses that are deemed inconsistent with the specific conservation

purposes expressed in the easements. Agricultural conservation easements define conservation purposes that are tied to keeping land available for continued use as farmland. Such farmlands remain in private ownership and the landowner retains all farmland use authority, but the farmland is restricted in its ability to be subdivided or used for non-agricultural purposes, such as urban uses.

California Land Conservation Act (Williamson Act)

Williamson Act Contracts

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

Williamson Act contracts are effective for periods of 10 years and longer. The contract is automatically renewed each year, maintaining a constant, 10-year contract, unless the landowner or local government files to initiate non-renewal. Should that occur, the Williamson Act would terminate 10 years after the filing of a notice of non-renewal. Only a landowner can petition for a contract cancellation. Tentative contract cancellations can be approved only after a local government makes specific findings and determines the cancellation fee to be paid by the landowner.

The State of California has the following policies regarding public acquisition of and locating public improvements on lands in agricultural preserves and on lands under Williamson Act contracts (Government Code Section 51290–51295):

- Avoid locating federal, State, or local public improvements and improvements of public utilities, and the acquisition of land, in agricultural preserves;
- Locate public improvements that are in agricultural preserves on land other than land under Williamson Act contract; and
- Any agency or entity proposing to locate such an improvement, in considering the relative costs of parcels of land and the development of improvements, give consideration to the value to the public of land, particularly prime agricultural land, in an agricultural preserve.

Farmland Security Zone Contracts

Since 1998, another option in the Williamson Act Program has been established with the creation of Farmland Security Zone contracts. A Farmland Security Zone is an area created within an agricultural preserve by a board of supervisors upon the request of a landowner or group of landowners. Farmland Security Zone contracts offer landowners greater property tax reduction and have a minimum initial term of 20 years. Like Williamson Act contracts, Farmland Security

Zone contracts renew annually unless a notice of non-renewal is filed. Potential cancellation of Williamson Act and Farmland Security Zone contracts would be addressed in subsequent project-level documents.

Open Space Subvention

Under the Open Space Subvention Act of 1971, the State has provided annual subvention payments to counties for foregone property tax revenue due to Williamson Act contracts. The Budget Act of 2009 virtually eliminated these payments for the 2009-10 fiscal year. While partial funding was restored for the 2010-11 fiscal year, long-term State support to counties for agricultural land conservation is uncertain. Despite the elimination of most payments from the State, the California Department of Conservation has continued to release status reports of lands under Williamson Act contracts, with the most recent release occurring in 2015.

Solar Use Easements

In 2011, California passed Senate Bill (SB) 618 (Chapter 596, Statutes of 2011) authorizing property owners under Williamson Act or Farmland Security Zone contracts to rescind the contract and simultaneously enter into a solar-use easement. Solar-use easements require the land to be used for solar photovoltaic facilities for a term of 20 years.

California Civil Code Section 3482.5 (Right to Farm Act)

In accordance with California Civil Code Section 3482.5, if a commercial agricultural use operates according to proper and accepted customs and standards (i.e., in compliance with all applicable state and federal statutes and regulations), has existed in its present location for three or more years and was not considered a nuisance when it began operations, the operations cannot become a private or public nuisance due to any changed condition in the locality, such as encroaching urban development.

Local Regulations

Stanislaus LAFCO Agricultural Preservation Policy

The Stanislaus LAFCO Agricultural Preservation Policy, as amended in 2015 , has four goals:

- Guide development away from agricultural lands where possible and encourage efficient development of existing vacant lands and infill properties within an agency's boundaries prior to conversion of additional agricultural lands;
- Fully consider the impacts a proposal will have on existing agricultural lands;
- Minimize the conversion of agricultural land to other uses; and
- Promote preservation of agricultural lands for continued agricultural uses while balancing the need for planned, orderly development and the efficient provision of services.

The LAFCO policy requires a Plan for Agricultural Preservation be prepared with any application for a SOI expansion or annexation that includes agricultural lands. The plan must include: a detailed analysis of impacts to agricultural resources; a vacant land inventory and absorption study evaluating lands within the existing boundaries of the jurisdiction that could be developed

for the same or similar uses; existing and proposed densities; relevant County and city General Plan policies and plans; consistency with regional planning efforts; an analysis of mitigation measures that could offset impacts to agricultural land; and a strategy to minimize the loss of agricultural lands, such as an urban growth boundary or agricultural mitigation policy.

LAFCO may consider approval of a SOI expansion or annexation containing agricultural land if the Plan for Agricultural Preservation demonstrates that insufficient alternative land is available within the existing SOI or boundaries of the agency and, where possible, growth has been directed away from prime farmland towards soils of lesser quality; that the additional territory for a SOI proposal would not exceed the 20 year period for probable growth and development; that the development for an annexation proposal is imminent for all or a substantial portion of the proposal area; that the loss of agricultural lands has been minimized based on the selected agricultural preservation strategy; and that the proposal would result in planned, orderly, and efficient use of land and services. Since the LAFCO Agricultural Preservation Policy was adopted in 2012 and amended in 2015, Ceres has not had an occasion to adopt a Plan for Agricultural Preservation.

Stanislaus County Farmland Mitigation Program

The Stanislaus County Farmland Mitigation Program (Appendix VII-B of the 2015 Stanislaus County General Plan) requires agricultural conservation easements to be granted at a 1:1 ratio to farmland converted that applies to all unincorporated parts of the Planning Area. For the County's program, any land conserved as mitigation land must be of comparable or better soil quality than the land being converted, with priority given to Prime Farmland. The County's program also includes in-lieu fee and mitigation credit banking components to allow for greater flexibility in meeting the program requirements.

Stanislaus County General Plan

Conservation/Open Space Element

Goal Three in the Stanislaus County General Plan Conservation/Open Space Element is to "provide for the long-term conservation and use of agricultural lands." The goal is accompanied by policies and implementation measures to discourage the division of land that would force the premature cessation of agricultural uses, and to discourage land uses that are incompatible with agriculture in areas designated as Agriculture by the general plan's land use element.

Agricultural Element

The Stanislaus County General Plan includes an Agricultural Element intended to promote and protect local agriculture through policies supporting three main goals: strengthening the agricultural sector of the economy, conserving agricultural lands for agricultural uses, and protecting the natural resources that sustain agriculture in Stanislaus County.

Stanislaus County Agricultural Land Policies

Chapter 9.32 of the Stanislaus County Code includes the County's Agricultural Land Policies, intended to preserve, protect, and encourage the development and improvement of its agricultural land for production. Issues covered in this chapter include:

- **Nuisance.** This ordinance states that no agricultural activity, operation, or facility shall be considered a nuisance if it has been in operation for more than three years and was not a nuisance at the time it began, if conducted or maintained on agricultural lands for commercial purposes in a manner consistent with proper and accepted customs and standards as established and followed by similar agricultural operations in the same locality
- **Real Estate Transfer Disclosure Statement.** This ordinance requires a real estate disclosure upon any transfer of real property that a property adjacent or near to agricultural operations or agricultural lands may be subject to inconveniences or discomforts arising from such operations, including noise, odors, fumes, dust, machinery, the storage and disposal of manure, and the use of agricultural chemicals.
- **Right-to-Farm Notice.** For all discretionary approvals of parcel maps or subdivision maps involving agricultural land, or real property located adjacent to agricultural land, the County Department of Planning and Community Development shall include as a condition of approval that the final recorded map contain a notice that "All persons purchasing lots within the boundaries of this approved map should be prepared to accept the inconveniences associated with agricultural operations, such as noise, odors, flies, dust or fumes. Stanislaus County has determined that such inconveniences shall not be considered to be a nuisance if agricultural operations are consistent with accepted customs and standards."

Stanislaus County Zoning Ordinance

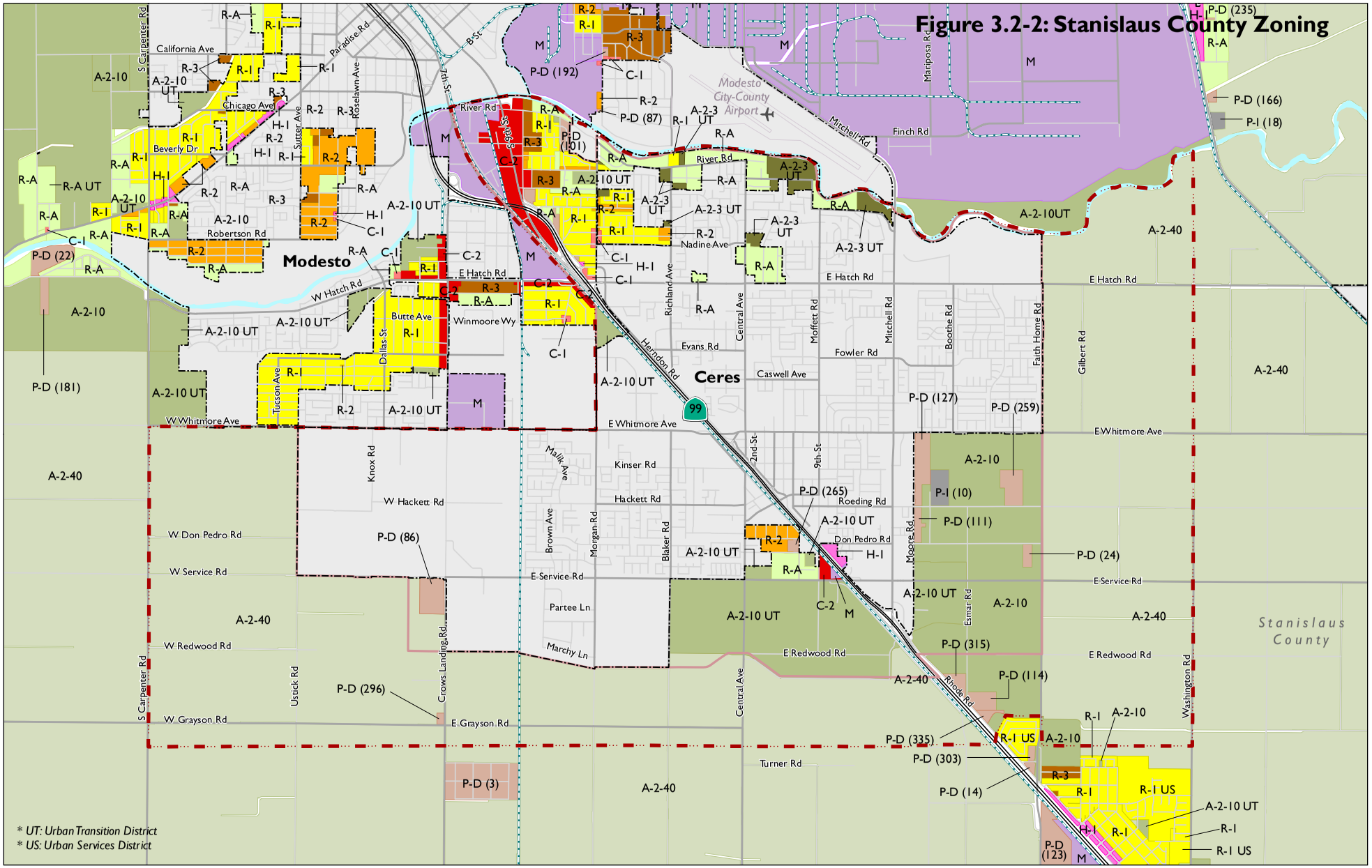
Zoning districts in Stanislaus County where a range of agricultural uses are permitted by right include General Agriculture (A-2) and Rural Residential (R-A). Regulations for the A-2 district are specifically established to ensure that all land uses are compatible with agriculture and open space, including natural resources management, outdoor recreation and enjoyment of scenic beauty, and address Williamson Act lands, land divisions, minimum site areas, and yard setbacks. The R-A district is designed to allow for a compatible mix of single-family residential homes and farming operations.

The following zoning districts permit crop farming and, depending on the district, agriculture-related uses such as pasturing, farm equipment repair, farmworker housing, and horticulture.

- Single-Family Residential (R-1) (crop farming)
- Medium Density Residential (R-2) (crop farming)
- Multiple-Family Residential District (R-3)
- Industrial Business Park (IBP)
- Light Industrial (LI)
- Limited Industrial (LM)

Figure 3.2-2: Stanislaus County Zoning shows the Stanislaus County Zoning Districts in the Planning Area and within a half mile outside the Planning Area.

Figure 3.2-2: Stanislaus County Zoning



Zoning Designation

- A-2-3, General AG 3 Acre
- A-2-10, General AG 10 Acre
- A-2-40, General AG 40 Acre
- R-A, Rural Residential
- R-1, Single Family
- R-2, Medium Density Residential
- R-3, Multiple Family
- C-1, Neighborhood Commercial
- C-2, General Commercial
- H-1, Highway Frontage
- M, Industrial
- Planned Industrial
- Planned Development
- Incorporated Cities
- Highway
- Major Roads
- Local Roads
- Railroads
- River
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: Zoning GIS Data, Stanislaus County Geographic Information Systems, (accessed 10/26/17 @ http://gis.stancounty.com/giscentral/public/downloads.jsp?main=4); Dyett & Bhatia, 2017.

GENERAL PLAN UPDATE
City of Ceres

City of Ceres Zoning Ordinance

In Ceres, the only zoning district where agricultural uses are considered principal uses is the Residential Agriculture (R-A) Zone. The R-A Zone provides for residential and agricultural uses, primarily the growing of nursery stock, flowers, fruits and vegetables, with appropriate single-family dwellings with a minimum lot area of one acre.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 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;**

Criterion 2: **Conflict with existing zoning for agricultural use, or a Williamson Act contract; or**

Criterion 3: **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.**

METHODOLOGY AND ASSUMPTIONS

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

SUMMARY OF IMPACTS

Implementation of the Proposed Project is expected to produce an adverse environmental impact concerning the conversion of important farmland to urban or other uses, conflict with existing agricultural zoning, and indirect impacts that could lead to the conversion of agricultural lands to non-agricultural use. Although there are policies in the proposed General Plan to reduce these impacts, they would remain significant and unavoidable. Although buildout of the Proposed Project would eventually require the conversion of lands under Williamson Act contracts, no provision of the Proposed Project would cause immediate conflict requiring the cancellation of an existing contract, resulting in a less than significant impact.

IMPACTS

Impact 3.2-1 Implementation of the Proposed Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (*Significant and Unavoidable*)

Agricultural land use, at approximately 47 percent of total land use in the Planning Area, represents a substantial portion of the overall land use. Table 3.2-1: Farmland Types and Acreages (2014) shows the existing inventory of important farmland by category. Most of the land in the Planning Area that is not urbanized is Prime Farmland, which accounts for 6,463 acres of land in the Planning Area. Scattered throughout the agricultural areas of the Planning Area, there are also 88 acres of Farmland of Statewide Importance (Statewide Important Farmland) and 122 acres of Unique Farmland.

The Proposed Project proposes various land use designations for areas with Prime, Statewide Important, and Unique Farmland. Large areas along the periphery of the Planning Area would be designated Agriculture, where agricultural and agriculturally-related uses would continue to be allowed. The Proposed Project also includes urban land use designations, such as Low Density Residential, in areas of Prime, Statewide Important, and Unique Farmland, which would allow for new development that would result in the farmland conversion. As shown in Table 3.2-3: Prime, Statewide Important, and Unique Farmland in the Planning Area with Urban and Agricultural Land Use Designations, urban land use designations in the proposed General Plan would cover 3,340 acres of Prime Farmland, 71 acres of Farmland of Statewide Importance, and 97 acres of Unique Farmland. In total, the proposed General Plan would allow for development on 3,508 acres of Prime, Statewide Important, or Unique Farmland throughout the Planning Area.

Table 3.2-3: Prime, Statewide Important, and Unique Farmland in the Planning Area with Urban and Agricultural Land Use Designations

	Acres with an Urban Land Use Designation[1]	*Acres with the Agriculture Land Use Designation*
Prime Farmland	3,340	3,123
Farmland of Statewide Importance	71	17
Unique Farmland	97	25
Total	**3,508**	**3,165**

Notes:
1. Includes all land use designations, except for the Agriculture land use designation.

Source: FMMP, 2014; City of Ceres, 2015; Dyett & Bhatia, 2017.

Overall, the proposed General Plan policies provide a framework to permit existing agricultural uses to continue operating and ensure that important farmland remains as farming or other related agricultural support uses for as long as such use is financially feasible. However, the potential loss of over 3,000 acres of Prime Farmland, 71 acres of Farmland of Statewide Importance, and 97 acres of Unique Farmland would be significant and unavoidable with full implementation of the Proposed Project.

Proposed land use policies, such as prioritizing infill development to limit the development pressure on agricultural lands, as well as ensuring new development adjacent to agricultural uses is compatible with the continued agricultural use, help reduce impacts. Existing local regulations would further reduce impacts. Any future annexation or SOI expansion proposed in the Planning Area for areas that include agricultural land would require, per the Stanislaus LAFCO Agricultural Preservation Policy and the corresponding policy 4.A.7 in the proposed General Plan, a Plan for Agricultural Preservation that must demonstrate that the loss of agricultural lands has been minimized. For development occurring in the unincorporated portions of the Planning Area, the Stanislaus County Farmland Mitigation Program (as detailed in the County General Plan) would require farmland mitigation at a 1:1 ratio for equal or higher quality farmland. Despite reductions in potential impacts from proposed policies and local programs, permanent loss of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland would occur under the Proposed Project, and the impact would therefore remain significant and unavoidable.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.2 **Prioritize Growth in SOI.** Prioritize growth within the Ceres Sphere of Influence. Permit development outside of the Sphere of Influence only when there is a demonstrated need for additional land and there is less than a five-year supply of appropriately-designated land within the existing Sphere of Influence, in accordance with Stanislaus Local Agency Formation Commission (LAFCO).

2.A.3 **Compact Footprint.** Promote compact development patterns, mixed land uses, and higher-development intensities and limit "leap frog" development to conserve agricultural land, reduce vehicle trips, and improve air quality.

2.B.3 **Greenbelt.** In cooperation with Stanislaus County and the City of Hughson, seek to establish a permanent greenbelt between Ceres and Hughson.

2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery.

Agricultural and Natural Resources

Goal 4.A Promote the productivity of agricultural lands surrounding Ceres and the continued viability of agriculture in Stanislaus County, and, recognizing the community's agricultural heritage and its contribution to the local economy, support the preservation of agricultural character where it has cultural or scenic significance.

4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface.

4.A.2 **Urban Expansion in Agricultural Areas.** Ensure that development and the expansion of infrastructure in urban areas do not encourage the expansion of urban uses into areas designated for Agriculture on the Land Use Diagram, or otherwise reduce the viability of agricultural operations on lands designated for Agriculture.

4.A.3 **Continued Production.** Support continued agricultural production on properties within the Planning Area until development is proposed.

4.A.4 **County Referral.** Continue to work with Stanislaus County to review discretionary development proposals in the unincorporated portions of the Planning Area to ensure that all approved projects are compatible with the City's General Plan policies regarding agricultural preservation, as well as other General Plan policies and City development standards.

4.A.5 **Land Use Compatibility.** Ensure that new development adjacent to agricultural uses is compatible with the continuation of the agricultural uses by minimizing conflicts through appropriate design criteria, such as site layout, landscaping, and buffers to provide adequate separation between habitable structures and active farmland.

The Stanislaus County General Plan also contains an agricultural buffer policy that would apply to unincorporated areas of the Planning Area.

4.A.6 **Right to Farm.** Continue to support the County's Right-to-Farm ordinance.

4.A.7 **Farmland Mitigation.** Minimize the loss of agricultural lands by developing a Plan for Agricultural Preservation upon application for a SOI expansion or annexation that includes agricultural land, consistent with the Stanislaus LAFCO Agricultural Preservation Policy.

4.A.8 **Farmland Security/Williamson Act.** Support participation in the Farmland Security Zone/Williamson Act program by property owners in the Planning Area.

4.A.9 **Agricultural Connections.** Maintain connections between agricultural lands and supporting uses and avoid the isolation of agricultural uses among non-agricultural uses in order to support the long-term viability of agricultural operations.

4.A.10 **Strategic Conservation.** Work with land trusts to strategize and coordinate resources for the conservation of farmland in and around the Planning Area.

4.A.11 **Complementary Businesses.** Strengthen the local agricultural economy by supporting the development of complementary agricultural businesses in the vicinity of agricultural uses.

Agricultural businesses include but are not limited to those that provide needed farming supplies or services locally, small-scale retail or processing facilities that allow farmers to sell products locally, and businesses that link agriculture and tourism.

Implementation Actions

2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including: …

- To ensure implementation of the provisions of the County's Right-to-Farm Ordinance…

2.7 Providing reciprocal agreements are reached with the City of Hughson and Stanislaus County, establish a permanent urban growth boundary on the eastern boundary of the Planning Area to permanently limit urban development and preserve agricultural lands east of the city. The permanent urban growth boundary should include buffers to minimize the impacts of urban development on the immediately adjacent agricultural lands.

2.8 To ensure the permanence of a greenbelt between Ceres and Hughson and buffering between urban and agricultural uses, analyze and pursue, as appropriate, the use of various policy strategies, including, but not limited to, the following:

- Large ranchette lots on the periphery (e.g., to 2-5 acre lots) with setbacks to buffer with agricultural uses.
- Public or private recreational uses (e.g, parks, golf courses) on the periphery to buffer with agricultural uses.
- Sizing of infrastructure (e.g. water and sewer mains) to accommodate only limited, low-density growth on the eastern border of the Sphere of Influence, to make future expansion more difficult.
- Design of circulation system to make eastward extension more difficult.
- Special provisions (i.e., a "supermajority"— four-fifths of the City Council) to allow any amendments to the boundary.

4.1 Develop design guidelines to advise developers of best practices for siting, designing, and buffering new development from agricultural operations.

Mitigation Measures

Implementation of the Proposed Project could result in the loss of 3,498 acres of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Conversion of agricultural land to urban use is not directly mitigable, aside from preventing development altogether, as agricultural land is a finite and irreplaceable resource. The Proposed Project reflects a policy determination to allow a certain amount of growth to occur in the Planning Area, which necessitates conversion of farmland to urban uses. Beyond limiting the amount of total growth permitted, there are no feasible mitigation measures for agricultural land conversion that would also fulfill the objectives of and implement the Proposed Project as proposed. The impact would remain significant and unavoidable.

Impact 3.2-2 Implementation of the Proposed Project would conflict with existing zoning for agricultural use or a Williamson Act contract (*Significant and Unavoidable*)

Zoning for Agricultural Use

The Proposed Project proposes land use designations for land currently within the unincorporated area of the county that would conflict with the agricultural zoning districts in Stanislaus County. As shown in Figure 3.2-2: Stanislaus County Zoning, most of the land within the Ceres SOI outside of the city limits is zoned A-2-10 by the County. Agricultural uses, as well as single-family dwelling units, mobile homes, produce stands, family day care homes, and other similar uses are permitted in this district. The Proposed Project would apply a range of non-agricultural land use designations in this area, including Regional Commercial and High Density Residential, that would on their face be inconsistent with the provisions of the zoning district. In addition, outside of the SOI, Stanislaus County zones most of the land A-2-40, in which agricultural uses are the primary intent of the district and single-family dwelling units are only permitted with approval of a Staff Approval Permit. The Proposed Project would locate Regional Commercial and Low Density Residential land use designations in this area, inconsistent with the provisions of the zoning district. Until such a time when annexation of the land in question to the City of Ceres would resolve any inconsistencies between the City's proposed land use designations and the County's agricultural zoning (as City zoning consistent with the General Plan would then go into effect), the conflict between the Proposed Project would persist, indicating a clear intent on the part of the City of Ceres to allow for urban development in areas currently zoned for agricultural uses.

Williamson Act Contracts

There are 3,189 acres of land under Williamson Act contracts in the Planning Area. As shown in Table 3.2-4: Proposed Land Use Designations for Williamson Act Properties, the Proposed Project would designate 2,094 acres of land under Williamson Act contracts as Agriculture. The Agriculture land use designation is consistent with the Williamson Act, as it allows for continued agricultural uses. The Proposed Project would also designate 1,095 acres of land under Williamson Act contracts with urban land use designations, such as Low Density Residential and Regional Commercial. No individual projects are proposed as part of the proposed General Plan that would conflict with the provisions of a Williamson Act contract, and contracts could continue to be in force until such a time as an individual landowner chooses to enter non-renewal. However, the land use designations in the Proposed Project allow residential and non-residential development on lands currently under Williamson Act contracts, and could lead to the eventual cancellation of Williamson Act contracts and conversion of these lands from agricultural uses.

Policies in the proposed General Plan aim to support continued agricultural production in the Planning Area as well as continued participation in the Williamson Act program. In addition, it is assumed that the proper procedures (including minimizing early termination of active contracts), contained within the Williamson Act itself, would be followed as development within the Planning Area occurred under the proposed General Plan. However, as the Proposed Project plans for urban development on lands under Williamson Act contracts and could lead to the cancellation of existing contracts, it is considered to conflict with the contracts.

Table 3.2-4: Proposed Land Use Designations for Williamson Act Properties

Proposed Land Use Designation	*Acres*
Very Low Density Residential	93
Low Density Residential	224
Medium Density Residential	40
Medium High Density Residential	25
High Density Residential	9
Community Commercial	7
Regional Commercial	173
Parks	17
Agriculture	2,094
Residential Agriculture	35
Residential Reserve	252
Industrial Reserve	213
Schools	8
Total	**3,189**

Source: Stanislaus County 2017; Proposed General Plan, Dyett & Bhatia, 2017.

Implementation of the Proposed Project would conflict with existing Williamson Act contract, and introduce land use designations that would conflict with existing agricultural zoning in Stanislaus County. Therefore, the impact is considered significant and unavoidable.

Proposed General Plan Policies that Reduce the Impact

Goal 4.A; policies 2.A.2, 2.A.3, 2.B.3, 2.D.1, 4.A.2, 4.A.3, 4.A.4, 4.A.7, 4.A.8, and 4.A.10; and implementation actions 2.1, 2.7, 2.8, and 4.1, as listed under Impact 3.2-1 above.

Mitigation Measures

The Proposed Project reflects a policy determination to allow a certain amount of growth to occur in the Planning Area, which would necessitate non-agricultural development in some areas zoned by the County for agricultural use. Beyond revising the proposed land use designations in these areas, there are no feasible mitigation measures to reduce this impact that would also fulfill the objectives of and implement the Proposed Project as proposed. The impact would remain significant and unavoidable.

Impact 3.2-3 Implementation of the Proposed Project would involve other changes in the existing environment which could result in conversion of Farmland to non-agricultural use. (*Significant and Unavoidable*)

Urban development can result in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Such indirect impacts can include the division of large tracts of continuous agricultural land into smaller, less agriculturally viable tracts; the presence of incompatible uses adjacent to existing agricultural operations that could lead to the restriction of chemical use and/or complaints regarding noise, dust, and odors; increases in land values and taxes that exert pressure on agricultural landowners to convert to urban uses; and loss of agricultural support infrastructure, such as processing facilities. In addition, urban growth may increasingly compete with agriculture for the use of water resources, and may conflict with operational use of area roadways. As the Proposed Project provides for infill development on non-agriculturally designated lands that support existing agricultural uses and the expansion of the urban footprint in an area surrounded by existing agricultural uses, it has the potential to cause these indirect impacts.

In some cases, existing and proposed regulations and policies could reduce potential impacts. In portions of the Planning Area outside of city limits, the Stanislaus County Code would reduce the potential for nuisance complaints and the siting of incompatible uses. Policies in the proposed General Plan would serve to reduce impacts by limiting the expansion of urban uses into areas designated for agriculture (Policy 4.A.2); requiring compatibility between new development and adjacent agricultural uses (Policy 4.A.5); maintaining connections between agricultural lands and supporting uses (Policy 4.A.9); and supporting the local agricultural economy (Policy 4.A.11). Additionally, along the eastern edge the southwestern portion of the Planning Area, the Proposed Project includes transitional land uses between agricultural and other land uses, which would reduce incompatibility.

However, existing and proposed policies would not completely eliminate the indirect impacts that could result in agricultural conversion. Particularly for existing agricultural operations on lands not designated by the Proposed Project for agricultural uses, the expansion of non-agricultural uses to adjacent lands could exert development pressures that could lead to conversion. Additionally, buildout of the Proposed Project would also reduce the connectivity of agricultural lands along the southern portion of the Planning Area, and intensification of development near agricultural operations could lead to traffic conflicts along roadways used by agricultural vehicles. Therefore, the impact is considered significant and unavoidable.

Proposed General Plan Policies that Reduce the Impact

Goal 4.A; policies 2.A.2, 2.A.3, 2.B.3, 2.D.1, 4.A.1, 4.A.2, 4.A.3, 4.A.4, 4.A.5, 4.A.6, 4.A.7, 4.A.8, 4.A.9, 4.A.10, and 4.A.11; and implementation actions 2.1, 2.7, 2.8, and 4.1, as listed under Impact 3.2-1 above, as well as the following policy.

Land Use and Community Design Element

2.A.4 **Urban/Agriculture Compatibility.** Minimize conflict between urban and agricultural uses. See Chapter 4: Agricultural and Natural Resources Element for more information and related policies and goals.

Mitigation Measures

The proposed General Plan includes policies to support the ongoing productivity of agricultural land in the Planning Area through encouraging infill development supporting agricultural production, ensuring compatibility between agricultural and urban uses, supporting the County's Right-to-Farm ordinance, and more. However, as there are no feasible mitigation measures that would eliminate the potential for indirect impacts that could lead to the conversion of agricultural land, the impact would remain significant and unavoidable.

3.3 Air Quality

This section assesses potential local and regional impacts on air quality from future development under the Proposed Project, including those related to air quality plans and standards, criteria pollutants, sensitive receptors, and objectionable odors. The section provides context regarding air quality standards and local air quality, as well as relevant federal, State, and local regulations and programs. This section focuses on criteria pollutants and toxic air contaminants; greenhouse gases (GHGs) are evaluated in Section 3.5: Energy, Greenhouse Gases, and Climate Change.

There was one comment on the NOP regarding topics addressed in this section. The San Joaquin Valley Air Pollution Control District (SJVAPCD) noted that while the Proposed Project itself would not impact air quality, future development under the Proposed Project would likely contribute to an overall decline in air quality due to increased traffic and ongoing operational emissions. The comment provided recommendations for the site-specific evaluation of future development projects, and noted that mobile source emissions resulting from future development would likely have significant impacts on the non-attainment status for ozone and particulate matter, and that policies designed to reduce vehicle miles traveled would help to reduce these emissions. While site-specific evaluations for individual future projects are outside of the scope of this EIR, this section includes consideration of potential program-level air quality impacts from future development under the Proposed Project.

Environmental Setting

PHYSICAL SETTING

While air quality is largely a regional issue, the land use, circulation, and growth decisions made by local communities, such as Ceres, affects regional air quality. Located within the San Joaquin Valley Air Basin (SJVAB), Ceres' air quality is overseen by the SJVAPCD. The SJVAPCD includes Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties, and the western portion of Kern County. The SJVAPCD covers an area defined by the Sierra Nevada Range in the east, the Coast Range in the west, and the Tehachapi mountains in the south.

Topography, Climate, Meteorology

The topographic features surrounding Ceres restrict air movement through and out of the SJVAB and, as a result, impede the dispersion of pollutants from the basin. Inversion layers are formed in the SJVAB throughout the year. An inversion layer is created when a mass of warm, dry air sits over cooler air near the ground, preventing vertical dispersion of pollutants from the air mass below. During the summer, San Joaquin Valley experiences daytime temperature inversions at

elevations from 2,000 to 2,500 feet above the valley floor. During the winter months, inversions occur from 500 to 1,000 feet above the valley floor (SJVAPCD, 2015).

The climate of the Planning Area is typical of inland valleys in California, with hot, dry summers and cool, mild winters. Daytime temperatures in the summer often exceed 100 degrees Fahrenheit, with lows in the 60s. In winter, daytime temperatures are usually in the 50s, with lows around 35 degrees.

Radiation fog—ground fog caused by cooling of the earth's surface—is common in the winter, and may persist for days. Winds are predominantly up-valley (from the north) in all seasons, but more so in the summer and spring months. Winds in the fall and winter are generally lighter and more variable in direction.

The climate within the SJVAPCD varies considerably as a result of the coastal zone, inland valleys, mountain areas, and deserts. Much of the SJVAB is generally arid, with little rainfall, and abundant sunshine during summer months.

Sensitive Populations and Receptors

Populations most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Thus, there are numerous sensitive receptors in the Planning Area.

Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal or State governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and State standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead. These pollutants are discussed below, based on the U.S. Environmental Protection Agency's (EPA's) website for Criteria Air Pollutants and the CARB Glossary of Air Pollution Terms (EPA, 2017a). In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Nitrogen Dioxide. Most NO_2, like O_3, is not directly emitted into the atmosphere but is instead formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis, and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

Ozone. O_3 is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases (ROGs), and NO_x react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO_x, the precursors of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in the SJVAB can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as Ceres, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and the limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel.

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

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates, can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases, such as chlorides or ammonium, into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

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

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

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC. CARB has identified diesel engine exhaust particulate matter as the predominant TAC in California. Diesel particulate matter (DPM) is emitted into the air by diesel-powered mobile vehicles, including heavy-duty diesel trucks, construction equipment, and passenger vehicles. Certain ROGs may also be designated as TACs.

Local Air Quality

San Joaquin Valley Attainment Designation

An area is designated in attainment when it is in compliance with the National Ambient Air Quality Standard (NAAQS) (federal) and/or California Ambient Air Quality Standards (CAAQS) (State). These standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. Table 3.3-4: Ambient Air Quality Standards in the Regulatory Setting section lists the current NAAQS and CAAQS.

As noted above, the criteria pollutants of primary concern that are considered in this air quality assessment include O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. There are no ambient standards for VOCs or NO_x, though they are important as precursors to O_3.

The San Joaquin Valley is in attainment of the NAAQS for PM_{10}, SO_2, CO, and NO_2 and the CAAQS for SO_2, CO, and NO_2 (SJVAPCD, 2017a). SJVAPCD is designated as a non-attainment area for federal and State O_3 and $PM_{2.5}$ standards, and State PM_{10} standards.

Table 3.3-1: San Joaquin Valley Air Quality Attainment Status (2017) summarizes San Joaquin Valley's federal and State attainment designations for each criteria pollutant.

Table 3.3-1: San Joaquin Valley Air Quality Attainment Status (2017)

Pollutant	*Federal Standards Classification*[1]	*State Standards Classification*[2]
Ozone - One Hour	No federal standard[3]	Nonattainment/Severe
Ozone - Eight Hour	Nonattainment / Extreme[4]	Nonattainment
PM 10	Attainment[5]	Nonattainment
PM 2.5	Nonattainment[6]	Nonattainment
Carbon Monoxide	Attainment/Unclassified[7]	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment
Visibility Reducing Particles	No federal standard	Unclassified
Vinyl Chloride	No federal standard	Attainment

Notes:

1. See 40 CFR Part 81.
2. See CCR Title 17 Sections 60200-60210.
3. Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.
4. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
5. On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.
6. The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).
7. An Unclassified designation indicates that air quality and other relevant information is insufficient to determine whether the area is attainment or nonattainment.

Source: San Joaquin Valley Air Pollution Control District, 2017. "Ambient Air Quality Standards & Valley Attainment Status." http://www.valleyair.org/aqinfo/attainment.htm.

Air Quality Monitoring Data

CARB currently operates air quality monitoring stations in Modesto and Turlock that measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The 814 14th Street ambient air quality monitoring station in Modesto is the closest station to the Planning Area. Ambient concentrations of pollutants from 2014 through 2016 are presented in Table 3.3-2: Ambient Air Quality Monitored at the Modesto–814 14th Street Station. Where data were not available in Modesto, the 900 S Minaret Street ambient air quality monitoring station in Turlock was used. The number of days exceeding the ambient air quality standards (State and federal) for O_3, PM_{10}, and $PM_{2.5}$ is shown in Table 3.3-3: Frequency of Air Quality Standard Violations in the SJVAB.

Table 3.3-2: Ambient Air Quality Monitored at the Modesto–814 14th Street Station

Pollutant	*Averaging Time*	*2014*	*2015*	*2016*
O_3	8-hour	0.09 ppm	0.093 ppm	0.091 ppm
	1-hour	0.103 ppm	0.111 ppm	0.105 ppm
PM_{10}	Annual	29.1 µg/m³	27.0 µg/m³	27.6 µg/m³
	24-hour	122.5 µg/m³	85.6 µg/m³	83.5 µg/m³
$PM_{2.5}$	Annual	11.3 µg/m³	ND	11.1 µg/m³
	24-hour	58.2 µg/m³	44.0 µg/m³	53.3 µg/m³
NO_2	Annual[1]	0.010 ppm	0.009 ppm	0.009 ppm
	1-hour[1]	0.055 ppm	0.042 ppm	0.047 ppm
CO	8-hour	1.7 µg/m³	1.5 µg/m³	1.5 µg/m³
	1-hour	2.4 µg/m³	2.7 µg/m³	1.9 µg/m³
SO_2	Annual	ND	ND	ND
	24-hour	ND	ND	ND

Notes: Data represent maximum values

1. Data were taken from the 900 S Minaret Street, Turlock ambient air quality monitoring station.

µg/m³ = micrograms per cubic meter

ppm = parts per million

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

Sources: CARB, 2017. EPA, 2017b.

Table 3.3-3: Frequency of Air Quality Standard Violations in the SJVAB

	Number of Days Exceeding Standard				
Year	*State 1-Hour O_3*	*State/Federal 8-Hour O_3*	*State 24-hour PM_{10}*	*Federal 24-hour PM_{10}*	*Federal 24-hour $PM_{2.5}$*
2014	1	24	38	0	17
2015	5	24	31	0	ND
2016	4	22	ND	ND	9

Notes:

ND = no data or insufficient data

Source: CARB, 2017.

Existing Sources of Air Pollution

The primary source of air pollution in the Planning Area is from on-road mobile sources such as automobiles, trucks, motorcycles, buses, and motor homes. These sources account for the majority of the O_3 precursor emissions in the city. On-road mobile source emissions are directly related to regional vehicle miles traveled (VMT) on both local roadways and interstate freeways. As population growth in the region occurs, VMT increases, resulting in increased O_3 precursor

emissions. Particulate emissions are generated by wood smoke from residential fireplaces and from construction activities. Consumer products, architectural coatings, fertilizers, and asphalt paving are also sources of air pollution within Ceres. There are also numerous stationary sources of emissions in the Planning Area as well, including industrial facilities.

REGULATORY SETTING

Federal Regulations

Clean Air Act

The Federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including the setting of NAAQS for major air pollutants, hazardous air pollutant standards, approval of State attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. NAAQS are established for "criteria pollutants" under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every five years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames. The NAAQS are presented in Table 3.3-4: Ambient Air Quality Standards.

State Regulations

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

CARB has established CAAQS, which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The CAAQS are presented in Table 3.3-4: Ambient Air Quality Standards.

Table 3.3-4: Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California Standards*[1]		*Federal Standards*[2]		
		Concentration[3]	*Method*[4]	*Primary*[3,5]	*Secondary*[3,6]	*Method*[7]
Ozone[8] (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM_{10})[9]	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 ($PM_{2.5}$)[9]	24-Hour	–	–	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry	35 ppm (40 mg/m^3)	–	Non-Dispersive Infrared Photometry
	8-Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[10]	1-Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	–	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1-Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m^3)	

Table 3.3-4: Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California Standards*[1]		*Federal Standards*[2]		
		Concentration[3]	*Method*[4]	*Primary*[3,5]	*Secondary*[3,6]	*Method*[7]
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[9]	–	
Lead (Pb)[12, 13]	30-Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average[9]	–		0.15 µg/m^3		
Visibility-Reducing Particles[14]	8-Hour	See footnote 14	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[12]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Notes:

ppm= parts per million by volume µg/m^3 = micrograms per cubic meter mg/m^3= milligrams per cubic meter

1. California standards for O_3, carbon monoxide (except 8-hour Lake Tahoe), SO_2 (1- and 24-hour), NO_2, and suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.
3. 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.

Table 3.3-4: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]

4. Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. 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.
8. On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm.
9. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. 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 standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards 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.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment 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 ppb. California standards are in units of ppm. To directly compare the 1-hour national standards 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
12. CARB has identified Pb 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.
13. The national standard for Pb was revised on October 15, 2008, to a rolling 3-month average. The 1978 Pb standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, 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.

Source: CARB "Ambient Air Quality Standards," 2016.

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 CAAQS for carbon monoxide, ozone, sulfur dioxide, and nitrogen dioxide by the earliest practical date. The CCAA 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 Board Handbook

CARB has developed an Air Quality and Land Use Handbook, which, while not a regulation, 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 (CARB, 2005). 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 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 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.

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 affected zones) and petroleum refineries.
- Within 300 feet of any dry cleaning operation (for operations with two or more machines, provide 500 feet).
- 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. The purpose of

this analysis is to further examine project sites for actual health risk associated with the location of new sensitive land uses.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act, or Assembly Bill 2588 (AB 2588), was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Building Energy Efficiency Standards (Title 24) and CALGreen

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 California Code of Regulations [CCR], Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption.

In 2007, Governor Schwarzenegger directed the California Building Standards Commission (CBSC) to work with State agencies on the adoption of green building standards for residential, commercial, and public building construction for the 2010 code adoption process. A voluntary version of the California Green Building Standards Code, referred to as CalGreen, was added to Title 24 as Part 11 in 2009. The 2010 version of CalGreen took effect January 1, 2011, and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial and low-rise residential buildings, state-owned buildings, schools, and hospitals.

The most recent CALGreen code was adopted in 2016 and became effective in 2017. CALGreen contains voluntary Tier 1 and Tier 2 levels, which are designed to exceed energy efficiency and other standards by 15 percent or 30 percent, respectively.

The California Building Code (CBC) has been amended and adopted as Title 15 of the Ceres Municipal Code, which regulates all building and construction projects within the city.

Local Regulations

San Joaquin Valley Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the State, local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. The SJVAPCD is responsible for clean air in the SJVAB. The SJVAPCD has adopted and enforced rules and regulations concerning air pollutant sources; issuing permits for stationary sources of air pollutants; inspecting stationary sources of air pollutants; responding to citizen complaints; monitoring ambient air quality and meteorological conditions; awarding grants to reduce motor vehicle emissions; and conducting public education campaigns, as well as many other activities.

Although SJVAPCD does not have authority to regulate emissions from motor vehicles, it does regulate the demolition of buildings and structures that may contain asbestos. Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Because asbestos

has been proven to cause serious adverse health effects, such as asbestosis and lung cancer, it is strictly regulated either based on its natural widespread occurrence, or in its use as a building material. The provisions that cover these operations are found in SJVAPCD Regulation VII, Rule 7050: Toxic Air Pollutants; Asbestos-Containing Materials for Surfacing Applications.

The SJVAPCD has several other regulations and rules that would apply to future development under implementation of the proposed General Plan. SJVAPCD regulations establish rules for the following:

- **Regulation II, Rule 2201 – New and Modified Stationary Source Review:** SJVAPCD requires stationary source projects that exceed certain thresholds to install best available control technology (BACT) and to obtain emission offsets to ensure that growth in stationary sources on a cumulative basis will not result in an increase in emissions.
- **Regulation IV, Rule 4601 – Architectural Coatings:** SJVAPCD Rule 4601 limits VOC emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.
- **Regulation IV, Rule 4901 – Residential Wood Smoke:** SJVAPCD Rule 4901 regulates emissions from residential fireplaces and wood burning heaters and provides educational information to reduce wood smoke emissions. The provisions of the rule apply to construction of new homes, retrofit of existing homes, or homes that are transferred through a real estate transfer. Wood burning heaters are required to be EPA Phase II Certified. Wood burning residential fireplaces are prohibited in residential developments with a density greater than two dwelling units per acre. More than two EPA Phase II Certified wood burning heaters per acre are prohibited in any new residential development with a density equal to or greater than three dwelling units per acre. Only one fireplace is allowed per dwelling unit where the density is less than two dwelling units per acre.
- **Regulation VIII – Fugitive PM_{10}:** SJVAPCD controls fugitive PM_{10} through Regulation VIII (Fugitive PM_{10} Prohibitions). The purpose of this regulation is to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions. This applies to activities such as construction, bulk materials, open areas, paved and unpaved roads, material transport, and agricultural areas. Sources regulated are required to provide dust control plans that meet the regulation requirements. Fees are collected by the SJVAPCD to cover costs for reviewing plans and conducting field inspections.
- **Regulation IX, Rule 9410 – Employer-Based Trip Reduction:** On December 17, 2009, the SJVAPCD adopted Rule 9410, Employer-Based Trip Reduction. This rule requires larger employers to establish an Employer Trip Reduction Implementation Plan (ETRIP) to encourage employees to reduce single-occupancy vehicle trips, thus reducing pollutant emissions associated with work commutes. The rule applies to employers with at least 100 eligible employees at a worksite. The rule does identify several types of workers that are not included in determining the number of employees at one site (e.g., part-time employees and employees that do not normally commute during the morning). The ETRIP will contain a set of measures an employer chooses that will encourage employees

at the worksite to use alternative transportation and ridesharing for their morning and evening commutes. Commute verification reporting to SJVAPCD is required annually.

- **Regulation IX, Rule 9510 – Indirect Source Review Rule:** The SJVAPCD adopted the Indirect Source Review Rule (ISR or Rule 9510) in 2006 to reduce ozone precursor (i.e. ROG and NOx) and PM_{10} emissions from new development projects. The rule is the result of state requirements outlined in the regions' portion of the SIP. The SJVAPCD's SIP commitments are contained in the 2004 Extreme Ozone Attainment Demonstration Plan and the 2003 PM_{10} Plan, which identify the need to reduce PM_{10} and NOx in order to reach the ambient air-pollution standards on schedule. New projects that would generate substantial air pollutant emissions, for which final discretionary approval was granted after March 1, 2006 are subject to this rule. The rule requires projects to mitigate both construction and operational period emissions by applying the SJVAPCD-approved mitigation measures and paying fees to support programs that reduce emissions. Fees are based on estimated costs to reduce the emissions and include expected costs to cover administration of the program.

Ozone Plans

The Air Basin is designated nonattainment of State and federal health-based air quality standards for ozone. To meet Clean Air Act requirements for the one-hour ozone standard, SJVAPCD adopted an Extreme Ozone Attainment Demonstration Plan in 2004, with an attainment date of 2010. Although the EPA revoked the federal 1-hour ozone standard effective June 2005 and replaced it with an 8-hour standard, the requirement to submit a plan for that standard remained in effect for the San Joaquin Valley.

The EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan, including revisions to the plan, effective April 2010. However, the SJVAB failed to attain the standard in 2010 and was subject to a $30 million Clean Air Act penalty. The penalty is being collected through an additional $12 motor vehicle registration surcharge for each passenger vehicle registered in the SJVAB that will be applied to pollution reduction programs in the region. SJVAPCD also instituted a more robust ozone episodic program to reduce emissions on days with the potential to exceed the ozone standards. Since then, 2012-2014 data led the EPA to approve the District's request for the 1-hour ozone clean data finding and has officially proposed to grant the San Joaquin Valley as attainment for the revoked federal 1-hour ozone standard.

The EPA originally classified the SJVAB as serious nonattainment for the 1997 federal 8-hour ozone standard with an attainment date of 2013. In April 2007, SJVAPCD's Governing Board adopted the 2007 Ozone Plan, which contained analysis showing a 2013 attainment target to be infeasible. The 2007 Ozone Plan details the plan for achieving attainment on schedule with an "extreme nonattainment" deadline of 2024. At its adoption of the 2007 Ozone Plan, SJVAPCD also requested a reclassification to extreme nonattainment. ARB approved the plan in June 2007, and the EPA approved the request for reclassification to extreme nonattainment in April 2010.

In June 2016, SJVAPCD adopted the 2016 Plan for the 2008 8-Hour Ozone Standard. The deadline for the SJVAB to attain the 2008 8-hour ozone standard is December 31, 2031. This requires another 207.7 tons per day in NO_x reductions from stationary and mobile sources throughout the Valley. The measures identified in this plan achieve the necessary reductions.

State ozone standards do not have an attainment deadline but require implementation of all feasible measures to achieve attainment at the earliest date possible. This is achieved through compliance with the federal deadlines and control measure requirements.

Particulate Matter Plans

Based on PM_{10} measurements from 2003-2006, EPA found that the SJVAB has reached Federal PM_{10} standards. In September 2007, SJVAPCD adopted the 2007 PM_{10} Maintenance Plan and Request for Redesignation. This plan demonstrates that the SJVAB will continue to meet the PM_{10} standard. EPA approved the document and on September 25, 2008, the SJVAB was redesignated to attainment.

The 2015 Plan for the 1997 $PM_{2.5}$ Standard, approved by SJVAPCD in April 2015, will bring the SJVAB into attainment of EPA's 1997 $PM_{2.5}$ standard as expeditiously as practicable, but no later than December 31, 2020.

This 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard addresses the federal mandates for areas classified as "Moderate" nonattainment for the 2012 $PM_{2.5}$ federal annual air quality standard of 12 $\mu g/m^3$. This plan was approved by SJVAPCD in September 2016, with an attainment deadline of December 31, 2021.

Stanislaus Council of Governments

Stanislaus Council of Governments (StanCOG) is a council of governments comprised of the cities of Ceres, Hughston, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, and Waterford, and the County of Stanislaus, that was established in 1971 by a Joint Powers Agreement to address regional transportation issues. StanCOG is the federally designated Metropolitan Planning Organization (MPO) for the Stanislaus region, and the Regional Transportation Planning Agency as designated by the State of California. As discussed in section 3.5 of this EIR, "Energy, GHG, and Climate Change," in June 2014 StanCOG adopted a Regional Transportation Plan (RTP) and Sustainable Community Strategy (SCS), which coordinates land use and transportation in order to reduce greenhouse gases emissions for cars and light-duty trucks for the region. By reducing (VMT, the measures in the RTP/SCS also reduce criteria air pollutant emissions. As part of its Air Quality Conformity Analysis, the RTP/SCS was found to conform to SJVAPCD air quality plans.

Stanislaus County General Plan

The 2015 Stanislaus County General Plan contains a Conservation and Open Space Element that includes policies for the County to promote effective communication, cooperation, and coordination among agencies involved in developing and operating local and regional air quality programs. This Element's policies also require the County to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects. Under the County General Plan policies, the County strives to reduce motor vehicle emissions by reducing vehicle trips and vehicle miles traveled and increasing average vehicle ridership. The policies also support efforts to increase public awareness of air quality problems and solutions.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Conflict with or obstruct implementation of the applicable air quality plan;**

Criterion 2: **Violate any air quality standard or contribute substantially to an existing or projected air quality violation;**

Criterion 3: **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);**

Criterion 4: **Expose sensitive receptors to substantial pollutant concentrations; or**

Criterion 5: **Create objectionable odors affecting a substantial number of people.**

SVJAPCD Thresholds

Appendix G of the State CEQA Guidelines states that, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The SJVAPCD has developed the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI). The thresholds of significance identified below in Table 3.3-5: SJVAPCD Air Quality Significance Thresholds, obtained from the SJVAPCD's GAMAQI, are used to determine whether a proposed project would result in a potentially significant air quality impact.

The thresholds listed in Table 3.3-5: SJVAPCD Air Quality Significance Thresholds represent screening-level thresholds that can be used for CEQA purposes to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 3.3-5: SJVAPCD Air Quality Significance Thresholds, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

Table 3.3-5: SJVAPCD Air Quality Significance Thresholds

Construction Emissions	
Pollutant	*Total Emissions (Tons per Year)*
Carbon Monoxide (CO)	100
Oxides of Nitrogen (NO_x)	10
Reactive Organic Gas (ROG)	10
Oxides of Sulfur (SO_x)	27
Respirable Particulate Matter (PM_{10})	15
Fine Particulate Matter ($PM_{2.5}$)	15
Operational Emissions	
Pollutant	*Total Emissions (Tons per Year)*
Carbon Monoxide (CO)	100
Oxides of Nitrogen (NO_x)	10
Reactive Organic Gas (ROG)	10
Oxides of Sulfur (SO_x)	27
Respirable Particulate Matter (PM_{10})	15
Fine Particulate Matter ($PM_{2.5}$)	15
TACs	
Carcinogens	Maximally Exposed Individual risk ≥ 20 in 1 million
Non-carcinogens	Chronic & Acute Hazard Index ≥ 1.0 for the Maximally Exposed Individual

Source: SJVAPCD, 2015.

METHODOLOGY AND ASSUMPTIONS

Information and analysis have been compiled based on an understanding of the existing ambient air quality of the SJVAB and review of existing technical data, aerial maps, and applicable laws, regulations, and guidelines. Vehicle miles traveled (VMT) associated with the proposed General Plan were derived from the traffic impact analysis prepared by Fehr & Peers. The California Emissions Estimator Model version 2016.3.1 (CalEEMod) was utilized to estimate project-related mobile and stationary source emissions.

SUMMARY OF IMPACTS

The Proposed Project would not conflict with or obstruct implementation of the SJVAPCD air quality plans, as the amount of growth predicted for the Proposed Project is accommodated by the SJVAPCD's attainment plans. Furthermore, proposed improvements to public transit, walking, and bicycling infrastructure align with the attainment plans' mobile source emissions reduction strategies.

Implementation of the Proposed Project could result in significant air quality impacts. These impacts could occur due to future construction activities such as grading and excavation associated with development, and due to increased vehicular traffic associated with future growth within the city. The proposed General Plan includes policies that would help to reduce potential air quality impacts through reductions in construction and operational emissions, and buffering new residential uses from the freeways. However, even with implementation of the proposed policies, long-term operation air quality impacts would remain significant and unavoidable.

The Proposed Project includes policies that establish buffers between sensitive receptors and emitters of toxic air contaminants and noxious odors, reducing impacts to sensitive receptors to a less-than-significant level.

IMPACTS

Impact 3.3-1 Development under the Proposed Project will not conflict with or obstruct the implementation of the applicable air quality plan. (*Less than Significant*)

The SJVAPCD is responsible for developing and implementing clean air plans for attainment and maintenance of the NAAQS and CAAQS in the SJVAB. The SJVAPCD developed its air quality plans to reach attainment concentrations of ozone and particulate matter in the SJVAB, which is currently in nonattainment for those criteria pollutants. The most recently adopted SJVAPCD air quality plans are the 2016 Plan for the 2008 8-Hour Ozone Standard and the 2016 Moderate Area Plan for the 2012 PM2.5 Standard.

In addition, the Proposed Project would increase City sustainability efforts to 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 the Land Use and Community Design Element of the proposed General Plan, policy 2.A.12 requires the integration of land use and transportation planning to support multi-modal interconnectedness between neighborhoods. Policies 2.C.1 and 2.C.2 call for high-density, pedestrian and bicycle-oriented development that integrates the potential ACE train stop in Ceres with the rest of the Planning Area. Policies 2.D.1 and 2.D.4 support more compact development by promoting infill, mixed use development with reduced parking requirements. Policies 2.E.4, 2.E.5, and 2.I.2 encourage the use and update of area-wide plans to provide opportunities for active transportation. Policies 2.F.2, 2.F.4, 2.F.5, 2.G.2, 2.G.3, 2.L.3, 2.L.6, 2.L.7, 2.L.8, 2.L.9, 2.L.11, and 2.L.12 call for compact, multi-modal design.

In the Transportation and Circulation Element of the proposed General Plan, policies 3.A.1, 3.A.2, 3.A.4, and 3.F.1 through 3.F.9 promote a multi-modal network, allow exceptions for

attempting to meet LOS standards if there would be a negative impact on non-motorized travel modes, and call for a reduction in VMT from existing and new development. Policies 3.A.5 and 3.A.6 support financing for transit, bicycle, and pedestrian networks. Policies 3.B.1 and 3.H.2 promote Complete Streets. Policies 3.C.2 and 3.C.3 require pedestrian and bicycle connectivity in residential development. Policies 3.D.1, 3.D.2, 3.D.3, and 3.D.5 require bicycle parking; consideration of potential shared parking and reduced parking requirements; electric vehicle parking; and priority parking for car pool vehicles, bicycles, and electric vehicles. Policies 3.E.1 through 3.E.8 support transit ridership.

In the Agricultural and Natural Resources Element of the proposed General Plan, policy 4.B.1 supports pedestrian and bicycle routes. Policies 4.G.1 through 4.G.14 explicitly support SJVAPCD goals and requirements and coordination with other jurisdictions and agencies. They also call for VMT and roadway dust reductions, consideration of hazardous air pollutants and noxious odors when siting sensitive receptors, investment in lowering emissions from the City's fleet, use of "green contracting", public education related to air quality, and mitigation of construction emissions.

In the Health and Safety Element of the proposed General Plan, policies 5.E.1 through 5.E.4 and 5.E.7 through 5.E.11 encourage energy efficient building design and construction, energy conservation, retrofitting of existing buildings, renewable energy use, zero-emission vehicle use, public education related to energy efficiency.

In the Public Facilities and Services Element of the proposed General Plan, policies 6.A.7, 6.A.8, and 6.A.21 encourage pedestrian and bicycle access to schools, parks, and recreational facilities.

Therefore, the Proposed Project would support the implementation of the mobile source strategies discussed in the SJVAPCD's attainment plans, including improvements to public transit, walking, and bicycling infrastructure. The Proposed Project also supports control of stationary source emissions, consistent with SJVAPCD attainment plans, through policy 4.G.15.

Review of the proposed goals and policies of the Proposed Project found them to be consistent with the applicable control measures of the SJVAPCD attainment plans. The proposed General Plan includes numerous policies that would reduce operational air pollutant emissions and increase energy efficiency. A complete list of applicable goals and policies, along with implementation actions that help carry them out, is provided below. The City also participates in regional planning efforts such as the San Joaquin Valley Blueprint Project and works closely with StanCOG in developing Regional Transportation Plans and capital improvement plans. These efforts contribute to the attainment strategy for the San Joaquin Valley Air Basin.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility.

2.C.1 **Transit Oriented Development.** Encourage high-density, pedestrian-oriented development with managed parking strategies to leverage the development potential and improved accessibility resulting from the development of the ACE train stop.

2.C.2 **Integrated ACE Train Stop.** Integrate the Altamont Corridor Express (ACE) train stop into the Downtown, providing multi-modal mobility options and safe and convenient pedestrian and bicycle access between the train stop and Downtown Ceres.

Goal 2.D Promote infill development to protect farmland; enhance community character; optimize city investment in infrastructure; provide pedestrian- and bicycle-friendly neighborhoods; and enhance economic vitality.

2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery.

2.D.4 **Mixed Use Development.** Encourage mixed use development within infill areas by providing incentives such as updating the city's Public Facility Fee program to reflect reduced need for additional roadway and operational infrastructure; reduced parking requirements; and/or opportunities for shared parking.

2.E.4 **Mitchell Road Corridor Plan.** Update the Mitchell Road Corridor Specific Plan to:

- Encourage infill development along the corridor;
- Include Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;
- Improve pedestrian and bicycle mobility along the corridor and within and between properties with safe and convenient infrastructure and design;
- Promote development that engages the street, including discouraging parking between the street and new development and encouraging street access into new buildings;
- Differentiate commercial uses intended for the Mitchell Road Corridor from those intended for Downtown Ceres;
- Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design;
- Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land;
- Include the land designated Regional Commercial south of SR 99.

2.E.5 **Hatch Road Corridor Plan.** Prepare a corridor plan for Hatch Road between SR 99 and Mitchell Road, which includes the following components:

- Infill development;
- Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;

- Pedestrian and bicycle infrastructure and design to promote safe and convenient access to properties;
- Differentiate commercial uses intended for the Hatch Road Corridor from those intended for Downtown Ceres;
- Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design;
- Land use and building location strategies to promote sharing of patronage among businesses;
- Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land;
- Areawide information and sign program;
- Maintenance plan and safety program;
- Image enhancement and marketing program; and
- Capital improvement projects, including streetscaping, signs, and facade improvements.

2.F.2 **Neighborhood Interaction.** Promote opportunities for neighborhood interaction with pedestrian-oriented streetscapes and urban design, as well as public spaces for meeting and gathering.

2.F.4 **Multi-Modal Accessibility.** Maximize accessibility for automobiles, cyclists, and pedestrians.

2.F.5 **Pedestrian-Oriented Streetscape.** Require streetscapes and buildings to encourage pedestrian activity and comfort.

2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation.

2.G.3 **Enhanced Design of Existing Commercial.** Encourage the renovation, infill, and reuse of existing commercial centers and strip malls. Redesign and modernization of architectural treatment is encouraged as well as utilization of parking lots to make the centers more pedestrian friendly, and enhance the definition and character of the street frontage and associated streetscape.

2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following:

- The distribution, location, and extent of land uses, including standards for land use intensity.

- Compatibility of new development with adjacent existing and proposed development.
- Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs.
- Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary;
- Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways;
- Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas.
- Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities.
- Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways.
- Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences.
- Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand.
- Provisions for minimizing conflicts between new development and adjacent agricultural uses.
- Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements.

2.L.3 **Pedestrian-Oriented Design.** Promote architectural and landscape design features in new development that create more pedestrian-friendly neighborhoods, such as orientation to the street; rear, setback, or detached garages; front porches; tree-lined streets; and landscaped strips between streets and sidewalks.

2.L.6 **Multi-Family Residential Design.** Ensure attractive architecture and design of multi-family buildings provide a variety of high-quality housing options with convenient facilities to foster a high quality of life. Encourage the following characteristics in multi-family developments:

- Variety of unit sizes including studios and three bedrooms;
- Building mass broken into small units;

- Sheltered and well-lit entrances to units and main entrances that are oriented to the street;
- Sufficient private outdoor space for each unit, such as balconies or decks;
- Functional and accessible interior site open space that may include a community garden;
- Attractive landscaping, including larger trees;
- Parking provided in rear of building or screened with landscaping;
- Consolidated parking in higher density residential projects that shares one or two entrances/exits from the property in order to minimize curb cuts;
- Good site and building management and maintenance;
- Screened, secure, and accessible areas for waste disposal and recycling;
- Building scale and mass transitions appropriate to adjacent single family neighborhoods, where applicable; and
- Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building.

2.L.7 **Downtown Commercial and Mixed Use Development Design.** Ensure commercial and mixed use development in Downtown Ceres cultivates an attractive destination and pedestrian-oriented center of activity. Encourage the following characteristics in commercial and mixed use buildings in Downtown Ceres:

- Main facades with entrance doors and windows that front the primary street;
- Buildings on larger lots broken down in scale to create a small-scale frontage rhythm;
- Ground-floor facades designed to give interest to pedestrians and visitors, for example with transparent glass storefronts;
- Parking in rear (preferred) or side of building;
- Shared facilities, such as driveways, parking areas, and pedestrian plazas, between adjoining properties; and
- Materials chosen and detailed to respect the climate and traditions of the San Joaquin Valley.

2.L.8 **Neighborhood Commercial Design.** Ensure development in the Neighborhood Commercial land use designation complements nearby residential neighborhoods with attractive commercial and mixed use buildings that are conveniently accessible by walking or biking. Encourage the following characteristics in development in the Neighborhood Commercial land use designation:

- Building entrances oriented toward the street rather than parking lot;
- Parking located to the side or rear of building where possible;

- Shaded walkways and small gathering spaces that help strengthen community character and identity, and facilitate accessing the commercial area on foot.

2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations:

- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility;
- Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility;
- Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate;
- Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings;
- Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate;
- A continuous, safe, and convenient walkway from the public right of way to building entrances;
- Building entrances oriented to the walkway;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

2.L.11 **Regional Commercial Design.** Ensure development in the Regional Commercial land use designation provides a commercial destination and other development attractive to the regional market. Encourage the following characteristics in development in the Regional Commercial land use designation:

- Distinctive gateway or entry features that contribute to the character of Ceres;
- Attractive landscaping with shade trees to provide substantial tree canopy in and around parking areas that enhance regional center identity;
- Plaza and outdoor patio areas with public art that create focal points;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;
- Convenient pedestrian connections from adjoining neighborhoods;
- Parking located to the side or rear of building where possible;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

2.L.12 **Business Park Design.** Ensure business park use developments attract businesses and provide a convenient and pleasant environment for workers. Encourage the following characteristics in development in the Business Park land use designation:

- Articulation in the walls, including insets, canopies, wing walls, and trellises;
- Large buildings "broken up" by variations in building form and architectural design;
- Distinctive gateway or entry features that contribute to the character of Ceres;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Blocks of no more than 1,000 feet in length with block perimeters of no more than 4,000 feet. Where larger blocks exist, improve convenience of walking and bicycling with shaded, internal connections, such as sidewalks, bicycle paths, and multi-use trails;
- A shaded pedestrian rest area with seating, landscaping, and trash receptacles near building entrances;
- Attractive landscaping, including larger trees;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;

- Parking located to the side or rear of building where possible;
- Loading bays and outdoor storage areas that are not readily visible to the public.

Transportation and Circulation Element

3.A.1 **Multi-Modal Network.** Provide for a comprehensive, integrated transportation network in accordance with the functional classification system described in this chapter and reflected in the Circulation Diagram with infrastructure and design that allows safe and convenient travel along and across streets for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.

3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service ("LOS") C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects support other goals from the General Plan including transit, active transportation, and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the "LOS" standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character.

3.A.4 **Reduce Vehicle Miles Traveled (VMT).** Support statewide efforts to reduce vehicle miles of travel (VMT) from existing and new development by encouraging infill and mixed use development, providing a multi-modal transportation network, and incorporating transportation and parking demand management measures into new development by design.

3.A.5 **Transportation Financing.** Pursue financing in a timely manner from a variety of sources to maintain, enhance, and expand the roadway, sidewalk, bicycle, and transit networks to achieve and maintain a safe and efficient complete transportation network.

3.A.6 **Development Fees.** Assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system, including transit, bicycle, and pedestrian systems.

Goal 3.B Maintain acceptable multi-modal travel flow along Ceres' major corridors.

3.B.1 **Complete Streets Corridors.** Maintain adequate travel flow along Ceres' major corridors while allowing for new development or redevelopment. To this end, the following shall be considered in site plan development for new development and redevelopment along Hatch Road, Mitchell Road, and Whitmore Avenue:

- Require consolidation of driveway access to reduce the number of vehicle/pedestrian/bicycle conflicts areas; if necessary, driveway improvements should include relocation of driveway access points on existing sites;
- Require combination of parking lots and access points with joint access and reciprocal parking agreements where possible;
- Require medians within the existing cross-section to limit turning movements and to provide pedestrian refuges at mid-block crossing locations;
- Require site plans to locate entrance and exits to avoid vehicle queue spillback to the public right-of-way;
- Require a continuous, safe, and convenient walkway from the public right of way, including transit stops where appropriate, to building entrances that minimizes pedestrian/vehicle conflicts; and
- Limit or prohibit drive-up windows where peak vehicle queues cannot be accommodated on-site.

Goal 3.C Protect residential areas from high-volume and high-speed traffic and its effects and promote bicycling and walking on residential streets.

3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible.

3.C.3 **Sidewalks.** Require sidewalks for all new streets in residential developments.

Goal 3.D Provide a sufficient amount of convenient, safe, and attractive vehicle and bicycle parking to serve existing and new development throughout the city.

3.D.1 **Off-Street Parking Requirements.** Require new development and redevelopment to provide adequate off-street parking for vehicles and bicycles that considers urban design, economic development, and alternative travel modes, including secure long-term bicycle parking at employment centers and transit centers. Parking shall be landscaped, located convenient to new development, and easily accessible from the street system.

3.D.2 **Context Sensitive Parking Requirements.** Provide parking supplies using a context-sensitive approach that considers the potential for shared parking and reduced parking requirements in walkable mixed-use neighborhoods and transit oriented areas.

3.D.3 **Electric Vehicle Parking.** Incorporate electric vehicle charging stations into new multifamily, commercial, and industrial development and site renovations.

3.D.5 **Priority Parking.** Where required, reserved employee car pool, bicycle, and electric vehicle parking should be provided in premium areas close to building entrances.

Goal 3.E Promote provision of safe and efficient transit service to reduce congestion, improve the environment, and provide viable non-automotive means of transportation within and connecting to Ceres.

3.E.1 **Flexible Transit Service.** Plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand.

3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services.

3.E.3 **Transit Right-of-Way.** Consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles. Require new development to reserve space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route.

3.E.4 **Farebox Recovery Ratios.** Restrict from providing transit, either fixed route or demand responsive, in scenarios where it would not be expected to meet the revenue to operating expense ratios or other performance standards required by the State Transportation Development Act or as may be adopted by any other state or regional agency.

3.E.5 **Transit Priority.** Prioritize the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act.

3.E.6 **Paratransit.** Continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit.

3.E.7 **Transit Coverage.** Ensure that new and existing transit routes strive to serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan.

3.E.8 **ACE Train Stop.** Preserve right-of-way to facilitate development of an Altamont Commuter Express (ACE) train stop in Downtown Ceres.

Goal 3.F Provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation.

3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and

planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.

3.F.2 **Funding.** Pursue a variety of sources of funding for the development and improvement of bikeways and pedestrian pathways, including grant funding, Countywide Measure L funds, and Capital Improvement Program funding.

3.F.3 **New Development.** Require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate.

3.F.4 **Right-of-Way.** Require new development to provide adequate rights-of-way to accommodate bikeways where identified on the bikeways map and as specified in the Bicycle and Pedestrian Master Plan, and to contribute to the development of planned bikeways.

3.F.5 **On-Site Bicycle Facilities.** Require new multi-family residential, commercial and industrial developments to provide bicycle facilities, including bicycle parking. For employment locations with more than 50 employees, other amenities may be required, including showers and changing facilities.

3.F.6 **Bicycle Safety.** Promote bicycle safety education to children and adults through coordination with the local school district, community groups, and other city sponsored events.

3.F.7 **Roadway Maintenance.** When roadway repaving projects occur, opportunities to provide bicycle facilities consistent with the adopted Alternative Transportation Plan (ATP) shall be considered.

3.F.8 **Pedestrian Facility Design.** Provide safe, continuous and pleasant pedestrian paths of travel, including sidewalk width appropriate for the land use context of the street, enhanced street crossings, landscape and/or parking buffers, and pedestrian scale lighting throughout the city.

3.F.9 **Interchange Improvements.** When interchanges and overpasses are upgraded, pedestrian and bicycle access shall be provided or enhanced as appropriate, safe, and feasible to do so.

3.H.2 **Project Prioritization.** Projects that incorporate Complete Streets objectives should be prioritized whenever possible, including incorporating active modes and transit as well as accessibility for all users of the transportation system.

Agricultural and Natural Resources Element

4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes.

Goal 4.G Protect and improve air quality in the Ceres area, and protect residents from harmful effects of air pollution.

4.G.1 **Air Quality Goals.** Cooperate with the San Joaquin Valley Air Pollution District and other agencies in the San Joaquin Valley Air Basin to meet regional air quality goals and achieve a consistent and effective approach to regional air quality planning and management. Coordinate with other jurisdictions and other regional agencies in the San Joaquin Valley to establish parallel air quality programs and implementation measures.

4.G.2 **San Joaquin Valley Air Pollution District.** Support the San Joaquin Valley Air Pollution District in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to adequately address the air quality impacts of new development.

4.G.3 **Air Quality Analysis.** Require major new development projects (those exceeding the San Joaquin Valley Air Pollution District's small project analysis level) to submit an air quality analysis for review and approval, with mitigation measures to be required as determined by the City.

4.G.4 **Proposed Projects.** Solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality, and submit development proposals to the San Joaquin Valley Air Pollution District for review and comment pursuant to CEQA prior to consideration by the City.

4.G.5 **Reduce VMT.** Emphasize transit-oriented, walkable, compact development patterns to reduce total vehicle miles traveled.

- See [proposed General Plan] Chapter 2: Land Use and Community Design Element for more policies related to land use and neighborhood design, and Chapter 3: Transportation and Circulation Element for policies related to multi-modal transportation.

4.G.6 **Roadway Dust.** Reduce the generation of fugitive dust to the greatest extent feasible by requiring lower speed limits and/or paving on unpaved roads, the removal of heavy silt loadings from roadways, and the paving and planting of shoulders and medians.

4.G.7 **Sensitive Receptors.** Avoid the siting of sensitive receptors within 500 feet of SR 99 to protect sensitive receptors from toxic air emissions from highway traffic. For those projects permitted within 500 feet of the highway, require site-specific project design improvements to reduce public health risks associated with poor air quality in these locations.

4.G.8 **Noxious Odors.** Do not permit new residential development within a half-mile radius of emitters of noxious odors. Require that any new potential odor source

locating within project screening trigger levels of sensitive receptors, as established by the San Joaquin Valley Air Pollution District, undertake a detailed odor analysis.

4.G.9 **Cumulative Impacts.** Address impacts of new development projects that may individually have insignificant impacts on air quality, but which together with other projects in the Planning Area may be cumulative significant by requiring mitigation at the plan level for areawide plan development.

4.G.10 **Trip Reduction Program.** Consider promoting vehicle trip reduction by implementing a trip-reduction program for City employees. Such a program may include carpooling and ridesharing; reimbursement of transit costs; encouragement of flexible work schedules, telecommuting, and teleconferencing.

4.G.11 **City Fleet Emissions.** Ensure through its long-range capital expenditure plans that the City investigates and considers technologies and available incentives to minimize emissions from the City's fleet.

4.G.12 **Green Contracting.** Using the Air District's model ordinance as a guide, establish and follow a "green contracting" rule, awarding points in the bidding process to companies that use low-emission vehicles and equipment. Work to improve the public's understanding of the linkages between land use, transportation, and air quality. Encourage local organizations that provide air quality education programs.

4.G.13 **Thresholds of Significance.** Use the San Joaquin Valley Air Pollution District's thresholds of significance for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents.

4.G.14 **Construction Mitigation.** Require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction. Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to:

- Site watering or application of dust suppressants;
- Phasing or extension of grading operations;
- Covering of stockpiles;
- Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and
- Revegetation of graded areas.

4.G.15 **Point Sources.** 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, and to incorporate siting and design considerations to minimize the impact of air contaminants on surrounding land uses.

Health and Safety Element

5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction.

5.E.2 **LEED Certification.** Encourage new development to participate in the Leadership in Energy and Environmental Design (LEED) certification program for the design, operation, and construction of high-performance energy efficient buildings.

5.E.3 **Energy Conservation and Retrofit.** Identify and promote resources and incentives for energy conservation and retrofitting of existing buildings. Encourage property owners and residents to participate in point-of-sale residential energy and water efficiency audits, and provide information on upgrading requirements and available incentives, if applicable.

5.E.4 **Energy Efficient Design.** Reduce the need for artificial temperature control and lighting by establishing standards to encourage the following:

- Passive cooling measures in new and existing development; and
- Design that incorporates windows that open to the outside in all habitable rooms to maximize the use of daylight and promote ventilation.
- Passive cooling measures may include the use of shade structures, shade trees and other vegetation, textured building materials and insulation, natural ventilation, and other strategies that rely on natural processes and minimize energy use.

5.E.7 **Energy Efficient Municipal Operations.** Demonstrate leadership by reducing the use of energy and fossil fuel consumption in municipal operations, increasing energy efficiency in transportation, waste management, building design and use, and the purchasing of goods and services.

5.E.8 **Renewable Energy.** Encourage the use of renewable energy sources in the community, such as geothermal, solar, hydroelectric, and wind power.

5.E.9 **Zero-Emission Vehicle Travel.** Support the use of zero-emission vehicles (ZEVs) in the community through measures such as ensuring the availability of infrastructure such as electric vehicle charging stations and dedicated parking.

5.E.10 **Community Engagement for Energy Efficiency.** Maintain up-to-date information on available resources, best practices, programs, and tools to support community members in improving their energy efficiency, including financial incentives provided by other agencies and funding opportunities that could allow the City to provide its own incentives and programs. Ensure that available information is accessible to the public through activities such as workshops or informational books, and media such as pamphlets or a website.

5.E.11 **Service Provider Cooperation.** Work with PG&E and Turlock Irrigation District to educate the public about the need to conserve energy resources and methods of improving energy efficiency, and develop programs to encourage the adoption of energy-saving measures.

Public Facilities and Services Element

6.A.7 **Pedestrian and Bicycle Access to Schools.** Locate schools in areas with safe and convenient pedestrian and bicycle access.

6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools.

6.C.21 **Bicycle and Pedestrian Connections to Parks and Recreational Facilities.** Establish new and maintain existing bicycle and pedestrian network connections between parks and recreational facilities to improve health outcomes and access to diverse programming in City park and recreational facilities. Ensure connections are well-lit, maintained, and marked with signage. For more detail about planned bicycle infrastructure improvements, see Chapter 3: Transportation and Circulation Element.

Implementation Actions

2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including:

- To right-size the required number of parking spaces in Downtown Ceres to encourage a vibrant, walkable environment and to allow for parking management strategies, such as shared parking and parking pricing, to ensure efficient use of parking spaces;
- To specify bicycle parking requirements for new developments and site renovations;
- To reevaluate the adequacy and appropriateness of parking requirements and consider provisions to allow for shared parking and reduced parking requirements considered;
- To specify electric vehicle parking requirements for new developments and site renovations

2.2 Update the public facilities fiscal model and the Public Facility Fee program based on the updated General Plan, including:

- To encourage the development of affordable, special needs, and senior housing; and
- To incentivize infill.

During the update, examine the potential for including costs related to improving the appearance of the SR 99 corridor in the Public Facility Fee program.

2.4 Establish incentives, potentially including, but not limited to, density bonuses, increased height limits, reduced parking requirements, expedited review, and development fee waivers or deferrals, to encourage the development of affordable, special needs, and senior housing.

2.10 Update the Downtown Specific Plan to incorporate and leverage the planned ACE train stop located Downtown.

2.12 Research and pursue the potential relocation of Whitmore Park, to allow for public and private investment and development on the existing park site near the potential ACE train stop, while ensuring adequate parkland and public gathering spaces Downtown.

2.18 Discourage cul-de-sacs that have no pedestrian and bicycle connections.

2.19 Provide a pedestrian-scaled environment with streets and sidewalks sized and designed to promote outdoor use and walking.

2.20 Provide sidewalks along all streets, public and private, except along alleys.

3.1 Periodically update the Engineering Improvement Standards for all roadway cross-sections to ensure bicycle, pedestrian and transit vehicles are accommodated within the standard plans. This review will also consider circumstances under which street widths within the existing right-of-way may be reduced to accommodate the addition of pedestrian or bicycle facilities to meet other city goals.

3.8 Periodically prepare a short range transit plan.

3.9 Update the Downtown Specific Plan to incorporate new ACE train stop, train stop design plans, multimodal train stop access guidelines, parking policies, and transit-supportive uses.

3.10 In conjunction with the development of an ACE train stop, review CAT routes and adjust to serve ACE train if cost effective and/or consistent with other Goals and Policies in this section.

3.11 Prepare an Active Transportation Plan that at a minimum conforms to Caltrans Requirements, including community outreach, existing conditions, network development, implementation and funding.

3.12 Work with the Ceres Unified School District to plan, design, and construct infrastructure-related projects that will improve the ability of students to walk and bicycle to school.

3.13 As part of the Active Transportation Plan, identify gaps in the sidewalk network, prioritize gap closure projects, and develop design guidelines.

5.6 Encourage residential efficiency retrofits with the goal of a 50-percent energy reduction compared to baseline in 30 percent of the total homes in the city by 2035 (7,020 homes out of a total of 23,401) through the following activities:

- Publicize available incentive and rebate programs, such as Turlock Irrigation District's (TID's) Energy Efficiency Rebates program and Pacific Gas and Electric's (PG&E's) energy savings programs—such as Home Upgrade options, the Energy Savings Assistance Program, and the Smart Thermostat Rebate—on the City's website and by other means;
- Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and
- Adopt a residential energy conservation ordinance, which requires residential property owners to conduct and disclose an energy audit at the time of major renovations (as defined by the ordinance), to ensure that homes and residential developments meet specified low cost energy efficiency measures—such as requisite ceiling insulation, insulated pipes, water heater blankets and exterior door weather stripping.

5.7 Encourage commercial and industrial efficiency retrofits with the goal of a 25-percent energy reduction compared to baseline in 30 percent of the total non-residential square footage in the city by 2035 through the following activities:

- Publicize available incentive and rebate programs; such as TID's Commercial Refrigeration Rebate, Advanced Power Strip Program, and Agricultural Irrigation Pump Rebate; and PG&E's Commercial HVAC Optimization Program, Heavy Industry Energy Efficiency Program, Retrocommissioning Program; on the City's website and by other means;
- Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and
- Adopt a non-residential energy conservation ordinance, which requires property owners to ensure that commercial and industrial buildings meet specified energy efficiency measures—such as requisite heating, ventilation, and air conditioning improvements, service water system requirements, and improved refrigeration equipment, at the time of conducting major renovations (as defined by the ordinance).

5.11 Promote an increase in the proportion of ZEV passenger vehicle miles traveled from a projected 14 percent to 25 percent of total vehicle miles traveled by 2035 through the following measures:

- Working with industry partners, construct a "PV to EV" pilot project to install a photovoltaic charging station at a City facility (such as City Hall), to charge electric vehicles (EVs). The purpose of the pilot project would be to evaluate the feasibility of incorporating more ZEVs into the city's fleet.
- Prepare a community-wide charging station siting plan, which evaluates site visibility and exposure, EV driving ranges, high volume destinations, locations with high ownership or interest in EVs, and cost of construction.
- Construct ZEV charging stations based on the community-wide charging station siting plan described above. The ZEV charging stations will be funded by grant funds when available, and the City will post signage directing ZEVs to charging stations described above.
- Offer dedicated ZEV parking, and provide charging stations adjacent to ZEV parking as identified in the community-wide charging station siting plan.
- Adopt requirements for ZEV parking for certain new developments.
- Adopt a residential energy conservation ordinance requiring the installation of EV chargers or pre-wiring in new residential construction and major renovations.

Mitigation Measures

None required.

Impact 3.3-2 Development under the proposed General Plan would violate air quality standards or contribute substantially to an existing or projected air quality violation. (*Significant and Unavoidable*)

As stated previously, in the SJVAB, ozone and particulate matter are the pollutants of main concern, since the SJVAB has been designated as a nonattainment area for the State O_3, $PM_{2.5}$, and PM_{10} standards. The SJVAB is also designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards.

Construction

Construction activities associated with implementation of the Proposed Project would occur over the planning horizon. These activities would cause short-term emissions of criteria air pollutants. The primary source of NO_X, CO, and SO_X emissions is the combustion of fuels during operation of construction equipment. The primary sources of particulate matter (PM_{10} and $PM_{2.5}$) emissions from construction are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary source of VOC emissions from construction is the application of architectural coating and off-gas emissions associated with asphalt paving.

Information regarding specific development projects, soil types, and the locations of receptors would be necessary in order to quantify the level of impact associated with construction activity. How much development and of what nature is likely to occur in the future is not possible to predict, thus quantifying impacts associated with individual future development projects is outside of the scope of this EIR. However, due to the scale of development activity associated with buildout of the Proposed Project, a conservative assumption is that criteria air pollutant emissions would likely exceed the SJVAPCD regional significance thresholds (this analysis relies on a conservative assumption to account for the uncertainty in predicting actual volumes and timing of construction in the future). In accordance with SJVAPCD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the SJVAB. Emissions of VOC and NO_X are precursors to the formation of O_3. In addition, NO_X is a precursor to the formation of particulate matter. Therefore, VOC and NOx construction emissions, in addition to PM_{10} and $PM_{2.5}$ emissions, would cumulatively contribute to the nonattainment designations of the SJVAB for O_3 and particulate matter. Air quality related to construction must be addressed on a project-by-project basis.

For this program EIR, it is not possible to determine whether the scale and phasing of individual projects would exceed the SJVAB's short-term regional or localized construction emissions thresholds. In addition to regulatory measures (e.g., SJVAPCD Rule 4601 for architectural coatings, Regulation VIII for fugitive dust control, Rule 9510 for new indirect source review, and the CARB's Airborne Toxic Control Measures), mitigation imposed at the project level may include extension of construction schedules and/or use of special equipment. Existing City policies and regulations and proposed General Plan principles and actions are intended to minimize impacts associated with non-attainment criteria pollutants. While these regulations and policies would reduce impacts associated with construction activities, there is no guarantee emissions would be mitigated below SJVAPCD thresholds. Therefore, impacts would remain significant and unavoidable during construction.

Operation

Long-term air emission impacts are those associated with area sources and mobile sources involving any change related to the Proposed Project. In addition to the short-term construction emissions, buildout of the Proposed Project would also generate long-term air emissions. These long-term emissions are primarily mobile source emissions that would result from vehicle trips and VMT. Area sources, such as natural gas heaters, landscape equipment, and use of consumer products, would also result in pollutant emissions.

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. PM_{10} 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. Since much of the future traffic fleet would be expected to be made up of light-duty gasoline-powered vehicles, a majority of the PM_{10} emissions would result from entrainment of roadway dust from vehicle travel.

Energy source emissions result from activities in buildings for which electricity and natural gas are used (non-hearth). 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 include building mechanical systems, such as heating and air conditioning; lighting; and plug-in electronics, such as refrigerators or cooking equipment. 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.

Area source emissions associated with buildout of the Proposed Project would include emissions from water heating and the use of landscaping equipment. Stationary sources, other than area sources, were not included in operational emissions estimate calculations as new stationary source projects under the Proposed Project are not proposed at this time. Additionally, should any future stationary sources be constructed, these projects would be subject to permitting review by the SJVAPCD to ensure violations of current air quality standards would not occur, as well as independent environmental review under CEQA. Therefore, because future stationary source projects that would occur under the proposed General Plan would be required to obtain permits issued by the SJVAPCD, and would be subject to independent environmental review, stationary source emissions are not provided.

Emission estimates for the Proposed Project were calculated using CalEEMod. Model results are summarized in Table 3.3-6: Estimated Daily Maximum Operational Emissions (tons/year) and provided in Appendix B. For the purposes of this analysis, the net new land uses associated with buildout of the Proposed Project in year 2035 were estimated in CalEEMod to determine operational emissions associated with its implementation. Existing land uses were not included in the analysis, therefore the emissions estimates shown in Table 3.3-6: Estimated Daily Maximum Operational Emissions (tons/year) are assumed to be the net new project emissions over baseline conditions. Buildout of the Proposed Project would allow for future residential, office, commercial, commercial/industrial, light industrial, and public/institutional uses, and increases in land use densities and development intensities. These land uses were included in CalEEMod. VMT estimates for the project were based on the traffic impact analysis for the proposed General Plan prepared by Fehr & Peers for this EIR, which estimates that buildout of the proposed General Plan would result in an increase in 771,000 total VMT per day. Complete details of the emissions calculations are provided in Appendix B.

As identified in Table 3.3-6: Estimated Daily Maximum Operational Emissions, operational emissions associated with the additional development that would occur under buildout conditions of the Proposed Project would exceed the SJVAPCD's significance threshold for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$; therefore, impacts would be potentially significant. SO_x emissions would be below SJVAPCD's significance thresholds. Future development under the proposed project would be required to comply with the ozone and PM air quality plans, SIP, CARB motor vehicle standards, SJVAPCD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and the proposed General Plan policies; however, there is no guarantee emissions would be mitigated below SJVAPCD thresholds. Proposed General Plan policies, as listed below, would reduce impacts associated with long-term operational criteria pollutant emissions; however, impacts would remain significant and unavoidable during operation.

Table 3.3-6: Estimated Daily Maximum Operational Emissions (tons/year)

	General Plan Buildout (2035)					
Emission Source	*ROG*	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Area	112.53	13.28	113.71	0.08	1.58	1.58
Energy	1.97	17.45	11.48	0.11	1.36	1.36
Mobile	65.05	746.55	302.04	2.08	109.33	29.80
Total	**188.05**	**768.97**	**327.61**	**1.89**	**74.55**	**22.62**
Emission Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Note: Emissions represent summer. "Summer" emissions are representative of the conditions that may occur during the ozone season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Source: Dyett & Bhatia, 2017.

Proposed General Plan Policies that Reduce the Impact

The proposed General Plan goals and policies as listed under Impact 3.3-1 above, which encourage cooperation between the City, SJVAPCD, and other regional agencies to establish parallel air quality programs; analysis of new developments' air quality impacts; reduction of VMT and roadway dust; investigation of lower-emission options for City fleets; and mitigation of construction impacts.

Mitigation Measures

No mitigation is available beyond measures identified in the SJVAPCD air quality plans, SIP, CARB motor vehicle standards, SJVAPCD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and principles and actions in the proposed General Plan that would partially reduce impacts. Therefore, impacts would remain significant and unavoidable.

Impact 3.3-3 Development under the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants for which the General Plan region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (*Significant and Unavoidable*)

In analyzing cumulative impacts from the Proposed Project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SJVAB is designated as nonattainment for the CAAQS and NAAQS. If the Proposed Project does not exceed thresholds and is determined to have less-than-significant impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the Proposed Project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the Proposed Project would only be considered to have a significant cumulative impact if its contribution accounts for a significant proportion of

the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

The SJVAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$, and a State nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in localized impacts. As discussed previously in Impact 3.3-2, future development projects allowed under the Proposed Project and associated land uses would generate vehicle trips and VMT that would result in ozone precursor emissions and particulate matter. Individual projects proposed under the Proposed Project would be required to undergo subsequent environmental review pursuant to CEQA, and as part of this review effort, projects requiring discretionary approval would be required to assess whether the project complies with the applicable air quality plan. Additionally, SJVAPCD would require that individual projects demonstrate compliance with SJVAPCD rules and regulations governing air quality, specifically particulate matter. The City of Ceres would continue to coordinate with SJVAPCD to ensure citywide growth projections, land use planning efforts, and local development patterns are accounted for in the regional planning and air quality planning processes. However, as shown in Table 3.3-6: Estimated Daily Maximum Operational Emissions (tons/year), implementation of the Proposed Project would result in an exceedance of SJVAPCD's threshold for daily operational emissions. Therefore, the potential impact from the Proposed Project would be cumulatively considerable.

Proposed General Plan Policies that Reduce the Impact

The proposed General Plan goals and policies as listed under Impact 3.15-1 above, which encourage cooperation between the City, SJVAPCD, and other regional agencies to establish parallel air quality programs; analysis of new developments' air quality impacts; reduction of VMT and roadway dust; investigation of lower-emission options for City fleets; and mitigation of construction impacts.

Mitigation Measures

No mitigation is available beyond measures identified in the SJVAPCD air quality plans, SIP, CARB motor vehicle standards, SJVAPCD regulations for stationary sources and architectural coatings, Title 24 energy efficiency standards, and principles and actions in the proposed General Plan that would partially reduce impacts. Therefore, impacts would remain significant and unavoidable.

Impact 3.3-4 Development under the Proposed Project would expose sensitive receptors to substantial pollutant concentrations. (*Significant and Unavoidable*)

Construction

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the State and federal governments as TACs or hazardous air pollutants (HAPs). State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California. The State has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs. As examples, TACs include acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride,

hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and DPM. Some of the TACs are groups of compounds that contain many individual substances (for example, copper compounds and polycyclic organic matter). The greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. SJVAPCD designates a Maximally Exposed Individual cancer risk threshold of 20 in 1 million or greater. "Maximally Exposed Individual" is a person assumed to be living near the source and continuously exposed to the highest estimated concentrations of TACs resulting from a project over a 70-year lifetime. The "Maximally Exposed Individual risk" is the likelihood that person will contract cancer quantified using standard risk-assessment methodology. Construction activities under the Proposed Project would be dispersed intermittently over an 18-year period.

Off-road diesel construction equipment and heavy-duty diesel trucks (e.g., concrete trucks, building materials delivery trucks), which are sources of diesel exhaust particulate matter, are regulated under three airborne toxic control measures (ATCMs) adopted by CARB. The ATCM for diesel construction equipment specifies particulate matter emission standards for equipment fleets, which become increasingly stringent over time. Furthermore, most newly-purchased construction equipment introduced into construction fleets after 2013–2015, depending on the engine horsepower rating, are equipped with high-efficiency diesel particulate filters. One of ATCMs for heavy-duty diesel trucks specifies that commercial trucks with a gross vehicle weight rating over 10,000 pounds are prohibited from idling for more than 5 minutes unless the engines are idling while queuing or involved in operational activities. In addition, starting in model year 2008, new heavy-duty trucks must be equipped with an automatic shutoff device to prevent excessive idling or meet stringent NO_x requirements. Lastly, fleets of diesel trucks with a gross vehicle weight rating greater than 14,000 pounds are subject to another ATCM. This ATCM requires truck fleet operators to replace older vehicles and/or equip them with diesel particulate filters, depending on the age of the truck. Therefore, over the life of the project, the diesel exhaust particulate matter emissions from off-road construction equipment and trucks will be controlled substantially. Accordingly, implementation of the Proposed Project is not anticipated to result in a long-term exposure of sensitive receptors to substantial concentration of TACs from construction activities. Impacts would be less than significant.

Operation

Various industrial and commercial processes (e.g., manufacturing and dry cleaning) allowed under the proposed General Plan would be expected to release TACs. Industrial land uses, such as laboratories, combustion sources, dry cleaners, gasoline-dispensing facilities, and the Aemetis, Inc. facility have the potential to be substantial stationary sources that would require a permit from SJVAPCD for emissions of TACs. Emissions of TACs would be controlled by SJVAPCD through permitting. Installing of BACT would be required prior to the issuance of any necessary air quality permits under SJVAPCD Rule 2201. Until specific future projects are proposed, the associated emissions cannot be determined or modeled at this time.

Buildout of the Proposed Project could allow residential and other sensitive land uses to locate in the vicinity of air pollutant sources such as stationary sources and the freeways. Policies in the proposed General Plan would serve to protect new sensitive receptors from exposure to substantial pollutant concentrations. Proposed policy 4.H.7 would require project design improvements to reduce public health risks associated with poor air quality within a 500-foot buffer along the freeway to abate air pollution, and limit new residential developments within the buffer. The SJVAPCD permitting process for new emissions sources and existing sources in the vicinity of new sensitive developments would further help to ensure that substantial exposure to air pollutants would be avoided.

In addition to stationary/area sources of TACs, warehousing operations could generate a substantial amount of DPM emissions from off-road equipment use and truck idling. New land uses in the Planning Area that use trucks could generate an increase in DPM that would contribute to cancer and noncancer health risk in the SJVAB. Furthermore, trucks would travel on regional transportation routes through the SJVAB, contributing to near-roadway DPM concentrations.

The Proposed Project includes a land use designation change along Roeding Road that would allow for new light industrial uses adjacent to Whitmore Charter High School and areas designated for residential use. This proposed change has the potential to introduce higher levels of truck traffic, and therefore greater exposure to DPM and fugitive dust, to the vicinity, resulting in a potentially significant impact to sensitive receptors.

Land development projects are required to comply with AB 2588, SJVAPCD Rule 2201, and CARB standards for diesel engines. Additionally, as listed below, the proposed General Plan includes measures to reduce DPM impacts and provide buffers between sensitive receptors and TAC sources. In particular, Policy 4.G.15 would ensure that new air pollution point sources be located an adequate distance from residential areas and other sensitive receptors. Additionally, Policy 4.G.7 would prohibit siting of sensitive receptors within 500 feet of State Route 99 (SR 99), protecting new sensitive receptors from elevated air pollutant concentrations near the freeway. However, because the proposed designation of a light industrial use adjacent to the Whitmore Charter High School has the potential to increase the exposure of sensitive receptors to pollutants from more intensive truck traffic, the impact is considered significant.

Proposed General Plan Policies that Reduce the Impact

Goal 4.G and policies 4.G.7 and 4.G.15, as listed under Impact 3.3-1 above, as well as the following policies.

Land Use and Community Design Element

2.G.7 **Reduce Impacts from Truck Traffic.** Use site design, including locating parking between the street and buildings, as well as using landscaping as a buffer—especially along expressways—on commercial uses and access to these uses, including along walkways. *See Chapter 3: Transportation and Circulation Element for more on expressways in Ceres.*

2.L.14 **Industrial Buffering.** Require industrial development to provide sufficient buffering from residential areas to avoid impacts associated with noise, odors, and the potential release of noxious and hazardous materials.

Mitigation Measures

There are no mitigation measures available that would ensure that a potential increase in truck traffic serving light industrial uses adjacent to Whitmore Charter High School would have a less than significant impact on sensitive receptors. As the sensitive receptors already exist in the vicinity of the proposed Light Industrial designation, the City cannot guarantee that the existing receptors would implement any mitigation that would be necessary to reduce impacts below a level of significance if mitigation measures were available. Further, any mitigation that could be implemented by a future use occupying the proposed Light Industrial site would be of a project-specific nature that cannot be determined within the scope of the Proposed Project or this EIR. Therefore, the impact would remain significant and unavoidable.

Impact 3.3-5 Development under the Proposed Project would not create objectionable odors affecting a substantial number of people. (*Less than Significant*)

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of future projects under the Proposed Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and architectural coatings. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant.

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Development under the proposed General Plan would be required to meet all local, State, and federal regulations related to odor control, including permit requirements. However, new sensitive receptors could be potentially located near odor-generating land uses. Future project-level analysis would need to demonstrate consistency with the proposed General Plan policy listed below that establishes a buffer between new residential development and emitters of noxious odors and requires noise analyses for new emitters of noxious odors, ensuring that odor impacts would be reduced to a level that is less than significant.

Proposed General Plan Policies that Reduce the Impact

Policy 4.G.8, as listed under Impact 3.3-1; and policies 2.G.7 and 2.L.14, as listed under Impact 3.3-5 above.

Mitigation Measures

None required.

3.4 Biological Resources

This section assesses potential environmental impacts on existing biological resources from future development under the Proposed Project, including those related to sensitive species and/or habitats, riparian or streamside resources under the jurisdiction of federal or State agencies, and adopted regulations or policies. The section describes biological resources in the Planning Area, including habitats, wetlands, critical habitat, and special-status species, as well as relevant federal, State, and local regulations and programs.

There was one comment on the NOP regarding topics addressed in this section. The California Department of Fish and Wildlife (CDFW) noted that ground-disturbing activities from future development under the Proposed Project have the potential to result in significant impacts related to Swainson's Hawk, a species listed as threatened pursuant to the California Endangered Species Act (CESA) that is known to nest and forage within the Planning Area. The comment also provided language for potential mitigation measures to reduce the impact. Impacts on candidate, sensitive, or special-status species such as Swainson's hawk are discussed under Impact 3.4-1 of this section.

Environmental Setting

PHYSICAL SETTING

Habitat Types

The following habitat types have been mapped within the Planning Area. These classifications and descriptions are taken from the California Wildlife Habitat Relationships System (CWHR System), and identify vegetative communities and potentially associated wildlife. While each classification may not be completely accurate in identifying exact species or conditions on the ground, they do provide useful information on what is likely to be found, as well as a starting point for further site-specific study. Habitat types are shown in Figure 3.4-1: Habitat Types.

- **Annual Grassland.** Annual Grassland habitats are identified in four different areas in the Planning Area: near the Tuolumne River; Whitmore Avenue and Morgan Road; Mitchell Road and E. Service Road; and at the south end of State Route 99 (SR 99). Most of these areas are previously disturbed sites. Annual Grassland denotes open grasslands composed primarily of annual grasses and forbs, with some perennial grass species found in moist, lightly grazed, or relic prairie areas. Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover.

- **Deciduous Orchard, Evergreen Orchard, Vineyard, and Irrigated Row and Field Crops.** These habitat types related to agriculture are found throughout the Planning Area, primarily in the area outside of city limits. The orchards are typically single species tree-dominated habitats. The understory is usually composed of low-growing grasses, legumes, and other herbaceous plants, but may be managed to prevent understory growth totally or partially, such as along tree rows. Vineyards are composed of single species planted in rows, where the understory often consists of bare soil or a cover crop of herbaceous plants. Vegetation in irrigated crops vary in size, shape, and growing pattern. Some species of birds and mammals have adapted to these habitats. Wildlife such as deer and rabbit browse on the trees and crops; others, such as squirrel and numerous birds, feed on fruit or nuts. In orchards, some wildlife species are more passive in their use of the habitat for cover and nesting sites. Many wildlife species act as biological control agents by feeding on weed seeds and insect pests.
- **Eucalyptus.** Eucalyptus habitats are mapped in small areas along the Tuolumne River. Eucalyptus habitats range from single-species thickets with little or no shrubby understory to scattered trees over a well-developed herbaceous and shrubby understory. Characteristic species of this habitat include crow, raven, barn owl, and red-tailed and red-shouldered hawks. Eucalyptus are important as roosts, perches, and nest sites for a number of bird species, particularly raptors. Those eucalyptus with stringy bark or a tendency for rapid deposition of litter create micro habitats for a number of small vertebrate species, including alligator lizard, gopher snake, and woodrat.
- **Fresh Emergent Wetland.** Fresh Emergent Wetlands are mapped in areas along the Tuolumne River against the Ceres River Bluff Regional Park and in the water feature of the River Oaks Golf Course. Fresh Emergent Wetlands are characterized by erect, rooted herbaceous hydrophytes. The vegetation may vary in size from small clumps to vast areas covering several kilometers. On the upper margins of Fresh Emergent Wetlands, saturated or periodically flooded soils support several moist soil plant species including big leaf sedge, baltic rush, redroot nutgrass and on more alkali sites, saltgrass. On wetter sites, common cattail, tule bulrush, river bulrush, and arrowhead are potential dominant species. Fresh emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds, and numerous mammals, reptiles, and amphibians. Many species rely on Fresh Emergent Wetlands for their entire life cycle.
- **Riverine.** Riverine habitats are distinguished by intermittent or continually running water. They are found along the Tuolumne River. In fast stream habitats, the majority of species (insects, moss, and algae) live in riffles, on the underside of rubble and gravel, sheltered from the current. In warmer temperatures and slower waters with accumulating bottom sediment, mollusks and crustaceans, emergent vegetation, and plankton can be found. The open water zones of large rivers provide resting and escape cover for many species of waterfowl, and mammals may also be present.
- **Urban.** Most of the city is classified as Urban habitat. The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Species become richer and more diverse where vegetative cover is denser. Typically, in cities, this follows a concentric pattern where

cover is least dense in the central downtown area and gradually increases towards the edge.

- **Valley Foothill Riparian.** A small area of Valley Foothill Riparian habitat is mapped along the Tuolumne River. Valley Foothill Riparian is a tree-dominated habitat. Most trees are winter deciduous. Valley-foothill riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife, including amphibians and reptiles, nesting birds, winter visitant birds, and mammals.

Wetlands

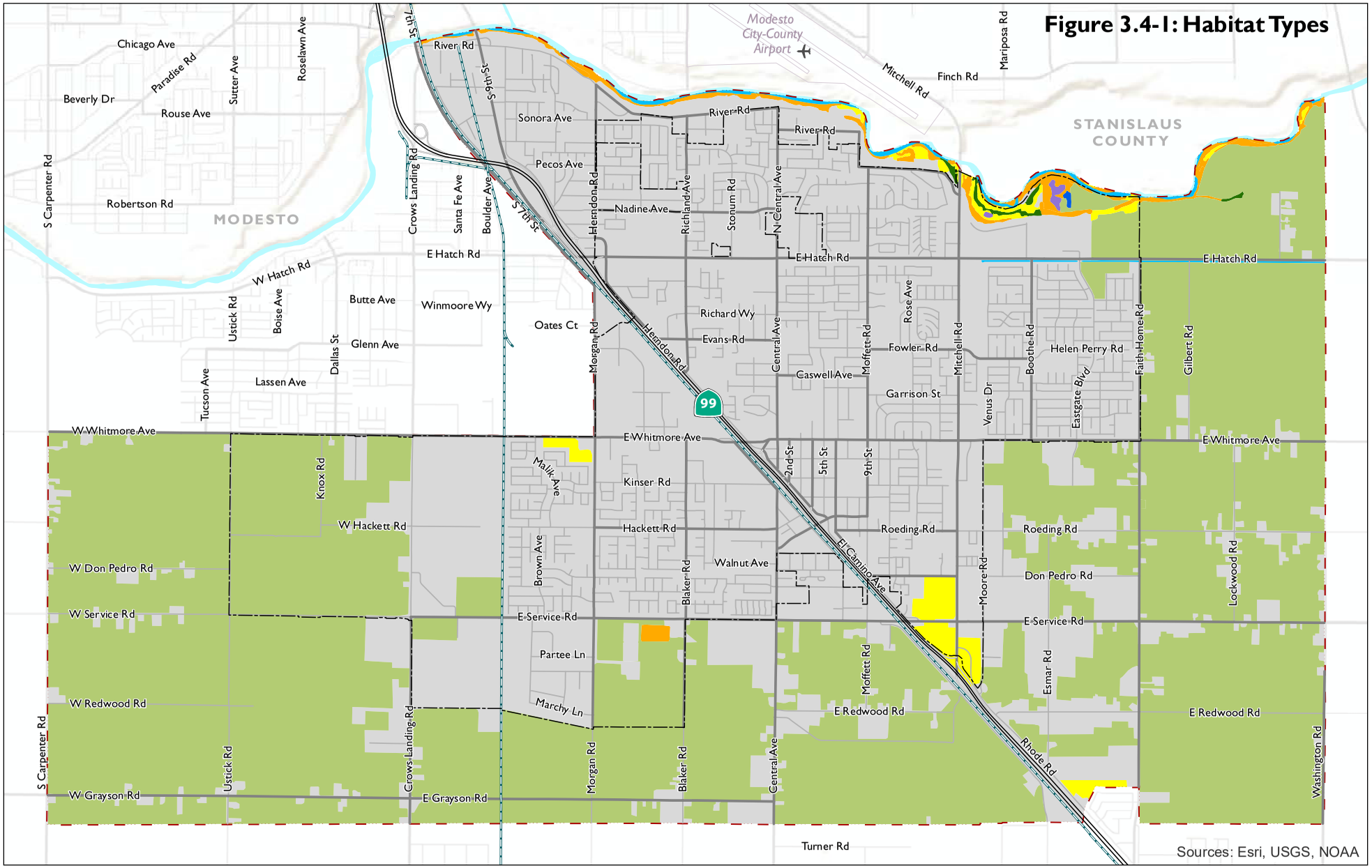
Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Water saturation (hydrology) largely determines how the soil develops and the types of plant and animal communities living in and on the soil. Wetlands may support both aquatic and terrestrial species. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promote the development of characteristic wetland (hydric) soils (EPA). Wetlands provide a multitude of ecological, economic, and social benefits. They provide habitat for fish, wildlife, and plants, allow for groundwater recharge, reduce flooding, and support cultural and recreational activities.

Figure 3.4-1: Habitat Types shows areas of fresh emergent wetlands. In the Planning Area, wetlands are mapped along the Tuolumne River. Figure 3.4-1: Habitat Types is not necessarily indicative of the exact location of all wetlands in the Planning Area – in some cases, wetland habitat shown on the map may not exist on the ground, while additional wetlands may exist that are not mapped. This figure is for informational purposes regarding what is likely to be found in the Planning Area and provides a starting point for further site-specific study.

Critical Habitat

Critical habitat is defined by the Endangered Species Act as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The entire stretch of the Tuolumne River that borders the Planning Area is designated by the United States Fish and Wildlife Service (USFWS) as critical habitat for the steelhead trout. Figure 3.4-2: Critical Habitats and Special-Status Species shows critical habitats within the Planning Area.

Figure 3.4-1: Habitat Types



Highway
Ramps
Major Roads
Local Roads
Railroads

Habitat Types

- Annual Grassland
- Deciduous Orchard, Evergreen Orchard, Vineyard, Irrigated Row and Field Crops
- Eucalyptus
- Valley Foothill Riparian
- Fresh Emergent Wetland
- Fresh Emergent Wetland, Urban
- Riverine
- Urban
- City of Ceres
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; Vegetation Dataset for Great Valley Ecoregion, California Department of Fish & Wildlife, (Downloaded 2017); Dyett & Bhatia, 2015.

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Figure 3.4-2: Critical Habitats and Special-Status Species

Disclaimer: Information presented in this map is based on data from CNDDB version 09/2015. Areas of occurence on this map represent areas in which known locations of the species listed here have been found as of the date of this version. There may be additional occurences of additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special species occur in an area.

CNDDB can be contacted for more information about these occurences.

Sources: Esri, USGS, NOAA

- Highway
- Ramps
- Major Roads
- Local Roads
- Railroads

CNDDB Threatened Species

- Swainson's Hawk
- Steelhead - Central Valley DPS
- Valley Elderberry Longhorn Beetle

CNDDB Other Species

- Moestan Blister Beetle
- Obscure Bumble Bee

USFWS Critical Habitat

- Steelhead

- River
- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; California Natural Diversity Database (CNDDB), 2015; U.S. Fish & Wildlife Service, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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Wildlife Corridors

The California Essential Habitat Connectivity (CEHC) Project was commissioned by the California Department of Transportation (Caltrans) and CDFW for the purpose of making transportation and land use planning more efficient and reducing wildlife-vehicle collisions. The CEHC Project identified natural blocks of habitat across California and areas that potentially provide linkages between these blocks. According to the CEHC Project, there are no Natural Landscape Blocks or Essential Connectivity Areas in the Planning Area. Natural Landscape Blocks are defined as relatively natural habitat blocks that support native biodiversity, and Essential Connectivity Areas are the areas essential for ecological connectivity between them. Notably, the CEHC Project analyzes large areas of habitat, and should not be exclusively used to analyze ecological resources.

Special-Status Species

Special-status species are those plants and animals that, because of their acknowledged rarity or vulnerability to various causes of habitat loss or population decline, are recognized in some fashion by federal, State, or other agencies as deserving special consideration. The California Natural Diversity Database (CNDDB) lists five special-status species that have been known to occur within and around the Planning Area, some of which are listed as Threatened by the USFWS and/or the CDFW, as summarized in Table 3.4-1: CNDDB Special-Status Species.

There have been sightings of Swainson's hawk (*Buteo swainsoni*) along the Tuolumne River in the northeast of the Planning Area. Swainson's hawk has been listed as threatened by the State of California and has been identified as a Bird of Conservation Concern by the USFWS. Steelhead trout (*Oncorhynchus mykiss*), which occur in the Tuolumne River bordering the Planning Area, are listed as Threatened in the Central Valley Distinct Population Segment by USFWS and CDFW. The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as Threatened and has been found near to or within the Planning Area. The Moestan Blister Beetle *(Lytta moestan)* (distinct from the Molestan Blister Beetle which is found in large grassland areas of the San Joaquin Valley) and Obscure Bumble Bee *(Bombus caliginosus),* which have been sighted in the general vicinity of the Planning Area, are being tracked by CNDBB and are currently not listed as threatened on the State or federal registers.

There may be occurrences of additional species within this area that have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area does not imply that the species does not occur or that there is a lack of diversity in that area. Figure 3.4-2: Critical Habitats and Special-Status Species shows a generalized range for where special-status species known to occur in the Planning Area have previously been sighted. The species shown have the potential to occur outside of the area delineated in the figure.

Table 3.4-1: CNDDB Special-Status Species

Common Name (Scientific Name)	*Rank*[1]	*Federal Listing*	*State Listing*	*Other Status*[2]
Moestan Blister Beetle *(Lyttamoestan)*	G2 S2	None	None	None
Obscure Bumble Bee *(Bombus caliginosus)*	G4? SIS2	None	None	IUCN: VU
Swainson's Hawk (*Buteo swainsoni*)	G5 S3	None	Threatened	BLM: S IUCN: LC USFWS: BCC
Steelhead Trout – Central Valley DPS *(Oncorhynchus mykiss)*	G5T2Q S2	Threatened	Threatened	AFS: TH
Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)	G3T2 S2	Threatened	Threatened	None

Notes:

1. The global rank (G-rank) is a reflection of the overall status of an element throughout its global range. The state rank (S-rank) is assigned much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries. Uncertainty about a rank is expressed as a range of values or by adding a "?" to the rank. A "?" represents more certainty than a range.
   G1/S1 = Critically Imperiled; G2/S2 = Imperiled; G3/S3 = Vulnerable; G4/S4 = Apparently Secure; G5/S5 = Secure; T = Rank applies to a subspecies or variety; Q = There are taxonomic questions associated with the element.
2. AFS: TH = Threatened by the American Fisheries Society; BLM: S = Sensitive by the Bureau of Land Management; IUCN: LC = Least Concern by the International Union for Conservation of Nature; IUCN: VU = Vulnerable by the International Union for Conservation of Nature; USFWS: BCC = U.S. Fish and Wildlife Service Birds of Conservation Concern

Source: California Natural Diversity Database (CNDDB), 2015; U.S. Fish & Wildlife Service, 2015.

REGULATORY SETTING

Federal Regulations

Federal Endangered Species Act (FESA)

The FESA was enacted to protect any species of plant or animal that is endangered or threatened with extinction. Section 9 of the FESA prohibits "take" of federally threatened or endangered wildlife. Take, as defined under the FESA, means to harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct (16 USC 1532[19]). Section 9 also prohibits the removal and reduction of endangered plants from lands under federal jurisdiction, and the removal, cutting, digging, damage, or destruction of endangered plants on any other area in "knowing violation of State law or regulation." Section 9 of the FESA (16 USC 1538) prohibits take of a federally listed endangered species of fish or wildlife except pursuant to a permit and habitat conservation plan (HCP) approved under Section 10(a) of the FESA (16 USC 1539). The FESA prohibitions and requirements are different, however, for endangered species of plants. Section 9 prohibits the take of endangered plants only from areas under federal jurisdiction, or if such take would violate state law. For listed plants located on private land, formal consultation

with the USFWS is required when a project has a federal "nexus" (i.e., a federal permit is required or federal funding is involved). In the absence of a federal nexus, a project does not require a permit under the FESA for impacts to listed plants on private lands.

Migratory Bird Treaty Act (MBTA)

The MBTA (16 United States Code 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive, and is listed at 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species and any part, egg, or nest of such birds (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened birds under the FESA. The MBTA, which is enforced by the USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

Clean Water Act (CWA)

The U.S. Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the Federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or indirect (through a nexus identified in the USACE regulations). The USACE typically regulates as non-wetland waters of the United States any body of water displaying an ordinary high water mark (OHWM). In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met. The portion of the Santa Ana River in the Planning Area meets the USACE's Clean Water Act Section 404 wetland criteria, as do upstream reaches to the north and downstream reaches to the south down to Prado Dam and beyond.

In 2006, the United States Supreme Court addressed CWA jurisdiction over wetlands adjacent to or abutting navigable, non-navigable, and ephemeral tributaries, and over permanent and relatively permanent non-navigable tributaries. According to the United States Supreme Court, the CWA does not assert jurisdiction over upland erosional features, gullies, or roadside ditches that have infrequent, low volume, and short duration of water flow; instead, the USACE uses a "significant nexus" analysis. A water body is considered to have a "significant nexus" with a traditional navigable water (TNW) if its flow characteristics and functions, in combination with the ecologic and hydrologic functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream TNW. Additional information is provided in two joint documents prepared by the U.S. Environmental Protection Agency (EPA) and the USACE: (1) a memorandum titled "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Caravell v. United*

States," dated June 5, 2007; and (2) "Jurisdictional Determination Form Instructional Guidebook."

The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA, through water quality certification of any activity that may result in a discharge to jurisdictional waters of the U.S. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act.

State Regulations

California Endangered Species Act

Under the California Endangered Species Act (CESA) (Fish and Game Code Sections 2050 to 2116), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFW maintains lists of "species of special concern," which serve as "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species. Project-related impacts on species on the CESA endangered or threatened lists would be considered significant in this EIR. Impacts on "species of concern" would be considered significant under certain circumstances, discussed below.

California Fish and Game Code

Section 1602

Under Section 1602 of the California Fish and Game Code, public agencies are required to notify the CDFW before undertaking any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review occur generally during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, the CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a streambed-alteration agreement that becomes part of the plans, specifications, and bid documents for the project.

Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.

Section 3511 (Fully Protected Birds)

The California Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Section 3511 lists fully protected birds and prohibits take of these species. The California Fish and Game Code defines take as "hunt, pursue, catch, capture, or

kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed the CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded upon the original NPPA and enhanced legal protection for plants. CESA established threatened and endangered species categories, and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

Local Regulations

Stanislaus County General Plan

The Stanislaus County General Plan includes a Conservation/Open Space Element that is intended to promote the protection, maintenance, and use of the county's natural resources; prevent wasteful exploitation, destruction, and neglect of natural resources; recognize the need for natural resources to be maintained for their ecological values as well as for their direct benefit to people; preserve open space lands for outdoor recreation; and preserve open space for public health and safety. Policies related to biological resources include the following:

- **Policy 1.** Maintain the natural environment in areas dedicated as parks and open space.
- **Policy 2.** Assure compatibility between natural areas and development.
- **Policy 3.** Protect areas of sensitive wildlife habitat and plant life, including those listed by State or federal agencies, from development and/or disturbance.
- **Policy 4.** Protect and enhance oak woodlands and other native hardwood habitat.
- **Policy 29.** Protect habitats of rare and endangered fish and wildlife species, including special-status wildlife and plants.

The Stanislaus County General Plan applies in the unincorporated portions of the Planning Area.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 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 Game or U.S. Fish and Wildlife Service;**

Criterion 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 Game or US Fish and Wildlife Service;**

Criterion 3: **Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;**

Criterion 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;**

Criterion 5: **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;**

Criterion 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.**

METHODOLOGY AND ASSUMPTIONS

The Proposed Project's Land Use Diagram was compared against existing biological conditions shown in Figures 3.4-1: Habitat Types and 3.4-2: Critical Habitats and Special-Status Species to determine potential impacts on biological resources that could result from implementation of the Proposed Project.

No new field studies or other research were conducted for the preparation of this EIR, as existing resources contained information on all pertinent aspects of biological resources in the Planning Area at an appropriate level of detail for a program-level environmental assessment.

SUMMARY OF IMPACTS

Implementation of the Proposed Project within the Planning Area has the potential to change environmental conditions that currently support protection of open space areas and special-status

species within the Planning Area. However, policies in the Proposed Project require the protection of open space areas of natural resources value and support the protection of habitats for special-status species. There are no existing local policies and ordinances related to biological resources, and the Proposed Project supports the adopted Habitat Conservation Plan that applies to the Planning Area.

IMPACTS

Impact 3.4-1 Implementation of the Proposed Project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (*Less than Significant*)

Future development under the Proposed Project could result in direct removal or degradation of potentially suitable habitat for the six special-status species that have been known to occur in the Planning Area. Loss of suitable habitat could result in direct removal of these species. Swainson's hawk and Steelhead trout have been sighted along and within the Tuolumne River environs, which includes Valley Foothill Riparian, Annual Grassland, and Riverine habitat as shown in Figure 3.4-1: Habitat Types. The Valley Elderberry Longhorn Beetle, Moestan Blister Beetle, and the Obscure Bumble Bee have been known to occur throughout the Planning Area. Implementation of the Proposed Project could impact these species by changing existing habitats, including the Deciduous Orchard, Evergreen Orchard, Vineyard, Irrigated Row and Field Crops, and Annual Grassland in the undeveloped areas of the western, southern, and eastern portions of the Planning Area.

Policies in the proposed General Plan would reduce potential impacts from future development on special-status species by requiring biotic resource evaluations prior to approval of discretionary development permits involving parcels within a significant ecological resource area (Policy 4.D.2), careful planning and siting to maintain habitat values (policies 4.B.6 and 4.D.1), minimization of construction impacts on vegetation and other biological features (Policy 4.F.9), setbacks to preserve biological integrity of riparian habitats (Policy 4.C.4), and CDFW-recommended best practices for the protection of Swainson's hawk (policies 4.D.5 and 4.D.6). In addition, proposed policies would encourage the protection of open space, especially along the Tuolumne River, promote infill development and compact development patterns, which limit habitat modification, and support local conservation efforts. Therefore, with implementation of the proposed policies below, the impact of implementation of the Proposed Project on species identified as a candidate, sensitive, or special status species would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Agricultural and Natural Resources Element

4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact development that concentrates development in urbanized areas in order to limit the

conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface.

Goal 4.B Conserve and, where possible, enhance open space lands for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety.

4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes.

4.B.2 **Recreational Open Space.** Site and design City parks to include natural open space areas for passive recreation, wildlife study and enjoyment, increasing biodiversity, and stormwater management.

Due to the built-out nature of the city, opportunities for natural open space for passive recreation uses are limited within the Planning Area. One area where some potential may exist is along the Tuolumne River east of River Bluff Park.

4.B.3 **Tuolumne River Regional Park.** Work with Stanislaus County and the City of Modesto to integrate open space features into the Tuolumne River Regional Park system.

4.B.4 **Open Space Protection.** Identify and permanently protect as open space areas of natural resource value to the maximum extent feasible, including, but not limited to, wetlands, riparian corridors, and floodplains. Use site-specific assessments to determine the significance of the resource.

Due to the built-out nature of the city, opportunities for open space protection may be limited. Some potential may exist within the Tuolumne River floodplain in the eastern portion of the Planning Area.

4.B.5 **River Bluffs**. Support efforts to preserve river bluffs as open space and to enhance the bluffs as part of the hydrological system and river habitat.

4.B.6 **Open Space Requirements.** Require new development to preserve and enhance as open space significant stands of vegetation and any areas of special ecological significance to the maximum extent feasible through site design approaches such as clustering and ecological planning.

Goal 4.C Protect, restore, and enhance habitats and wildlife corridors that support fish and wildlife species to maintain populations at viable levels.

4.C.1 **Ecosystem Linkages.** Create and link open space and habitat areas of sufficient size to protect biodiversity, accommodate wildlife movement, and sustain ecosystems.

4.C.2 **Pesticide Control.** Work with the Stanislaus County Agricultural Commissioner to identify and enforce mechanisms to control residual pesticides and pesticide runoff to prevent potential damage to water quality, vegetation, and wildlife.

4.C.3 **Fisheries.** Support the management efforts of the California Department of Fish and Wildlife to maintain and enhance the productivity of fisheries in the Tuolumne River.

4.C.4 **Riparian Setback.** Protect the integrity of habitats, hydrology, and soils along the river by prohibiting development within a distance of at least 50 feet as measured from the limit of riparian vegetation or as measured from the top of the channel bank, whichever is greater. Smaller buffers may be allowed only where it can be demonstrated that a 50-foot buffer is not possible due to site-specific constraints or if the development is for public, passive park or passive recreational uses, and the proposed narrower buffer would adequately protect the biological, hydrologic, and geologic integrity of the riparian corridor.

Goal 4.D Protect environmentally sensitive lands and rare, threatened, or endangered plant and animal communities.

4.D.1 **Special-Status Species.** Support the preservation of habitats of rare, threatened, endangered, and other special-status species. Require development in areas known to have value for wildlife to be carefully planned and, where possible, sited to maintain reasonable wildlife value of the habitat.

4.D.2 **Biotic Resource Evaluation.** Require, as part of the environmental review process prior to approval of discretionary development permits involving parcels within a significant ecological resource area, a biotic resources evaluation of the site by a qualified biologist. Significant ecological resource areas include, at a minimum, the following:

- Any habitat that supports rare, threatened, or endangered animals or plants; and
- Riparian and wetland habitats associated with the Tuolumne River.

Such evaluation should consider the potential for significant impact on biological resources, and identify measures to feasibly mitigate any impacts or otherwise indicate why mitigation would not be feasible. In approving any such permit, the City shall determine the feasibility of the identified mitigation measures.

4.D.3 **Significant Biological Resources.** Support and cooperate with the efforts of other local, State, and federal agencies and private entities engaged in the preservation and protection of significant biological resources from incompatible land uses and development, including efforts involving a Habitat Conservation Plan or other plan for habitat management or restoration. Significant biological resources include endangered, threatened, or rare species and their habitats, wetland habitats, wildlife migration corridors, and locally-important species/communities.

4.D.4 **Native and Drought Tolerant Plants.** Utilize native and drought-tolerant plants in landscaping for public buildings and parks. Encourage the use of native and drought-tolerant plant species on private property, and prohibit the use of invasive species.

4.D.5 **Swainson's Hawk Protection.** Require that proposed development projects adhere to the following steps in order to ensure the protection of Swainson's hawk in the Planning Area:

- If ground-disturbing activities would take place on sites where suitable nesting habitat may exist, a survey for nesting Swainson's hawks shall be conducted by a qualified wildlife biologist following survey methods developed by the Swainson's Hawk Technical Advisory Committee (2000) prior to undertaking any ground-disturbing activities. The survey shall include recommended mitigation measures for any potential impacts from the project.
- If ground disturbing activities would take place during the nesting season (March 1 through August 31) and Swainson's hawk nests are found to be present, a no-disturbance buffer of a minimum of 0.5 miles shall be established around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. If the 0.5-mile buffer is not feasible, the project proponent must consult with the California Department of Fish and Wildlife to determine if a smaller buffer would avoid take. If it is determined that take cannot be avoided, the project proponent must acquire authorization through an Incidental Take Permit from the California Department of Fish and Wildlife in accordance with the California Endangered Species Act in order to continue.

4.D.6 **Swainson's Hawk Habitat Mitigation.** Require mitigation for projects that would result in the loss of Swainson's hawk foraging habitat within 10 miles of an active nest tree, which may include but is not limited to:

- For projects within one mile of an active nest tree, provide a minimum of one acre of habitat management land for each acre of development.
- For projects within between one and five miles of an active nest tree, provide a minimum of 0.75 acres of habitat management land for each acre of development.
- For projects within between five and 10 miles of an active nest tree, provide a minimum of 0.5 acres of habitat management land for each acre of development.

Alternative mitigation strategies are acceptable if approved by the California Department of Fish and Wildlife.

4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation.

Implementation Actions

4.2 Inventory open space resources in the Planning Area and identify gaps and opportunity areas where open space can be set aside for recreational, resource conservation, groundwater recharge, or flood management purposes, as well as connected to create greenways for the enjoyment of residents, and/or corridors for wildlife movement.

Mitigation Measures

None required.

Impact 3.4-2 Implementation of the Proposed Project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service. (*Less than Significant*)

As shown in Figure 3.4-1: Habitat Types, the Planning Area includes Valley Foothill Riparian and Riverine habitat. Although some areas along the river are currently developed, the General Plan allows for infill development and redevelopment of vacant and underutilized parcels. The Proposed Project does not designate land along the Tuolumne River for habitat protection. Potential direct and indirect impacts from implementation of the Proposed Project are discussed in Impact 3.4-1.

Policies in the proposed General Plan would reduce impacts to sensitive habitats by requiring new development to preserve and enhance, as feasible, areas of special ecological value (Policy 4.B.6); conduct a biotic resource evaluation as part of the environmental review process prior to approval of discretionary development permits involving parcels within a significant ecological resource area (Policy 4.D.2); maintain wildlife value of habitats (Policy 4.D.1); construction best management practices that avoid steep slopes and minimize disturbance of natural vegetation and other natural features (Policy 4.F.9); observe a minimum 50-foot setback from riparian habitat; and mitigate any loss of Swainson's hawk foraging habitat (Policy 4.D.6). With implementation of these and other proposed policies that would support the protection and enhancement of open space, particularly along the Tuolumne River, ecosystem linkages, and significant biological resources, potential impacts of development under the Proposed Project on riparian habitat would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals 4.B, 4.C, and 4.D; policies 4.B.1, 4.B.3, 4.B.4, 4.B.5, 4.B.6, 4.C.1, 4.C.2, 4.C.3, 4.C.4, 4.D.1, 4.D.2, 4.D.3, 4.D.4, 4.D.6, and 4.F.9; and Implementation Action 4.2, as listed under Impact 3.4-1 above.

Mitigation Measures

None required.

Impact 3.4-3 Implementation of the Proposed Project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (*Less than Significant*)

Development resulting from implementation of the Proposed Project may result in both direct and indirect significant adverse impacts to jurisdictional wetlands or waters. Jurisdictional wetlands and waters may occur within the Planning Area along the Tuolumne River. Development on or adjacent to these areas could potentially affect these resources either directly through fill or indirectly through the alteration of the hydrologic regime.

Future development under the Proposed Project would be subject to the requirements of Clean Water Act Section 404 and 401 permitting requirements, which would limit and/or mitigate impacts from projects that would discharge pollutants or dredged or fill materials into waters of the state, including wetlands. Future development would also be subject to the CDFW Lake and Streambed Alteration Program, which would require any project that could substantially divert or obstruct the flow of; substantially change or use any material from; or deposit debris into a river, stream, or lake to agree to measures that would protect existing fish or wildlife resources.

Proposed General Plan policies would further reduce potential impacts by maintaining a 50-foot setback for development from riparian vegetation and supporting the protection and enhancement of the Tuolumne River, requiring biotic resource evaluations of wetland and riparian habitats, requiring new development to preserve and enhance as open space any areas of special ecological significance, and promoting other efforts to protect wildlife habitats and water quality. With compliance with existing State and federal law, and implementation of the proposed General Plan policies below, the impact of implementation of the Proposed Project on jurisdictional wetlands or waters would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals 4.B, 4.C, and 4.D; policies 4.B.1, 4.B.3, 4.B.4, 4.B.5, 4.B.6, 4.C.2, 4.C.3, 4.C.4, 4.D.1, 4.D.2, 4.D.3, and 4.F.9; and Implementation Action 4.2, as listed under Impact 3.4-1 above, as well as the following policy.

4.F.3 **Contamination Prevention.** Protect surface water and groundwater resources from contamination from point and non-point sources by pursuing strategies to minimize the pollutant and sediment levels entering the hydrological system through stormwater, agricultural, and other urban runoff.

Mitigation Measures

None required.

Impact 3.4-4 Implementation of the Proposed 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*)

The CEHC Project does not identify any Natural Landscape Blocks or Essential Connectivity Areas in the Planning Area. However, large areas of undeveloped areas in the western, eastern, and southern portions of the Planning Area may serve as wildlife corridors for common and special-status species, and the Tuolumne River may provide corridors for aquatic and riparian species. Implementation of the Proposed Project could lead to development in these areas that would disturb habitats and interrupt wildlife migration.

Policies and implementation actions in the Proposed Project reduce the potential impact by creating an inventory of open space resources to assess potential corridors for wildlife movement and protection of open space areas with natural resource value, including the riparian corridor along the Tuolumne River. The impact of implementation of the Proposed Project on wildlife corridors would be less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Goal 4.B and 4.C.; policies 4.B.1, 4.B.4, 4.B.5, 4.B.6, 4.C.1, 4.C.3, 4.C.4, 4.D.1, and 4.D.3; and Implementation Action 4.2, as listed under Impact 3.4-1 above.

Mitigation Measures

None required.

Impact 3.4-5 Implementation of the Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*No Impact*)

Neither the City of Ceres nor Stanislaus County has local policies or ordinances protecting biological resources, such as a tree preservation policy. Therefore, implementation of the Proposed Project would not conflict with any policies or ordinances and there would be no impact.

Mitigation Measures

None required.

Impact 3.4-6 Implementation of the Proposed 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*)

Pacific Gas & Electric (PG&E) has prepared a multi-species Habitat Conservation Plan (HCP) for PG&E's gas and electrical transmission and distribution facilities, the lands owned by PG&E and/or subject to PG&E easements for these facilities, private access routes to infrastructure associated with operation and maintenance activities, minor facility expansion areas, and mitigation areas for impacts resulting from covered activities. The HCP covers portions of nine counties: San Joaquin, Stanislaus, Merced, Fresno, Kings, Kern, Mariposa, Madera, and Tulare, including portions of the Planning Area. Activities that are covered under the HCP include activities associated with the operation and maintenance (including limited minor new construction) of PG&E's gas and electric transmission and distribution system as mandated for public safety.

There are no Natural Community Conservation Plans at the county level that include land within the Planning Area.

The Proposed Project includes policies to cooperate with the efforts of private entities, such as PG&E, that are engaged in preservation and protection of biological resources. Therefore, any conflicts with any applicable habitat conservation plan or natural community conservation plan from implementation of the Proposed Project would be less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Goal 4.D, and policies 4.D.1 and 4.D.3, as listed under Impact 3.4-1 above.

Mitigation Measures

None required.

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3.5 Energy, Greenhouse Gases, and Climate Change

This section assesses potential environmental impacts related to energy, greenhouse gases (GHGs), and climate change from future development under the Proposed Project, including those related to GHG emissions, energy usage, and energy efficiency standards. This section describes existing energy usage, GHG emissions, and sources of GHGs in the Planning Area, as well as relevant federal, State, and local regulations and programs. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

Energy

In the United States, California is the second largest consumer of energy, second only to Texas (EIA, 2017). However, California's per capita energy consumption is relatively low, in part due to mild weather that reduces energy demand for heating and cooling, and in part due to the State's energy efficiency programs and standards. As of 2017, petroleum and natural gas supply the majority of the energy consumed in California.

The concept of sustainable energy generally refers to renewable energy sources, such as solar power, wind power, wave power, geothermal power, tidal power, and biomass, as well as technologies that improve energy efficiency. Energy conservation refers to efforts made to reduce energy consumption in order to preserve future resource capacities and reduce pollutants. Energy conservation can be achieved through increased energy efficiency, decreased energy consumption, and/or reduced consumption from conventional, nonrenewable energy sources.

State Energy Conditions

Electricity

In 2015, California used over 261,150 gigawatt-hours of electricity (EIA, 2017). Electricity use in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building.

Because of the State's energy efficiency standards and efficiency and conservation programs, California's per-capita electricity use has remained stable for more than 30 years while the

national average has steadily increased. The California Energy Commission's (CEC's) 2016 Integrated Energy Policy Report Update estimates that electricity consumption will grow by up to 1.42 percent per year between 2015 and 2026, with peak demand growing an average of 1.03 percent annually over the same period (CEC, 2017a).

Of electricity generated in California in 2016, 50 percent is from natural gas; 15 percent from hydroelectric; 10 percent is from nuclear power plants; and 10 percent is from solar production. Other sources include coal-fired power plants and other renewable energy sources, such as wind turbines. California also imports electricity from out of state (CEC, 2017b).

Natural Gas

In 2015, California used approximately 24 billion therms of natural gas (EIA, 2016). California is the second largest natural gas consumer in the United States, representing more than 10 percent of national natural gas consumption. In 2012, residential and commercial uses accounted for 30 percent of the state's natural gas demand, large consumers such as electricity generators and the industrial sector accounted for about 70 percent of demand, and vehicle fuel amounted to 1 percent of demand (CEC, 2017c). California remains heavily dependent on natural gas to generate electricity, which accounted for roughly 40 percent of natural gas demand (CEC, 2016).

The CEC's 2015 Integrated Energy Policy Report forecasts that natural gas consumption by end users (excluding electricity generation) is expected to grow by up to 0.33 percent annually through 2024 (CEC, 2016).

Petroleum

In 2015, California used approximately 651 million barrels of petroleum (EIA, 2017). Petroleum use in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel.

Due to the prevalence of petroleum product use in the transportation sector, the rise in costs of these fuels, the federal Renewable Fuel Standard (RFS), and the California Low Carbon Fuel Standard (LCFS), California is diversifying its transportation fuel sources, increasing fuel efficiency, and changing land use and urban design to reduce energy usage related to transportation needs.

Local Energy Conditions

Table 3.5-1: Annual Residential, Commercial, and Industrial Electricity Use; 2014 shows 2014 electricity usage in Ceres and the Planning Area as a whole for the residential, commercial, and industrial sectors. Electricity in the Planning Area is generated by Turlock Irrigation District (TID), which generates its electricity from hydroelectric facilities, natural gas power plants, a geothermal power plant, a coal-fired power plant, solar panels, and wind turbines (TID, 2017a). For the Planning Area, the residential sector uses the most electricity (nearly half), followed by industrial and commercial. Commercial and industrial electricity usage constitutes a higher percentage of total electricity use in the Planning Area as a whole than in the city alone. Based on a 2015 state electricity usage of 261,150 gigawatt-hours and population of 38,400,000 (ACS, 2015), the California per capita electricity usage is approximately 6,800 kWh per capita. For the Planning Area, the 2014 electricity usage per capita was slightly lower: 6,500 kWh per capita.

Table 3.5-2: Annual Residential, Commercial, and Industrial Natural Gas Use; 2014 shows 2014 natural gas usage in Ceres and the Planning Area for the residential, commercial, and industrial sectors. For the Planning Area, the residential sector uses the most natural gas, followed by commercial. According to data from Pacific Gas and Electric (PG&E), industrial land uses did not use natural gas in 2014. Commercial natural gas usage constitutes a higher percentage of total electricity use in the Planning Area as a whole than in the city alone. Based on a 2015 state natural gas usage of 24 billion therms and a population of 38,400,000 (ACS, 2015), the California per capita natural gas usage is approximately 625 therms per capita. Natural gas used to generate electricity is not included in this analysis, which considers emissions where energy is consumed rather than where it is produced in order to avoid double-counting emissions between natural gas and electricity usage. Excluding the natural gas used to generate electricity, which, as discussed under the state conditions above, makes up 40 percent of the total natural gas usage in California, the 2015 California natural gas usage was 375 therms per capita. For the Planning Area, the 2014 natural gas usage per capita was less than half of that: 127 therms per capita.

Table 3.5-1: Annual Residential, Commercial, and Industrial Electricity Use; 2014

Sector	*Ceres Usage (kWh)*	*Percent of Total (Ceres)*	*Planning Area Usage (kWh)*	*Percent of Total (Planning Area)*
Residential	145,461,760	54	171,005,285	48
Commercial	33,810,740	12	46,777,154	13
Industrial	91,800,670	34	140,804,781	39
TOTAL	**271,073,170**	**100**	**358,587,219**	**100**

Sources: TID, 2017b.

Table 3.5-2: Annual Residential, Commercial, and Industrial Natural Gas Use; 2014

Sector	*Ceres Usage (therms)*	*Percent of Total (Ceres)*	*Planning Area Usage (therms)*	*Percent of Total (Planning Area)*
Residential	4,347,320	77	5,110,723	73
Commercial	1,333,769	23	1,845,269	27
Industrial	0	0	0	0
TOTAL	**5,681,089**	**100**	**6,955,992**	**100**

Sources: Pacific Gas and Electric, 2017.

Greenhouse Gas Emissions

The Greenhouse Effect and Greenhouse Gases

Gases that trap heat in the atmosphere are often called "greenhouse gases" (GHGs). The greenhouse effect traps heat in the troposphere through a threefold process as follows: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. This "trapping" of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3),

and water vapor (H_2O). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results mostly from off-gassing associated with agricultural practices and landfills. The primary sources of anthropogenic N_2O emissions in California are agricultural soil management and fossil fuel combustion in mobile sources. Human-made GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3), which are associated with certain industrial products and processes (CAT, 2006).

The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0° Fahrenheit (F) (−18° Celsius (C)) instead of its present (2015) average of 59°F, or 15°C (University Corporation for Atmospheric Research, 2017). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect, which increases the Earth's temperature.

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its "global warming potential" (GWP). GWP varies between GHGs; for example, the GWP of CH_4 is 25, and the GWP of N_2O is 298. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO_2. GHG gas emissions are typically measured in terms of pounds or tons of "CO_2 equivalent" (CO_2e).[1]

California Contributions to Greenhouse Gas Emissions

In 2015, the United States produced 6,587 million metric tons of CO_2e ($MMTCO_2e$) (EPA, 2017). The primary GHG emitted by human activities in the United States was CO_2, representing approximately 81 percent of total GHG emissions. The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 94 percent of the CO_2 emissions and 76 percent of overall GHG emissions.

According to the 2014 GHG inventory data compiled by the California Air Resources Board (CARB) for the California Greenhouse Gas Inventory for 2000–2015, California emitted 440.4 $MMTCO_2e$ of GHGs, including emissions resulting from out-of-state electrical generation (CARB, 2017). The primary contributors to GHG emissions in California are transportation, industry, electric power production from both in-state and out-of-state sources, agriculture and forestry, and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions in 2015 are presented in Table 3.5-3: GHG Sources in California (2015).

[1] The CO_2 equivalent for a gas is derived by multiplying the mass of the gas by the associated GWP, such that $MTCO_2e$ = (metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH_4 is 25. This means that emissions of 1 metric ton of methane are equivalent to emissions of 25 metric tons of CO_2.

Table 3.5-3: GHG Sources in California (2015)

Source Category	*Annual GHG Emissions ($MMTCO_2e$)*	*Percent of Total*
Transportation	169.4	38.5
Industrial uses	103.0	23.4
Electricity generation (In State)	50.2	11.4
Electricity generation (Imports)	33.9	7.7
Agriculture and forestry	34.7	7.9
Residential	26.9	6.1
Commercial	22.2	5.0
Other	0.2	0.04
Total	**441.5**	**100.0**

Source: CARB, 2017.

Local GHG Emissions

For the General Plan, a GHG emissions inventory was conducted for the Planning Area using a baseline year of 2014. The inventory found Planning Area emissions in 2014 totaled 327,665 metric tons CO_2e ($MTCO_2e$). As shown in Table 3.5-4: 2014 GHG Emissions Summary by Sector ($MTCO_2e$) below, the transportation sector was the largest source of emissions, generating approximately 118,007 $MTCO_2e$, or 36 percent of total 2014 emissions. Transportation sector emissions are the result of diesel and gasoline combustion in vehicles traveling on both local roads and State highways that pass through the jurisdictional boundaries of the Planning Area. Electricity and natural gas consumption within the residential sector, the second greatest source of 2014 emissions, generated 87,535 $MTCO_2e$, or 26 percent of the total. The third greatest source, electricity and natural gas use in the Planning Area's industrial sector, produced 49,704 $MTCO_2e$, or 15 percent of total emissions.

Table 3.5-4: 2014 GHG Emissions Summary by Sector ($MTCO_2e$)

Sector	*Annual Ceres Greenhouse Gas Emissions*	*Percent of Total (Ceres)*	*Annual Planning Area Greenhouse Gas Emissions*	*Percent of Total (Planning Area)*
Residential	74,459	28.6	87,535	26.5
Commercial	19,012	7.3	26,304	8.0
Industrial	32,406	12.4	49,704	15.0
Transportation	93,200	35.7	118,007	35.7
Solid Waste	7,323	2.8	8,518	2.6
Water Transport, Distribution, and Treatment	2,756	1.1	3,226	1.0
Wastewater	2,066	0.8	2,418	0.7
Off-Road Equipment	29,040	11.1	33,990	10.3
Public Lighting	495	0.2	579	0.2
Agriculture	0	0	262	0.1
TOTAL	**260,756**	**100.0**	**327,665**	**100.0**

Source: Dyett & Bhatia, 2017.

Climate Change

Climate change refers to a change in the average global climate that may be measured by wind patterns, storms, precipitation, and temperature. The term climate change is often used interchangeably with the term global warming. Global warming refers to an average increase in the temperature of the atmosphere near the Earth's surface, which can contribute to changes in global climate patterns. However, rising temperatures are just one aspect of climate change.

The U.S. Environmental Protection Agency's (EPA's) indicators of climate change include (EPA, 2016):

- **Greenhouse Gases.** The amount of GHGs emitted into the atmosphere through human activities, the concentrations of these gases in the atmosphere, and how emissions and concentrations have changed over time.
- **Weather and Climate.** Frequency of heat waves, increased drought conditions, increased average precipitation and shifting weather patterns, and the intensity of tropical storms.
- **Oceans.** Increased ocean heat affecting water temperature, sea level, and currents; changes in sea level; increased ocean acidity affecting marine organisms.
- **Snow and Ice.** Reduced Arctic sea ice, diminished glaciers, decreased time that lakes stay frozen, decreased snow cover and snowpack.
- **Health and Society.** Heat-related illnesses, increased length of growing season reflecting earlier spring warming and later fall/winter frosts, prolonged allergy seasons.

- **Society and Ecosystems.** Shifts in plant hardiness zones reflecting higher winter temperatures, changes in bird migration patterns as a result of temperature variability.

Potential Effects of Human Activity on Climate Change

Among scientists, global climate change is now a widely accepted phenomenon. National and international science academies and scientific societies have assessed the available evidence and largely followed or endorsed the Intergovernmental Panel on Climate Change (IPCC) position of January 2001, which states: "An increasing body of observations gives a collective picture of a warming world and other changes in the climate system. There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities." Since 1976, every year has been warmer than the 20th-century average temperature. In 2015, the average temperature across global land and ocean surfaces was 1.62°F (0.90°C) above the twentieth-century average (NOAA, 2017). To date, no scientific body of national or international standing has maintained a dissenting opinion; the last was the American Association of Petroleum Geologists, which in 2007 updated its 1999 statement rejecting the likelihood of human influence on recent climate with its current non-committal position (AAPG, 2007).

Some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, higher O_3 days, larger forest fires, and more drought years. Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system and the interplay of the various internal and external factors that affect climate change remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national levels to evaluate climatic impacts, but far less information is available on regional and local impacts.

REGULATORY SETTING

Federal Regulations

Energy Policy and Conservation Act

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the EPA and National Highway Traffic Safety Administration (NHTSA) are responsible for establishing additional vehicle standards. In 2012, new Corporate Average Fuel Economy (CAFE) standards were approved to increase the fuel economy to 54.5 miles per gallon average for cars and light trucks by Model Year 2025 (EPA, 2012). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles.
- Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups.
- Incentives for natural gas vehicles.
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standards test procedures.

Energy Star Program

Energy Star is a joint program of the EPA and the U.S. Department of Energy (DOE). The program establishes criteria for energy efficiency for household products and labels energy efficient products with the Energy Star seal. Homes can be qualified as "Energy Star Homes" if they meet efficiency standards. In California, Energy Star Homes must meet energy efficiency standards as determined by a CEC-approved software program, pass the California Energy Star Homes Quality Insulation Installation and Thermal Bypass Checklist Procedures, have Energy Star windows, and have minimal duct leakage.

Massachusetts vs. EPA

On April 2, 2007, in Massachusetts v. EPA, the U.S. Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the Clean Air Act (CAA). On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) set increased CAFE standards for motor vehicles and established other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (EISA Section 202);
- Appliance and Lighting Efficiency Standards (EISA Sections 301–325); and
- Building Energy Efficiency (EISA Sections 411–441).

This federal legislation requires ever-increasing levels of renewable fuels to replace petroleum. The EPA is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions of GHG emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of our nation's renewable fuels sector. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply life-cycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

Carbon Pollution Standards and Clean Power Plan

On August 3, 2015, the EPA finalized the Carbon Pollution Standards, which are national limits on the amount of carbon pollution that new, modified, and reconstructed power plants will be allowed to emit. On the same date, the EPA also finalized the Clean Power Plan, national limits on the amount of carbon pollution from existing power plants. The EPA also approved oil and natural gas air pollution standards in 2016 to reduce pollution from the oil and natural gas industry.

State Regulations

Building Energy Efficiency Standards (Title 24) and CALGreen

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 California Code of Regulations [CCR], Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption.

In 2007, Governor Schwarzenegger directed the California Building Standards Commission (CBSC) to work with State agencies on the adoption of green building standards for residential, commercial, and public building construction for the 2010 code adoption process. A voluntary version of the California Green Building Standards Code, referred to as CalGreen, was added to Title 24 as Part 11 in 2009. The 2010 version of CalGreen took effect January 1, 2011, and instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial and low-rise residential buildings, state-owned buildings, schools, and hospitals.

The most recent CALGreen code was adopted in 2016 and became effective in 2017. CALGreen contains voluntary Tier 1 and Tier 2 levels, which are designed to exceed energy efficiency and other standards by 15 percent or 30 percent, respectively.

The California Building Code (CBC) has been amended and adopted as Title 15 of the Ceres Municipal Code, which regulates all building and construction projects within the city.

Pavley Fuel Economy Standards (Assembly Bill 1493)

In a response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill (AB) 1493 was enacted in 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the State board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004.

Before these regulations could go into effect, the EPA had to grant California a waiver under the federal CAA, which ordinarily preempts State regulation of motor vehicle emission standards. The EPA Administrator granted the waiver on June 30, 2009. On March 29, 2010, the CARB Executive Officer approved revisions to the motor vehicle GHG standards to harmonize the State program with the national program for 2012–2016 model years (see *Energy Policy and Conservation Act* above). The revised regulations became effective on April 1, 2010.

Advanced Clean Cars Program

In 2012, CARB adopted the Advanced Clean Cars (ACC) program, developed in coordination with the EPA. The components of the ACC program are the Low-Emission Vehicle (LEV) regulations that reduce GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of battery electric and fuel cell electric vehicles, with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years.

Executive Order S-3-05

In 2005, Executive Order S-3-05 established California's GHG emissions reduction targets: 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 California Environmental Protection Agency (CalEPA) Secretary is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. The California Climate Action Team (CAT) is responsible for implementing global warming emissions reduction programs. Representatives from several State agencies comprise the CAT.

Assembly Bill 32

In furtherance of the goals established in Executive Order S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report (June 21, 2007) listing early action GHG emission reduction measures. The early actions include three specific GHG control rules that meet the narrow legal definition of "discrete early action GHG reduction measures":

- A low-carbon fuel standard to reduce the "carbon intensity" of California fuels;
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of "do-it-yourself" automotive refrigerants; and
- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32, which were also considered "discrete early action GHG reduction measures:"

- Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;
- Reduction of auxiliary engine emissions of docked ships by requiring port electrification;
- Reduction of PFCs from the semiconductor industry;
- Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);

- Requirements that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and
- Restriction on the use of SF_6 from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 $MMTCO_2e$. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94 percent of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO_2 in excess of specified thresholds.

On December 11, 2008, CARB approved the Climate Change Proposed Scoping Plan: A Framework for Change to achieve the goals of AB 32. The scoping plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The scoping plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program.

The key elements of the scoping plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the LCFS; and
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of California's long-term commitment to AB 32 implementation.

Senate Bill 32 (Executive Order B-30-15)

Executive Order B-30-15 issued in 2015 established an interim target to reduce GHG emissions to 40 percent below 1990 levels by 2030. In 2016, the Legislature passed Senate Bill (SB) 32, which codified the 2030 GHG emissions reduction target. To reflect this target, CARB's 2017 Climate Change Scoping Plan recommends that local governments target 6 $MTCO_2e$ per capita per year in 2030 and 2 $MTCO_2e$ per capita per year in 2050.

Senate Bill 1368

In September 2006, Governor Schwarzenegger signed SB 1368, which requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California, and by requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07

Issued on January 18, 2007, Executive Order S-1-07 sets a declining LCFS for GHG emissions measured in CO_2e gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles.

Senate Bill 97

In August 2007, the legislature enacted SB 97, which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. OPR was to develop proposed guidelines by July 1, 2009, and the Natural Resources Agency was directed to adopt the guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines.

The Natural Resources Agency adopted the CEQA Guidelines amendments on December 30, 2009, and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law completed its review and filed the amendments with the Secretary of State. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project" (CEQA Section 15064.4(a)).
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the GHG emissions resulting from a particular project (CEQA Section 15064.4(a)).

- Requiring a lead agency to consider the following factors when assessing the significance of impacts from GHG emissions on the environment (CEQA Section 15064.4(b)):
  - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
  - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; 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 GHG emissions.
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including, among others (CEQA Section 15126.4(c)):
  - Measures in an existing plan or program for reduction of emissions that are required as part of the lead agency's decision;
  - Reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required; and
  - In the case of the adoption of a general plan, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

The amended CEQA guidelines also establish two new guidance questions in the Environmental Checklist regarding GHG emissions (CEQA Guidelines Appendix G):

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.

Senate Bill 375

In August 2008, the legislature passed and on September 30, 2008, Governor Schwarzenegger signed SB 375, which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-duty truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see AB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations (MPOs) will be responsible for

preparing a Sustainable Communities Strategy (SCS) within their regional transportation plans (RTPs).

The goal of an SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, an MPO must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the SCS or alternative planning strategy. On September 23, 2010, CARB adopted the SB 375 targets for regional MPOs. Achieving these goals through adoption of an SCS will be the responsibility of the MPOs. CARB's targets called for the San Joaquin Valley MPOs, which include the Stanislaus Council of Governments (StanCOG), the MPO that covers the Planning Area, to reduce per-capita emissions 5 percent by 2020 and 10 percent by 2035, based on a 2005 baseline.

StanCOG adopted its own RTP/SCS in June 2014 (see discussion below). The SCS lays out how the region will reduce per capita emissions from passenger vehicles 26 percent by 2020 and 22 percent by 2035 based on a 2005 baseline. ARB staff's evaluation of StanCOG's SCS and its technical documentation indicates that, the SCS, if implemented, would meet the per capita emissions targets of 5 and 10 percent as discussed in the paragraph above.

Executive Order S-14-08

On November 17, 2008, Governor Schwarzenegger issued Executive Order S-14-08. This executive order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. Furthermore, the order directs State agencies to take appropriate actions to facilitate reaching this target. The California Natural Resources Agency, through collaboration with the CEC and California Department of Fish and Wildlife (CDFW), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and the CDFW creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

Executive Order S-21-09

On September 15, 2009, Governor Schwarzenegger issued Executive Order S-21-09. This Executive Order directed CARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the Renewable Portfolio Standard (RPS) program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB adopted

regulations to implement a "Renewable Electricity Standard," which would achieve the goal of the executive order (contribution of renewable energy to meet the state's electrical needs) with the following intermediate and final goals: 20 percent for 2012 to 2014, 24 percent for 2015 to 2017, 28 percent for 2018 to 2019, and 33 percent for 2020 and beyond. Under the regulation, wind; solar; geothermal; small hydroelectric; biomass; ocean wave, thermal, and tidal; landfill and digester gas; and biodiesel would be considered sources of renewable energy. The regulation would apply to investor-owned utilities and public (municipal) utilities.

SB X1-2

On April 12, 2011, Governor Jerry Brown signed SB X1-2 in the first extraordinary session, which would expand the RPS by establishing a goal that renewable energy shall constitute 20 percent of the total electricity sold to retail customers in California per year, by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic (PV), wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers covered previously, SB X1-2 adds local publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20 percent by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

Senate Bill 350

SB 350 was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions are to require the following by 2030: (1) a renewables portfolio standard of 50 percent, and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of the CPUC and CEC.

Assembly Bill 341

In 2011, AB 341 set the goal of 75 percent recycling, composting, or source reduction of solid waste by 2020 calling for the California Department of Resources Recycling and Recovery (CalRecycle) to take a statewide approach to decreasing California's reliance on landfills. This goal was an update to the former goal of 50 percent waste diversion set by AB 939. Reductions in solid waste disposal has the potential to reduce GHG emissions from landfills.

California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association (CAPCOA) is the association of air pollution control officers representing all 35 air quality agencies throughout California. CAPCOA is not a regulatory body, but has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues.

Local Regulations

San Joaquin Valley Climate Change Action Plan

San Joaquin Valley Air Pollution Control District (SJVAPCD) released the San Joaquin Valley Climate Change Action Plan in December 2009. The Climate Change Action Plan set goals and policies to address reductions in GHGs and improvement to regional air quality. The plan also includes Best Performance Standards (BPS), which are mitigation measures intended to accomplish GHG reduction. BPS include building design elements that reduce energy consumption, project designs that promote pedestrian access, and land use planning decisions that reduce vehicle miles traveled (VMT).

StanCOG Regional Transportation Plan/Sustainable Community Strategy

The StanCOG RTP/SCS is an integrated long-range land use/housing plan and transportation plan and demographic and economic forecast for the StanCOG region, which includes the Planning Area. This plan coordinates land use and transportation in order to reduce GHG emissions for cars and light-duty trucks for the region through the year 2040. To achieve GHG emissions reductions, the 2014 RTP/SCS promotes compact, mixed-use commercial and residential development that is walkable, bikeable, and close to public transit, jobs, schools, shopping, parks, recreation, and other amenities.

Ceres Buildings and Construction Ordinance

The City of Ceres has a buildings and construction ordinance (Municipal Code Title 15) that adopts the 2016 California Building Standards Code, which includes energy efficiency measures as described under the State Regulations section above.

Stanislaus County Buildings and Construction Ordinance

Stanislaus County has a buildings and construction ordinance (County Code Title 16) that adopts the 2016 California Building Standards Code, which includes energy efficiency measures as described under the State Regulations section above.

Stanislaus County General Plan

The 2015 Stanislaus County General Plan contains a Conservation and Open Space Element that includes policies striving to reduce motor vehicle emissions by reducing vehicle trips and vehicle miles traveled and increasing average vehicle ridership. This Element's policies also support efforts to minimize the disposal of solid waste through source reduction, reuse, recycle, compositing, and transformation activities.

Impact Analysis

SIGNIFICANCE CRITERIA

The State of California has developed guidelines to address the significance of climate change impacts based on Appendix G of the CEQA Guidelines, which provides guidance that implementation of the Proposed Project would have a significant environmental impact if it would:

Criterion 1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

Criterion 2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The CEQA Guidelines Appendix G does not contain specific thresholds to identify when a significant energy-use impact would occur. CEQA Guidelines Appendix F, Energy Conservation, provides direction as to the type of information, analysis, and mitigation that should be considered in evaluating a proposed project, but does not provide specific energy conservation thresholds.

Other guidance on the content and standards for EIR energy evaluations has come from recent case law. On August 27, 2009, the California Court of Appeal, Third Appellate District, issued the first ever CEQA decision on the requirements of an energy conservation impacts analysis in the case of Tracy First v. City of Tracy 177 Cal.App. 4th 912 (2009). The court ruled it was appropriate for the EIR to rely upon the CBC Energy Efficiency Standards, which are part of the State's Title 24 Building Code, to determine that the project's energy impacts would be less than significant. The court also held that CEQA does not require that an EIR discuss "every possible energy impact or conservation measure" listed in Appendix F of the CEQA Guidelines.

In accordance with Appendix F of the CEQA Guidelines and recent case law, and for the purposes of this EIR, the Proposed Project would result in a significant impact to energy conservation if it would:

Criterion 3: Cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance; or

Criterion 4: Conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2035, or any other applicable energy conservation regulations.

METHODOLOGY AND ASSUMPTIONS

Greenhouse Gas Emissions

Information and analysis regarding the proposed General Plan GHG emissions have been compiled based on an understanding of the existing local and regional greenhouse gas sources and review of existing technical data, aerial maps, and applicable laws, regulations, and guidelines. Electricity usage in the Planning Area for 2014 was provided by Turlock Irrigation District (TID). Natural gas usage in the Planning Area for 2014 was provided by PG&E. VMT in the Planning Area was calculated by Fehr & Peers using a travel demand forecasting model that pivots from the regional StanCOG model. Off-road equipment usage was estimated based on CARB data. Agricultural activity in the Planning Area was approximated using data from the United States Department of Agriculture. The City of Ceres provided data on water, wastewater, and solid waste management.

Using VMT data from the regional StanCOG model, transportation emissions were calculated for 2014, 2030, and 2035 using emission factors for those years from CARB's EMFAC2014 model. Residential, commercial, industrial, solid waste, water, wastewater, off-road equipment, public lighting, and agricultural emissions were calculated for 2014 following the standards developed by the International Council for Local Environmental Initiatives (ICLEI) for community GHG inventories (ICLEI, 2013). Emissions for these sectors were projected for 2030 and 2035 using demographic data provided by the City of Ceres. These include population, square footage of land uses, and jobs.

Energy Consumption

Energy use associated with fuel consumption during operations (vehicle trips) by existing uses and future land uses under the Proposed Project was calculated by converting GHG emissions predicted by the GHG analysis using the rate of CO_2 emissions emitted per gallon of combusted gasoline (8.78 kilograms CO_2/gallon) and diesel (10.21 kilograms CO_2/gallon) (Climate Registry, 2017). The estimated fuel consumption was converted to British thermal units (BTUs), assuming an energy intensity of 122,364 BTUs per gallon of gasoline and 138,490 per gallon of diesel (DEP, 2014).

Operational electricity and natural gas consumption for 2014 and 2035 was drawn from the data obtained and forecasted to support the GHG analysis. Natural gas consumption provided in therms, each of which is equivalent to 100,000 BTUs; electricity consumption, which was provided in kWh, were converted to BTU assuming an energy intensity of 3,414 BTUs per kWh (DEP, 2014).

The Proposed Project's incremental (net) increase in energy consumption was determined by comparing the future with Proposed Project conditions against existing (2014) conditions. To determine whether the Proposed Project would result in wasteful and inefficient energy usage, a per service population energy consumption value was determined for the Proposed Project by dividing its net increase in energy use by its service population. This value was then compared to the per service population energy consumption in 2014 to ascertain whether energy use would increase or decrease under the Proposed Project.

SUMMARY OF IMPACTS

GHG emissions would be generated by future development projects. The Proposed Project includes numerous policies that would promote energy efficiency, as well as mixed-use design and non-automotive means of transportation, which would reduce transportation emissions. Operation of future development in the Planning Area during in 2030 and 2035 would not exceed the applicable GHG efficiency metrics. As the Proposed Project would meet the GHG efficiency metrics for 2030 and 2035, which were derived from CARB's 2017 Climate Change Scoping Plan, the operational emissions associated with the Proposed Project are not expected to conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Future development under the Proposed Project would consume energy during construction and operation. While net new energy consumption would occur under the Proposed Project, energy consumption on a per service population basis under the Proposed Project at buildout would be lower than that under existing (2014) conditions. Overall, because demand for electricity and natural gas along with fuel-related energy resources on a per service population basis would decrease, operation of future projects under the Proposed Project would not result in a wasteful, inefficient, and unnecessary direct or indirect usage of energy.

IMPACTS

Impact 3.5-1 Development under the Proposed Project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (*Less than Significant*)

CARB's 2017 Scoping Plan's GHG emissions targets were used to determine the significance of the Proposed Project's GHG emissions on the environment. The emission targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050. These targets represent California's recognition of its "fair share" of global efforts to reduce GHG emissions to limit global warming below two degrees Celsius. This limit is consistent with the Paris Agreement, which sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to below two degrees Celsius (UNFCC, 2017).

The following analysis was based on data gathered for the purposes of creating a GHG inventory for a base year of 2014 and projecting emissions to 2030, the year for which Executive Order B-30-15 sets a GHG target, and 2035, the buildout year for the Proposed Project. Planning Area GHG emissions from the 2014 inventory were 327,665 $MTCO_2e$ per year, or 6.0 $MTCO_2e$ per capita per year. As discussed under the State Regulations section above, in 2015 Executive Order B-30-15 established a target to reduce GHG emissions to 40 percent below 1990 levels by 2030, in addition to the target set by Executive Order S-3-05 of 80 percent below 1990 levels by 2050. To reflect these targets, CARB recommends that local governments reduce their GHG emissions to 6 $MTCO_2e$ per capita per year in 2030 and 2 $MTCO_2e$ per capita per year in 2050.

The horizon year for analysis in the Proposed Project is 2035. The analysis below uses a linear trajectory in emissions reductions between 2030 and 2050 to determine the 2035 target: 5.0 $MTCO_2e$ per capita per year.

To project future GHG emissions, the following analysis provides a baseline forecast of GHG emissions, and models forecasts of future GHG emissions through 2035. The analysis then quantifies GHG reductions from State actions and the updated General Plan policies, and applies these reductions to the emissions forecast.

Business as Usual Forecast

The Business as Usual (BAU) forecast estimates emissions through the year 2035, based on the proposed General Plan land use and circulation system. However, it does not include the effects of the RPS or the 2016 Title 24 Building Energy Efficiency Standards. The Pavley regulations and the ACC program are already accounted for in the transportation emission factors output by the EMFAC2014 model, so these are automatically included in the BAU forecast. Conversely, the LCFS is not included in the EMFAC2014 model because LCFS GHG reductions come from upstream emissions, rather than tailpipe emissions, as discussed in the EMFAC2014 Technical Documentation (CARB, 2015). Additionally, the BAU forecast does not include the effects of policies in the proposed General Plan discussed in the Modified Baseline: GHG Reductions from proposed General Plan Policies and Actions section below.

The forecast predicts all direct GHG emissions[2] from sources within the Planning Area. Indirect emissions associated with the consumption of energy that is generated outside the borders of the Planning Area are also included. Other indirect or embodied emissions are not covered in the forecast, in accordance with International Council for Local Environmental Initiatives standards. The forecast tallies emissions from 10 sectors:

- Residential;
- Commercial;
- Industrial;
- Transportation;[3]
- Solid waste;
- Water;
- Wastewater;
- Off-Road Equipment;
- Public Lighting; and
- Agriculture.

[2] GHGs considered in the report are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The emissions have been converted to carbon dioxide equivalent (CO_2e), which converts the three other GHGs into the equivalent mass of carbon dioxide.

[3] For transportation trips that originate or end in the Planning Area, emissions for half of the entire trip are included, and not just for the miles traveled within the Planning Area; however, trips that just pass through the Planning Area are excluded, as their emissions would be reflected at their trip ends.

The emissions projected in the forecast use the activity data (or usage) from the 2014 emissions inventory as an initial value. The predicted growth in each sector is projected to scale with various Planning Area characteristics, such as population growth and increase in commercial building square footage.

Under BAU conditions, Planning Area emissions are forecast to reach 489,519 MT CO_2e in the year 2035, as shown in Table 3.5-5: BAU Forecast Emissions by Sector, 2014 to 2035 ($MTCO_2e$ per year). Table 3.5-5 shows the citywide and Planning Area emissions for each sector and the total emissions for all sectors.

The greatest projected emissions would continue to be from the transportation sector, which accounts for 32 percent of emissions in 2030 and 33 percent of emissions in 2035. Residential emissions are the next largest sector, with 24 percent of emissions in 2030 and 23 percent of the total in 2035.

Table 3.5-5: BAU Forecast Emissions by Sector, 2014 to 2035 ($MTCO_2e$ per year)

	Ceres			*Planning Area*		
Sector	*2014*	*2030*	*2035*	*2014*	*2030*	*2035*
Residential	74,459	89,292	94,508	87,535	115,947	126,593
Commercial	19,012	31,312	36,595	26,304	45,963	54,722
Industrial	32,406	62,381	76,548	49,704	94,491	115,498
Transportation	93,200	87,760	90,121	118,007	130,962	142,613
Solid Waste	7,323	11,324	13,168	8,518	14,873	18,011
Water Transport, Distribution, and Treatment	2,756	5,318	6,531	3,226	6,866	8,694
Wastewater	2,066	4,295	4,950	2,418	5,545	6,590
Off-Road Equipment	29,040	30,820	31,937	33,990	39,792	42,518
Public Lighting	495	590	624	579	762	830
Agriculture	0	0	0	262	262	261
TOTAL	**260,756**	**323,092**	**354,982**	**330,542**	**455,462**	**516,330**

Source: Dyett & Bhatia, 2017.

GHG Reductions from State Actions

GHG reductions from the State Renewable Portfolio Standard and Title 24 building efficiency standards are quantified in this section.

Renewable Portfolio Standard

California's RPS, discussed under the State Regulations section above, is one of the most ambitious renewable energy standards in the country. The RPS requires that investor-owned utilities like TID supply 33 percent of their electricity from renewable resources by 2020 and 50 percent of their electricity from renewable sources by 2030. Emissions reductions from the RPS

for Ceres and the Planning Area are provided in Table 3.5-6: GHG Forecast with State Actions Reductions.

Title 24 Building Efficiency Improvements

Title 24, discussed under the State Regulations section above, is California's Building Energy Code. The most recent Title 24 code became effective in 2017. The Title 24 building efficiency improvements' effects on emissions through the 2013 update were automatically incorporated into the 2014 inventory since this code update was already in effect by 2014. Emissions reductions from Title 24 for Ceres and the Planning Area are provided in Table 3.5-6: GHG Forecast with State Actions Reductions.

Emissions Reductions

The annual reductions from the above-referenced State actions—RPS and Title 24 building efficiency improvements—were combined. Table 3.5-6: GHG Forecast with State Actions Reductions lists the total BAU forecast for years 2030 and 2035, juxtaposed with reductions from State actions.

Table 3.5-6: GHG Forecast with State Actions Reductions

Scope	Year	*BAU Forecast Emissions with General Plan Land Use and Circulation System*[1]	*Emissions Reductions from Renewable Portfolio Standard*[1]	*Emissions Reductions from Title 24 Building Efficiency Improvements*[1]	*Total Forecast Emissions with General Plan Land Use and Circulation System & State Actions Reductions*[1]	*Total Forecast Emissions with General Plan Land Use and Circulation System & State Actions Reductions*[2]
Ceres	2030	323,092	72,263	6,245	244,584	4.4
	2035	354,982	83,132	8,873	262,976	4.4
Planning Area	2030	455,462	101,793	11,309	342,360	4.7
	2035	516,330	119,172	16,370	380,788	4.8

Notes:
1. Measured by MTCO2e per year.
2. Measured by MTCO2e per capita per year.

Source: Dyett & Bhatia, 2017.

GHG Reductions from Proposed General Plan Transportation Policies

This section describes proposed General Plan policies that reduce GHG emissions, quantifies emissions reductions, and explains how these policies will be implemented. "No Project" conditions that result in reductions are reflected in the StanCOG modeling used to calculate VMT in the Planning Area, and are incorporated into the proposed General Plan land use and circulation system. The proposed General Plan land use and circulation system incorporates reductions from "No Project" conditions that are already reflected in the StanCOG modeling used to calculate VMT in the Planning Area. The following reductions are from policies in addition to State regulations and the General Plan land use and circulation system. The General Plan policies are organized according to the following categories:

1. Bikeway System Improvements
2. Pedestrian Improvements and Increased Connectivity
3. Parking Facilities and Policies
4. Transportation Improvements

Specific General Plan policies that would contribute to the reduction of GHG emissions are listed below.

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* report was developed as a resource for local governments to assess emissions reductions from GHG mitigation measures (CAPCOA, 2008). This GHG analysis uses the methodology outlined in the CAPCOA report for categories one through four listed above to quantify emissions reductions from the proposed General Plan policies.[4] The reductions are applied to the forecast to arrive at the "modified forecast." GHG reductions from proposed General Plan transportation policies are provided in Table 3.5-7: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year).

Bikeway System Improvements

The City of Ceres does not have a Bicycle Master Plan but has secured funding to develop an Active Transportation Plan, which is expected to commence in 2018. Until that document is prepared and adopted by the City, the Proposed General Plan Transportation and Circulation Element would guide bicycle planning. The proposed General Plan Transportation and Circulation Element recommends the enhancement of the existing bicycle network with the implementation of 7 miles of new Class I bike paths and 38 miles of new Class II and III bikeways. Currently, there are 10 miles of bicycle paths in the Planning Area. In total, the recommended enhancements will create a total of 45 miles of new bike paths, to result in a total of 55 miles of bike paths.

An estimated 0.05 percent reduction in transportation GHG emissions is assumed to occur where there are 2 miles of bike lane per square mile. A reduction of 0.09 percent is assumed in areas with

[4] While many of the policies' impacts are project-level in nature, much of the supporting literature is from studies on a citywide, countywide, or regional context. The methodology in this analysis is based on these regional studies, which is therefore applicable to the General Plan policies listed in this analysis.

4 miles of bike lanes per square mile. The minimum density threshold given for these assumptions is 2,000 people per square mile. With the total bicycle improvements, there would be approximately 2.4 miles of bike lanes per square mile. The Planning Area currently has approximately 2,439 people per square mile, reaching the threshold of 2,000 people per square mile. Therefore, the lower percent reduction in transportation GHG emissions of 0.05 is used.

A 0.05 percent reduction in VMT emissions corresponds to 71 $MTCO_2e$ per year in 2035 for the Planning Area. See Table 3.5-7: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Pedestrian Improvements and Increased Connectivity

The City has adopted several plans that include improvements to the walking environment. For instance, the Ceres Downtown Specific Plan identifies districts and corridors and provides direction for pedestrian circulation and pedestrian-oriented street design. Additionally, there are a number of improvements described in the Proposed Project that would enhance connectivity for bicycles and pedestrians. The Proposed Project also articulates a vision for transit-oriented development and strategies for future development patterns around the potential Altamont Commuter Express (ACE) stop in Downtown Ceres. For details about the potential ACE stop, see Section 3.13: Transportation.

Providing an improved pedestrian network and increasing connectivity encourages people to walk more and results in people driving less, causing a reduction in VMT. An estimate of a 1 percent reduction in VMT from pedestrian improvements and connectivity was assumed, which corresponds to a reduction of 1,426 $MTCO_2e$ per year in 2035 for the Planning Area. See Table 3.5-7: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Parking Facilities and Policies

To promote "right sizing" of parking facilities, techniques such as shared parking and parking management strategies are included as part of the proposed General Plan Transportation and Circulation Element.

According to CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, parking strategies have estimated VMT reductions. Reduced parking standards and other policies reducing parking availability have an estimated 5- to 12.5-percent VMT reduction. Conservatively assuming the effect of the Proposed Project's parking reduction strategies would result in the lower end of VMT reduction, the cumulative reduction from implementations would result in a 5-percent VMT reduction to give an estimated 7,131-$MTCO_2e$ per year reduction in 2035 for the Planning Area. See Table 3.5-7: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Transportation Improvements

The Planning Area is accessible to neighboring communities via public transit. The Planning Area is served by Stanislaus Regional Transit and Modesto Area Express bus routes connecting Ceres to Modesto, Turlock, Patterson, and other surrounding cities. Limited fixed-route service is provided

within Ceres by Ceres Area Transit as well as Dial-A-Ride service for seniors and people with disabilities.

The San Joaquin Regional Rail Commission (SJRRC), which oversees the operations of capital projects for ACE service, is evaluating extending ACE service to Downtown Merced, with potential stops in downtown Modesto, Ceres and Turlock.

Proposed General Plan policies seek to further transit improvement efforts by encouraging infrastructure and design that allow safe and convenient travel along and across streets for all users, including transit vehicles; allowing exceptions to Level-of-Service standards where projects support transit; pursuing financing to expand transit networks; requiring that parking design consider transit; organizing land uses and proposing bicycle paths to capitalize on the possible ACE passenger rail extension; connecting transit networks with other modes and destinations in the Planning Area; and allowing for expansion of existing transit networks.

According to CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, transit system improvements can result in the following reductions: 0.1- to 8.2-percent VMT reduction from expanding the transit network, 0.5- to 24.6-percent VMT reduction from increasing transit accessibility, and 0.02- to 2.5-percent VMT reduction from increasing transit service frequency and speed. Conservatively assuming the combined effect of the proposed General Plan's transit policies, summing the low end of the VMT reduction ranges gives a 0.62-percent reduction in VMT emissions, or estimated 884-$MTCO_2e$ per year reduction by 2035 for the Planning Area. See Table 3.5-6: GHG Forecast with State Actions Reductions for policy-related reductions for Ceres and the Planning Area.

Emissions Reductions

Table 3.5-7: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) shows the GHG reductions from each of the above components for Ceres and the Planning Area. The largest reduction would come from parking facilities and policies, followed by pedestrian improvements and increased connectivity, transportation improvements, and bikeway system improvements.

Table 3.5-7: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year)

	Ceres		*Planning Area*	
Policy/Action Category	*2030*	*2035*	*2030*	*2035*
Bikeway System Improvements	44	45	65	71
Pedestrian Improvements and Increased Connectivity	878	901	1,310	1,426
Parking Facilities and Policies	4,388	4,506	6,548	7,131
Transportation Improvements	544	559	812	884
TOTAL	**5,854**	**6,011**	**8,735**	**9,512**

Source: Dyett & Bhatia, 2017.

GHG Reductions from Proposed General Plan Technology-Related Implementation Actions

This section describes proposed General Plan technology-related implementation policies that reduce GHG emissions, quantifies emissions reductions, and explains how these actions will be implemented. The following reductions are from actions in addition to State regulations and the General Plan land use and circulation system. The General Plan implementation actions are organized according to the following categories:

1. Residential Energy Efficiency Retrofits
2. Commercial/Industrial Energy Efficiency Retrofits and Retro-Commissioning
3. Replacement of Incandescent and Halogen Light Bulbs
4. Commercial/Industrial Photovoltaic (PV) Systems
5. Increased Zero-Emissions Vehicle (ZEV) Travel

Specific General Plan policies that would contribute to the reduction of GHG emissions are listed below.

For categories one through four, emissions reductions were calculated based on the decrease in nonrenewable energy use specified in implementation actions related to the category. The reductions are applied to the forecast to arrive at the "modified forecast." For category five, emissions reductions were calculated based on the decrease in fossil fuel-burning passenger VMT. GHG reductions from proposed General Plan technology-related implementation actions are provided in Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year).

GHG emissions reductions from Implementation Action 5.9, which calls for an increase in residential PV systems, are not quantified in this analysis because the action calls for the evaluation of the feasibility of adopting an ordinance that requires residential PV panels, rather than stating that such ordinance will be adopted.

Residential Energy Efficiency Retrofits

As homes use a large portion of the city's total energy, and older homes are substantially less efficient than newly constructed homes, there is a large opportunity to reduce GHG emissions in the Planning Area through the retrofitting of existing homes. When a single-family homeowner seeks to make major improvements, the owner would be required to conduct an energy audit, and meet low-cost energy efficiency measures – such as improving insulation, providing weather stripping, promoting natural lighting and ventilation, and using "smart" thermostats to regulate energy use for heating and cooling. Multi-family residential retrofits are similar to single-family retrofits but can provide increased energy savings. For example, increasing insulation between two residential units benefits both units. Another example of multi-family residential retrofits is installing energy-efficient windows and efficient appliances.

The target set by Implementation Action 5.6 is a 50-percent energy reduction in 30 percent of homes in the Planning Area by the year 2035. After considering RPS and Title 24 Building Efficiency Improvements, this Implementation Action gives an estimated 10,406-$MTCO_2e$ per

year reduction by 2035 for the Planning Area. See Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Commercial/Industrial Energy Efficiency Retrofits and Retro-Commissioning

Relatively straightforward fixes to commercial buildings can significantly reduce spending on fuel and electricity. Examples of retrofits include installing efficient boilers and equipment, high-quality windows, pipe insulation, and other building energy improvements.

Commercial and industrial commissioning is a systematic process of ensuring that a building performs according to its design and the occupant's operational needs. Commissioning allows the design developed to be successfully constructed and operated. Examples includes measuring temperatures and flow rates from heating, ventilation, and air conditioning (HVAC) systems to calibrate to a known standard, as well as reviewing operations to verify that controls are properly functioning.

The target set by Implementation Action 5.7 is a 25-percent energy reduction in 30 percent of homes in the Planning Area by the year 2035. After considering RPS and Title 24 Building Efficiency Improvements, this Implementation Action gives an estimated 7,384-$MTCO_2e$ per year reduction by 2035 for the Planning Area. See Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Replacement of Incandescent and Halogen Light Bulbs

Replacing inefficient incandescent and halogen light bulbs with more efficient light bulbs would reduce the amount of energy needed to power the bulbs, which would reduce the demand for electricity and thus the amount of GHG emissions created by the electrical power generation.

An estimated 22 percent of residential and 35 percent of commercial electricity in California is used for lighting (CPUC, 2011). Applied to the Planning Area's energy use, these percentages correspond to about 22,301 $MTCO_2e$ of forecast emissions in 2035 (after considering RPS and Title 24 Building Efficiency Improvements). LED light bulbs reduce energy consumption and therefore GHG emissions by 70 percent compared to incandescent lighting (Energy Star, 2017). It is estimated that 79 percent of lighting within the City is currently incandescent, halogen, or linear fluorescent (DEP, 2012). The target set by Implementation Action 5.8 is a 50-percent replacement of these bulbs with more efficient ones by 2035. This would lead to an estimated overall 10,928-$MTCO_2e$ per year reduction by 2035 for the Planning Area. See Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Commercial/Industrial Photovoltaic Systems

Photovoltaic (PV) systems convert solar energy into electricity. Producing renewable energy locally through commercial and industrial PV systems reduces the need to construct costly new power plants that produce air pollution, use natural resources, and impact the environment.

The target set by Implementation Action 5.10 is to produce an additional 37.4 MW per year, or 15 percent of projected commercial and industrial electricity supplied by TID, by 2035. After considering RPS and Title 24 Building Efficiency Improvements, this Implementation Action would result in an estimated 11,711-$MTCO_2e$ per year reduction by 2035 for the Planning Area. See Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Increased Zero-Emissions Vehicle (ZEV) Travel

Driving ZEVs reduces carbon emissions by eliminating direct tailpipe emissions of carbon dioxide and other GHGs. The production of electricity used to power electric vehicles generates GHGs; however, TID electricity generates much less GHGs than the direct combustion of fossil fuels. Furthermore, electric vehicles can be charged at home or the workplace using energy produced by PV panels, eliminating GHG emissions completely, at least for the period of time when PV panels produce the full amount of electricity needed for operations.

The target set by Implementation Action 5.11 is an increase in the proportion of ZEV passenger VMT from a projected 16 percent to 25 percent of total VMT by the year 2035. This Implementation Action would result in an estimated 3,720-$MTCO_2e$ per year reduction by 2035 for the Planning Area. See Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) for policy-related reductions for Ceres and the Planning Area.

Emissions Reductions

Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year) shows the GHG reductions from each of the above components for Ceres and the Planning Area. The largest reduction would come from commercial/industrial PV systems, followed by replacement of incandescent and halogen light bulbs, residential energy efficiency retrofits, commercial/industrial energy efficiency retrofits and retro-commissioning, and increased ZEV travel.

Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year)

	Ceres		*Planning Area*	
Implementation Action Category	*2030*	*2035*	*2030*	*2035*
Residential Energy Efficiency Retrofits	6,179	8,109	7,928	10,406
Commercial/Industrial Energy Efficiency Retrofits and Retro-Commissioning	3,743	4,913	5,626	7,384
Replacement of Incandescent and Halogen Light Bulbs	5,723	7,512	8,326	10,928
Commercial/Industrial Photovoltaic Systems	5,936	7,791	8,922	11,711
Increased ZEV Travel	1,791	2,351	2,834	3,720
TOTAL	**23,372**	**30,675**	**33,637**	**44,149**

Source: Dyett & Bhatia, 2017.

Modified Forecast

Table 3.5-9: Modified Forecast (Forecast Emissions with General Plan Land Use and Circulation System, State Actions, and Additional General Plan Policies) and Emissions Targets shows the total citywide and Planning Area emissions with the reductions from the following policies and actions described above:

- Proposed General Plan land use and circulation system;
- State actions; and
- Proposed General Plan policies and implementation actions (identified below).

Projected emissions drop from 2014 through 2030 from the combined effect of GHG reduction policies and actions but then increase from 2030 through 2035. The projected emissions rise between 2030 and 2035 because no increases in federal or State standards relating to renewable energy or other GHG reduction methods are assumed, even though these may well occur by that time. Therefore, this increase represents a conservative estimate. With the effect of all the GHG reductions considered, the total Planning Area forecast emissions are 299,988 $MTCO_2e$ per year in 2030 and 327,127 $MTCO_2e$ per year in 2035.

Table 3.5-9: Modified Forecast (Forecast Emissions with General Plan Land Use and Circulation System, State Actions, and Additional General Plan Policies) and Emissions Targets shows that the Planning Area will meet its targets for 2030 and 2035 without any additional measures.

Table 3.5-9: Modified Forecast (Forecast Emissions with General Plan Land Use and Circulation System, State Actions, and Additional General Plan Policies) and Emissions Targets

		Ceres		*Planning Area*	
Year	*GHG Emissions Targets[1]*	*Total Modified Forecast[2]*	*Total Modified Forecast[1]*	*Total Modified Forecast[2]*	*Total Modified Forecast[1]*
2030	6.0	215,359	3.8	299,988	4.2
2035	5.0	232,301	3.9	327,127	4.2

Notes:
1. Measured by $MTCO_2e$ per capita per year
2. Measured by $MTCO_2e$ per year

Source: Dyett & Bhatia, 2017.

As the Proposed Project would meet all State-mandated emissions targets through 2035, impacts would be considered less than significant and no additional measures are required. As shown in Table 3.5-6: GHG Forecast with State Actions Reductions, this would be the case even without considering the GHG reductions resulting from proposed General Plan policies and implementation actions. The proposed General Plan would further reduce emissions below State-mandated emissions targets.

Mitigation Measures

None required.

Impact 3.5-2 Development under the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (*Less than Significant*)

Through implementation of the proposed General Plan policies aimed at reducing GHG emissions, the Proposed Project would serve to implement a number of strategies and measures aimed at reducing GHGs. Additionally, the StanCOG RTP/SCS includes a set of policy objectives related to mobility, reliability, system preservation and safety, social equity, healthy environment, and economic growth. The RTP will assist in StanCOG's implementation of SB 375, the California Global Warming Solutions Act of 2006, and regional GHG targets. With implementation of the proposed General Plan's policies related to sustainability and multi-modal transportation objectives, the Proposed Project would complement the goals and policies of the RTP/SCS and would continue to carry out the goals of AB 32 and SB 375. Therefore, future development projects and land uses proposed under the Proposed Project would, by nature, result in reduced transportation and energy GHG emissions relative to emissions under the scenario where only State actions would be implemented, as shown under Impact 3.5-1 above. This achieves the overarching goals of local, regional, and State plans to reduce GHG emissions. As such, the Proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility.

2.C.1 **Transit Oriented Development.** Encourage high-density, pedestrian-oriented development with managed parking strategies to leverage the development potential and improved accessibility resulting from the development of the ACE train stop.

2.C.2 **Integrated ACE Train Stop.** Integrate the Altamont Corridor Express (ACE) train stop into the Downtown, providing multi-modal mobility options and safe and convenient pedestrian and bicycle access between the train stop and Downtown Ceres.

Goal 2.D Promote infill development to protect farmland; enhance community character; optimize city investment in infrastructure; provide pedestrian- and bicycle-friendly neighborhoods; and enhance economic vitality.

2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery.

2.D.4 **Mixed Use Development.** Encourage mixed use development within infill areas by providing incentives such as updating the city's Public Facility Fee program to reflect

reduced need for additional roadway and operational infrastructure; reduced parking requirements; and/or opportunities for shared parking.

2.E.4 **Mitchell Road Corridor Plan.** Update the Mitchell Road Corridor Specific Plan to:

- Encourage infill development along the corridor;
- Include Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;
- Improve pedestrian and bicycle mobility along the corridor and within and between properties with safe and convenient infrastructure and design;
- Promote development that engages the street, including discouraging parking between the street and new development and encouraging street access into new buildings;
- Differentiate commercial uses intended for the Mitchell Road Corridor from those intended for Downtown Ceres;
- Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design;
- Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; and
- Include the land designated Regional Commercial south of SR 99.

2.E.5 **Hatch Road Corridor Plan.** Prepare a corridor plan for Hatch Road between SR 99 and Mitchell Road, which includes the following components:

- Infill development;
- Complete Streets strategies—see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;
- Pedestrian and bicycle infrastructure and design to promote safe and convenient access to properties;
- Differentiate commercial uses intended for the Hatch Road Corridor from those intended for Downtown Ceres;
- Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design;
- Land use and building location strategies to promote sharing of patronage among businesses;
- Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land;
- Areawide information and sign program;
- Maintenance plan and safety program;

- Image enhancement and marketing program; and
- Capital improvement projects, including streetscaping, signs, and facade improvements.

2.F.2 **Neighborhood Interaction.** Promote opportunities for neighborhood interaction with pedestrian-oriented streetscapes and urban design, as well as public spaces for meeting and gathering.

2.F.4 **Multi-Modal Accessibility.** Maximize accessibility for automobiles, cyclists, and pedestrians.

2.F.5 **Pedestrian-Oriented Streetscape.** Require streetscapes and buildings to encourage pedestrian activity and comfort.

2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation.

2.G.3 **Enhanced Design of Existing Commercial.** Encourage the renovation, infill, and reuse of existing commercial centers and strip malls. Redesign and modernization of architectural treatment is encouraged as well as utilization of parking lots to make the centers more pedestrian friendly, and enhance the definition and character of the street frontage and associated streetscape.

2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following:

- The distribution, location, and extent of land uses, including standards for land use intensity.
- Compatibility of new development with adjacent existing and proposed development.
- Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs.
- Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary;
- Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods.
- Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas

consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas.

- Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities.
- Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways.
- Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences.
- Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand.
- Provisions for minimizing conflicts between new development and adjacent agricultural uses.
- Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements.

2.L.3 **Pedestrian-Oriented Design.** Promote architectural and landscape design features in new development that create more pedestrian-friendly neighborhoods, such as orientation to the street; rear, setback, or detached garages; front porches; tree-lined streets; and landscaped strips between streets and sidewalks.

2.L.6 **Multi-Family Residential Design.** Ensure attractive architecture and design of multi-family buildings provide a variety of high-quality housing options with convenient facilities to foster a high quality of life. Encourage the following characteristics in multi-family developments:

- Variety of unit sizes including studios and three bedrooms;
- Building mass broken into small units;
- Sheltered and well-lit entrances to units and main entrances that are oriented to the street;
- Sufficient private outdoor space for each unit, such as balconies or decks;
- Functional and accessible interior site open space that may include a community garden;
- Attractive landscaping, including larger trees;
- Parking provided in rear of building or screened with landscaping;
- Consolidated parking in higher density residential projects that shares one or two entrances/exits from the property in order to minimize curb cuts;
- Good site and building management and maintenance;

- Screened, secure, and accessible areas for waste disposal and recycling;
- Building scale and mass transitions appropriate to adjacent single family neighborhoods, where applicable; and
- Size, scale, proportion, color, placement, and detailing of architectural features that complement the overall massing and scale of the building.

2.L.7 **Downtown Commercial and Mixed Use Development Design.** Ensure commercial and mixed use development in Downtown Ceres cultivates an attractive destination and pedestrian-oriented center of activity. Encourage the following characteristics in commercial and mixed use buildings in Downtown Ceres:

- Main facades with entrance doors and windows that front the primary street;
- Buildings on larger lots broken down in scale to create a small-scale frontage rhythm;
- Ground-floor facades designed to give interest to pedestrians and visitors, for example with transparent glass storefronts;
- Parking in rear (preferred) or side of building;
- Shared facilities, such as driveways, parking areas, and pedestrian plazas, between adjoining properties; and
- Materials chosen and detailed to respect the climate and traditions of the San Joaquin Valley.

2.L.8 **Neighborhood Commercial Design.** Ensure development in the Neighborhood Commercial land use designation complements nearby residential neighborhoods with attractive commercial and mixed use buildings that are conveniently accessible by walking or biking. Encourage the following characteristics in development in the Neighborhood Commercial land use designation:

- Building entrances oriented toward the street rather than parking lot;
- Parking located to the side or rear of building where possible;
- Shaded walkways and small gathering spaces that help strengthen community character and identity, and facilitate accessing the commercial area on foot.

2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations:

- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility;

- Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility;
- Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate;
- Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings;
- Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate;
- A continuous, safe, and convenient walkway from the public right of way to building entrances;
- Building entrances oriented to the walkway;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

2.L.11 **Regional Commercial Design.** Ensure development in the Regional Commercial land use designation provides a commercial destination and other development attractive to the regional market. Encourage the following characteristics in development in the Regional Commercial land use designation:

- Distinctive gateway or entry features that contribute to the character of Ceres;
- Attractive landscaping with shade trees to provide substantial tree canopy in and around parking areas that enhance regional center identity;
- Plaza and outdoor patio areas with public art that create focal points;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;
- Convenient pedestrian connections from adjoining neighborhoods;
- Parking located to the side or rear of building where possible;

- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid, and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

2.L.12 **Business Park Design.** Ensure business park use developments attract businesses and provide a convenient and pleasant environment for workers. Encourage the following characteristics in development in the Business Park land use designation:

- Articulation in the walls, including insets, canopies, wing walls, and trellises;
- Large buildings "broken up" by variations in building form and architectural design;
- Distinctive gateway or entry features that contribute to the character of Ceres;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Blocks of no more than 1,000 feet in length with block perimeters of no more than 4,000 feet. Where larger blocks exist, improve convenience of walking and bicycling with shaded, internal connections, such as sidewalks, bicycle paths, and multi-use trails;
- A shaded pedestrian rest area with seating, landscaping, and trash receptacles near building entrances;
- Attractive landscaping, including larger trees;
- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access road and improve pedestrian accessibility;
- Parking located to the side or rear of building where possible;
- Loading bays and outdoor storage areas that are not readily visible to the public.

Transportation and Circulation Element

3.A.1 **Multi-Modal Network.** Provide for a comprehensive, integrated transportation network in accordance with the functional classification system described in this chapter and reflected in the Circulation Diagram with infrastructure and design that allows safe and convenient travel along and across streets for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.

3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service ("LOS") C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects support other goals from the General Plan including transit, active transportation, and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the "LOS" standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character.

3.A.4 **Reduce Vehicle Miles Traveled (VMT).** Support statewide efforts to reduce vehicle miles of travel (VMT) from existing and new development by encouraging infill and mixed use development, providing a multi-modal transportation network, and incorporating transportation and parking demand management measures into new development by design.

3.A.5 **Transportation Financing.** Pursue financing in a timely manner from a variety of sources to maintain, enhance, and expand the roadway, sidewalk, bicycle, and transit networks to achieve and maintain a safe and efficient complete transportation network.

3.A.6 **Development Fees.** Assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system, including transit, bicycle, and pedestrian systems.

Goal 3.B Maintain acceptable multi-modal travel flow along Ceres' major corridors.

3.B.1 **Complete Streets Corridors.** Maintain adequate travel flow along Ceres' major corridors while allowing for new development or redevelopment. To this end, the following shall be considered in site plan development for new development and redevelopment along Hatch Road, Mitchell Road, and Whitmore Avenue:

- Require consolidation of driveway access to reduce the number of vehicle/pedestrian/bicycle conflicts areas; if necessary, driveway improvements should include relocation of driveway access points on existing sites;
- Require combination of parking lots and access points with joint access and reciprocal parking agreements where possible;
- Require medians within the existing cross-section to limit turning movements and to provide pedestrian refuges at mid-block crossing locations;
- Require site plans to locate entrance and exits to avoid vehicle queue spillback to the public right-of-way;

- Require a continuous, safe, and convenient walkway from the public right of way, including transit stops where appropriate, to building entrances that minimizes pedestrian/vehicle conflicts; and
- Limit or prohibit drive-up windows where peak vehicle queues cannot be accommodated on-site.

Goal 3.C Protect residential areas from high-volume and high-speed traffic and its effects and promote bicycling and walking on residential streets.

3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible.

3.C.3 **Sidewalks.** Require sidewalks for all new streets in residential developments.

Goal 3.D Provide a sufficient amount of convenient, safe, and attractive vehicle and bicycle parking to serve existing and new development throughout the city.

3.D.1 **Off-Street Parking Requirements.** Require new development and redevelopment to provide adequate off-street parking for vehicles and bicycles that considers urban design, economic development, and alternative travel modes, including secure long-term bicycle parking at employment centers and transit centers. Parking shall be landscaped, located convenient to new development, and easily accessible from the street system.

3.D.2 **Context Sensitive Parking Requirements.** Provide parking supplies using a context-sensitive approach that considers the potential for shared parking and reduced parking requirements in walkable mixed-use neighborhoods and transit oriented areas.

3.D.3 **Electric Vehicle Parking.** Incorporate electric vehicle charging stations into new multifamily, commercial, and industrial development and site renovations.

3.D.5 **Priority Parking.** Where required, reserved employee car pool, bicycle, and electric vehicle parking should be provided in premium areas close to building entrances.

Goal 3.E Promote provision of safe and efficient transit service to reduce congestion, improve the environment, and provide viable non-automotive means of transportation within and connecting to Ceres.

3.E.1 **Flexible Transit Service.** Plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand.

3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services.

3.E.3 **Transit Right-of-Way.** Consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles. Require new development to reserve space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route.

3.E.5 **Transit Priority.** Prioritize the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act.

3.E.6 **Paratransit.** Continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit.

3.E.7 **Transit Coverage.** Ensure that new and existing transit routes strive to serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan.

3.E.8 **ACE Train Stop.** Preserve right-of-way to facilitate development of an Altamont Commuter Express (ACE) train stop in Downtown Ceres.

Goal 3.F Provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation.

3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.

3.F.2 **Funding.** Pursue a variety of sources of funding for the development and improvement of bikeways and pedestrian pathways, including grant funding, Countywide Measure L funds, and Capital Improvement Program funding.

3.F.3 **New Development.** Require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate.

3.F.4 **Right-of-Way.** Require new development to provide adequate rights-of-way to accommodate bikeways where identified on the bikeways map and as specified in the Bicycle and Pedestrian Master Plan, and to contribute to the development of planned bikeways.

3.F.5 **On-Site Bicycle Facilities.** Require new multi-family residential, commercial and industrial developments to provide bicycle facilities, including bicycle parking. For employment locations with more than 50 employees, other amenities may be required, including showers and changing facilities.

3.F.6 **Bicycle Safety.** Promote bicycle safety education to children and adults through coordination with the local school district, community groups, and other city sponsored events.

3.F.7 **Roadway Maintenance.** When roadway repaving projects occur, opportunities to provide bicycle facilities consistent with the adopted Alternative Transportation Plan (ATP) shall be considered.

3.F.8 **Pedestrian Facility Design.** Provide safe, continuous and pleasant pedestrian paths of travel, including sidewalk width appropriate for the land use context of the street, enhanced street crossings, landscape and/or parking buffers, and pedestrian scale lighting throughout the city.

3.F.9 **Interchange Improvements.** When interchanges and overpasses are upgraded, pedestrian and bicycle access shall be provided or enhanced as appropriate, safe, and feasible to do so.

3.H.2 **Project Prioritization.** Projects that incorporate Complete Streets objectives should be prioritized whenever possible, including incorporating active modes and transit as well as accessibility for all users of the transportation system.

Agricultural and Natural Resources Element

4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes.

4.G.5 **Reduce VMT.** Emphasize transit-oriented, walkable, compact development patterns to reduce total vehicle miles traveled.

> *See Chapter 2: Land Use and Community Design Element for more policies related to land use and neighborhood design, and Chapter 3: Transportation and Circulation Element for policies related to multi-modal transportation.*

4.G.10 **Trip Reduction Program.** Consider promoting vehicle trip reduction by implementing a trip-reduction program for City employees. Such a program may include carpooling and ridesharing; reimbursement of transit costs; encouragement of flexible work schedules, telecommuting, and teleconferencing.

Health and Safety Element

Goal 5.E Reduce the community's GHG emissions to mitigate the rate and extent of climate change.

5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction.

5.E.2 **LEED Certification.** Encourage new development to participate in the Leadership in Energy and Environmental Design (LEED) certification program for the design, operation, and construction of high-performance energy efficient buildings.

5.E.3 **Energy Conservation and Retrofit.** Identify and promote resources and incentives for energy conservation and retrofitting of existing buildings. Encourage property owners and residents to participate in point-of-sale residential energy and water efficiency audits, and provide information on upgrading requirements and available incentives, if applicable.

5.E.4 **Energy Efficient Design.** Reduce the need for artificial temperature control and lighting by establishing standards to encourage the following:

- Passive cooling measures in new and existing development; and
- Design that incorporates windows that open to the outside in all habitable rooms to maximize the use of daylight and promote ventilation.
- Passive cooling measures may include the use of shade structures, shade trees and other vegetation, textured building materials and insulation, natural ventilation, and other strategies that rely on natural processes and minimize energy use.

5.E.5 **Energy Efficient Lighting.** Establish standards to improve energy efficiency related to outdoor lighting by limiting unnecessary fixtures and utilizing low-energy fixtures.

5.E.6 **Greenhouse Gas Monitoring.** Monitor GHG emissions in the city and systematically evaluate the progress of GHG reduction measures, adjusting policies as necessary to ensure compliance with State standards.

5.E.7 **Energy Efficient Municipal Operations.** Demonstrate leadership by reducing the use of energy and fossil fuel consumption in municipal operations, increasing energy efficiency in transportation, waste management, building design and use, and the purchasing of goods and services.

5.E.8 **Renewable Energy.** Encourage the use of renewable energy sources in the community, such as geothermal, solar, hydroelectric, and wind power.

5.E.9 **Zero-Emission Vehicle Travel.** Support the use of zero-emission vehicles (ZEVs) in the community through measures such as ensuring the availability of infrastructure such as electric vehicle charging stations and dedicated parking.

5.E.10 **Community Engagement for Energy Efficiency.** Maintain up-to-date information on available resources, best practices, programs, and tools to support community members in improving their energy efficiency, including financial incentives provided by other agencies and funding opportunities that could allow the City to

provide its own incentives and programs. Ensure that available information is accessible to the public through activities such as workshops or informational books, and media such as pamphlets or a website.

5.E.11 **Service Provider Cooperation.** Work with PG&E and Turlock Irrigation District to educate the public about the need to conserve energy resources and methods of improving energy efficiency, and develop programs to encourage the adoption of energy-saving measures.

5.F.7 **Resilient Transportation.** Promote a resilient transportation system that offers connectivity for multiple transportation modes in the face of extreme weather events, such as storms and flooding, related to climate change. Transportation improvements may include elevating transportation infrastructure, installing culverts, or raising bridges where necessary.

Public Facilities and Services Element

6.A.7 **Pedestrian and Bicycle Access to Schools.** Locate schools in areas with safe and convenient pedestrian and bicycle access.

6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools.

6.C.21 **Bicycle and Pedestrian Connections to Parks and Recreational Facilities.** Establish new and maintain existing bicycle and pedestrian network connections between parks and recreational facilities to improve health outcomes and access to diverse programming in City park and recreational facilities. Ensure connections are well-lit, maintained, and marked with signage. *For more detail about planned bicycle infrastructure improvements, see Chapter 3: Transportation and Circulation Element.*

Implementation Actions

2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including:

- New or changed land use designations and development standards;
- To allow accessory dwelling units in all residential zones, in order to add to the City's affordable housing stock and provide housing opportunities for extended families, senior citizens, special needs, and other household types;
- To allow highway-oriented commercial signage;
- To right-size the required number of parking spaces in Downtown Ceres to encourage a vibrant, walkable environment and to allow for parking management strategies, such as shared parking and parking pricing, to ensure efficient use of parking spaces;
- To specify bicycle parking requirements for new developments and site renovations;

- To reevaluate the adequacy and appropriateness of parking requirements and consider provisions to allow for shared parking and reduced parking requirements considered;
- To specify electric vehicle parking requirements for new developments and site renovations;
- To ensure implementation of the provisions of the County's Right-to-Farm Ordinance; and
- To allow community gardens as a permitted use in appropriate districts.

2.2 Update the public facilities fiscal model and the Public Facility Fee program based on the updated General Plan, including:

- To encourage the development of affordable, special needs, and senior housing; and
- To incentivize infill.

During the update, examine the potential for including costs related to improving the appearance of the SR 99 corridor in the Public Facility Fee program.

2.4 Establish incentives, potentially including, but not limited to, density bonuses, increased height limits, reduced parking requirements, expedited review, and development fee waivers or deferrals, to encourage the development of affordable, special needs, and senior housing.

2.10 Update the Downtown Specific Plan to incorporate and leverage the planned ACE train stop located Downtown.

2.12 Research and pursue the potential relocation of Whitmore Park, to allow for public and private investment and development on the existing park site near the potential ACE Train stop, while ensuring adequate parkland and public gathering spaces Downtown.

2.18 Discourage cul-de-sacs that have no pedestrian and bicycle connections.

2.19 Provide a pedestrian-scaled environment with streets and sidewalks sized and designed to promote outdoor use and walking.

2.20 Provide sidewalks along all streets, public and private, except along alleys.

3.1 Periodically update the Engineering Improvement Standards for all roadway cross-sections to ensure bicycle, pedestrian and transit vehicles are accommodated within the standard plans. This review will also consider circumstances under which street widths within the existing right-of-way may be reduced to accommodate the addition of pedestrian or bicycle facilities to meet other city goals.

3.8 Periodically prepare a short range transit plan.

3.9 Update the Downtown Specific Plan to incorporate new ACE train stop, train stop design plans, multimodal train stop access guidelines, parking policies, and transit-supportive uses.

3.10 In conjunction with the development of an ACE train stop, review CAT routes and adjust to serve ACE train if cost effective and/or consistent with other Goals and Policies in this section.

3.11 Prepare an Active Transportation Plan that at a minimum conforms to Caltrans Requirements, including community outreach, existing conditions, network development, implementation and funding.

3.12 Work with the Ceres Unified School District to plan, design, and construct infrastructure-related projects that will improve the ability of students to walk and bicycle to school.

3.13 As part of the Active Transportation Plan, identify gaps in the sidewalk network, prioritize gap closure projects, and develop design guidelines.

5.6 Encourage residential efficiency retrofits with the goal of a 50-percent energy reduction compared to baseline in 30 percent of the total homes in the city by 2035 (7,020 homes out of a total of 23,401) through the following activities:

- Publicize available incentive and rebate programs, such as Turlock Irrigation District's (TID's) Energy Efficiency Rebates program and Pacific Gas and Electric's (PG&E's) energy savings programs—such as Home Upgrade options, the Energy Savings Assistance Program, and the Smart Thermostat Rebate—on the City's website and by other means;
- Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and
- Adopt a residential energy conservation ordinance, which requires residential property owners to conduct and disclose an energy audit at the time of major renovations (as defined by the ordinance), to ensure that homes and residential developments meet specified low cost energy efficiency measures—such as requisite ceiling insulation, insulated pipes, water heater blankets and exterior door weather stripping.

5.7 Encourage commercial and industrial efficiency retrofits with the goal of a 25-percent energy reduction compared to baseline in 30 percent of the total non-residential square footage in the city by 2035 through the following activities:

- Publicize available incentive and rebate programs; such as TID's Commercial Refrigeration Rebate, Advanced Power Strip Program, and Agricultural Irrigation Pump Rebate; and PG&E's Commercial HVAC Optimization Program, Heavy

Industry Energy Efficiency Program, Retrocommissioning Program; on the City's website and by other means;

- Create a citywide "Energy Challenge," similar to the Department of Energy's Better Buildings Challenge, to promote cost-effective energy improvements, while having residents and building owners commit to reducing energy consumption; and
- Adopt a non-residential energy conservation ordinance, which requires property owners to ensure that commercial and industrial buildings meet specified energy efficiency measures—such as requisite heating, ventilation, and air conditioning improvements, service water system requirements, and improved refrigeration equipment, at the time of conducting major renovations (as defined by the ordinance).

5.8 Promote the replacement of 50 percent of incandescent and halogen light bulbs in residential and commercial buildings with LED or similarly efficient lighting by 2035 through the following activities:

- Promote the use of LED or other energy efficient lamps by publicizing rebate programs and information from SCE on the benefits of the use of LED or other energy efficient lighting on the City's webpage; and
- Evaluate the feasibility of adopting a minimum natural lighting and ventilation standard, developed based on local conditions. Demonstrate natural lighting and ventilation features in future renovations or new construction.

5.9 Promote installation of residential photovoltaic (PV) systems to increase solar capacity by 20.0 megawatts (MW) per year, or the equivalent of 15 percent of projected residential electricity supplied by TID, by 2035 through the following activities:

- On a continuing basis, ensure that regulatory provisions—such as complying with regulations for zoning, structure height, permit submittal and review, etc.—do not hinder residential PV system installation; and
- Evaluate the feasibility of adopting an ordinance that requires all new homes install PV panels to offset a portion of their energy use.

5.10 Promote installation of commercial and industrial PV systems to produce an additional 37.4 MW per year, or 15 percent of projected commercial and industrial electricity supplied by TID, by 2035 through the following activities:

- Adopt a commercial energy conservation ordinance requiring all new non-residential developments with more than 50 cars surface parked or on roofs of parking structures to use PV panels over at least half of the surface/roof-parked cars, or provide equivalent energy conservation/generation by other means (over and above other requirements);

- On a continuing basis, ensure that regulatory provisions—such as complying with regulations for zoning, structure height, permit submittal and review, etc.—do not hinder commercial and industrial PV system installation; and
- Adopt an ordinance requiring existing and new non-residential developments to install PV panels to offset a portion of their energy use.

5.11 Promote an increase in the proportion of ZEV passenger vehicle miles traveled from a projected 14 percent to 25 percent of total vehicle miles traveled by 2035 through the following measures:

- Working with industry partners, construct a "PV to EV" pilot project to install a photovoltaic charging station at a City facility (such as City Hall), to charge electric vehicles (EVs). The purpose of the pilot project would be to evaluate the feasibility of incorporating more ZEVs into the city's fleet.
- Prepare a community-wide charging station siting plan, which evaluates site visibility and exposure, EV driving ranges, high volume destinations, locations with high ownership or interest in EVs, and cost of construction.
- Construct ZEV charging stations based on the community-wide charging station siting plan described above. The ZEV charging stations will be funded by grant funds when available, and the City will post signage directing ZEVs to charging stations described above.
- Offer dedicated ZEV parking, and provide charging stations adjacent to ZEV parking as identified in the community-wide charging station siting plan.
- Adopt requirements for ZEV parking for certain new developments.
- Adopt a residential energy conservation ordinance requiring the installation of EV chargers or pre-wiring in new residential construction and major renovations.

Mitigation Measures

None required.

Impact 3.5-3 Development under the Proposed Project would not cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance. (*Less than Significant*)

As noted in Appendix F of the CEQA Guidelines, the means of achieving the goal of conserving energy and reducing wasteful, inefficient, and unnecessary consumption of energy include the following:

1. Decreasing overall per capita energy consumption.[5]
2. Decreasing reliance on fossil fuels such as coal, natural gas, and oil.
3. Increasing reliance on renewable energy sources.

Construction associated with future developments under the Proposed Project would consume gasoline and diesel fuel through operation of heavy-duty, off-road construction equipment and on-road vehicles. The amount of fuel consumed by these activities would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of personnel. Because the Proposed Project does not propose any specific development projects, the precise level and intensity of construction activities that would occur in the Planning Area is not known at this time.

For the purposes of this analysis, it is assumed that the types of land uses envisioned under the Proposed Project, which includes residential, commercial, and industrial uses, would involve construction activities typical of most land use developments within the Planning Area and in the San Joaquin Valley Air Basin. Because construction emissions are considered to be relatively short-term emissions that would cease once construction of a project is complete, they would represent a relatively short demand on local and regional fuel supplies that would be easily accommodated. Therefore, construction activities associated with the Proposed Project would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy.

Future development under the Proposed Project would generate vehicle trips, which would consume gasoline and diesel. Future development would also result in the consumption of electricity and natural gas for power, heating, and cooking. Operational energy consumption (expressed in terms of million BTU) under existing conditions and 2035 conditions under the Proposed Project is summarized in Table 3.5-10: Estimated Operational Energy Consumption. The 2035 projection includes electricity and natural gas use reductions from State actions and proposed General Plan policies, in addition to fuel savings achieved by proposed General Plan transportation policies that reduce overall VMT. More information on these policies and actions and their effect on GHG emissions can be found under Impact 3.5-1 above. Table 3.5-11: Estimated Energy Consumption Efficiency shows the estimated existing and projected 2035 energy consumption per service population.

As shown in Table 3.5-8: GHG Reductions from Proposed General Plan Policies and Implementation Actions ($MTCO_2e$ per year), implementation of the Proposed Project would

[5] In the analysis below, per service population metrics are analyzed because energy from commercial and industrial land uses are considered.

result in a net energy consumption increase of 553,851 million BTUs at buildout in 2035. This energy use increase corresponds to the net new development introduced by the Proposed Project into the Planning Area, which consists of a total of 7,200 residential units, and 13,900,000 square feet of non-residential development at buildout in 2035. As shown in Table 3.5-10: Estimated Operational Energy Consumption, although net new energy consumption would occur under the Proposed Project, a decrease in the per service population energy consumption would occur between 2014 and 2035. Whereas the 2014 per service population energy consumption is 55 million BTUs per year, the per service population energy consumption associated with the net new development introduced by the Proposed Project at buildout in 2035 would be 12 million BTUs per year, which is approximately 77 percent lower when compared to existing conditions (2014).

Table 3.5-10: Estimated Operational Energy Consumption

Analysis Year/Source	*Million BTU/Year*
2014	
Electricity	1,277,779
Natural Gas	695,599
Mobile (gasoline and diesel)	1,604,840
Total	**3,578,219**
2035	
Electricity	1,623,663
Natural Gas	738,872
Mobile (gasoline and diesel)	1,769,535
Total	**4,132,070**
Net Increase with Proposed Project	553,851

Source: Dyett & Bhatia, 2018.

Table 3.5-11: Estimated Energy Consumption Efficiency

	2014	*2035*	*Net Proposed Project*
Energy consumption (million BTUs)	3,578,219	4,132,070	553,851
Service population	64,872	109,496	44,624
Million BTUs per service population	55	38	12
Percent change from Existing	--	*-32%*	*-77%*

Source: Dyett & Bhatia, 2018.

Overall, by decreasing demand for energy- and fuel-related energy resources on a per service population basis, operation of future land uses associated with the Proposed Project would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy. Therefore, this impact is considered less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals and policies listed under Impact 3.5-2 above.

Mitigation Measures

None required.

Impact 3.5-4 The Proposed Project would not conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2035, or any other applicable energy conservation regulations. *(Less than Significant)*

All future development under the Proposed Project would be required to comply with the latest CBC requirements, including CBC Energy Efficiency Standards, as well as all federal, State, and local rules and regulations pertaining to energy consumption and conservation. The proposed General Plan includes policies that emphasize energy reduction strategies as described in Impact 3.5-3 and does not contain policies that would conflict with existing energy conservation regulations.

Through implementation of proposed General Plan policies as described under Impact 3.5-3, the Proposed Project would support the CARB passenger vehicle GHG emissions reduction targets through measures that would reduce VMT in the Planning Area. Additionally, CARB's LCFS, which aims to reduce the carbon intensity of the life cycle of gasoline and diesel fuels by 10 percent by 2020, would further assist in meeting established energy reduction goals and GHG emission reduction targets. Therefore, impacts would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals and policies listed under Impact 3.5-2 above.

Mitigation Measures

None required.

3.6 Geology, Soils, and Seismicity

This section assesses potential environmental impacts from future development under the Proposed Project as related to geology, soils, and seismicity, including those related to geologic and seismic hazards and soil stability. The section describes the Planning Area's geologic and seismic setting, as well as relevant federal, State, and local regulations and programs. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

Geology

The Planning Area is located in the San Joaquin Valley, which is part of the Central Valley Geomorphic Province, a basin filled with deep layers of sediment, where surface soils consist mainly of alluvial sediments from the Sierra Nevada and Coast Ranges. The topography of Ceres and its surroundings is nearly flat, with elevations of about 80 to 100 feet above sea level (AECOM, 2012).

The California Geological Survey (CGS) Geologic Map of the San Francisco-San Diego Quadrangle (Wagner et al., 1991) shows that the Planning Area is underlain mainly by the Modesto Formation, with quaternary alluvium underlying the Tuolumne River. The Modesto Formation is composed of arkosic alluvial deposits of tan and light gray gravely sand, silt, and clay (Marchand and Allwardt, 1981; Helley and Harwood, 1985). Most of the prime agricultural land and many of the major cities of the eastern San Joaquin Valley are located in young alluvial soils associated with the undissected Modesto terrace and fan surfaces. The Modesto Formation can be differentiated into an upper member and a lower member. The upper member consists of fine to medium sand and is exposed in some terraces and fans associated with major Sierra Nevada rivers, including the Tuolumne River. The lower member consists primarily of sand, with stratified deposits of silt and fine sand, and is associated with alluvial fans covering an extensive part of the northeastern San Joaquin Valley (Marchand and Allwardt, 1981).

Soils

A region's geology ultimately determines the types of soils that cover its surface, which have implications for agricultural productivity, natural hazards, and development potential. Almost all of the soils in the Planning Area are sandy loam or loamy sand, meaning they have high sand content, low clay content, and low to moderate silt content. According to soil survey information obtained from the United States Department of Agriculture's Natural Resources Conservation

Service (NRCS), three soil types, Dinuba sandy loam, Hilmar loamy sand, and Delhi loamy sand, account for two-thirds of the Planning Area's soil. Some 23 additional soil types are present in relatively small amounts. Figure 3.6-1: Soil Types shows soil types found in the Planning Area.

Seismicity

Seismic activity in the Planning Area is considered minimal, as there are no known active earthquake faults in the Planning Area, although there are active and potentially active faults in the broader region that can subject Ceres land and structures to groundshaking, as shown in Figure 3.6-2: Regional Faults. An active fault is defined by the California Geological Survey as having had surface displacement within Holocene time (the last 11,000 years). A potentially active fault is defined as one that has shown evidence of surface displacement during Quaternary time (the last 1.6 million years) (California Geological Survey, 2010). The nearest active fault lines that have been active in the last 200 years are about 40 miles away from the Planning Area near Livermore along the Greenville Fault and Los Positas Fault. Nearby active faults that have not had displacement in the past 200 years include much of the Greenville Fault 30 miles west of the Planning Area and the Ortigalita Fault 25 miles to the southwest. The nearest potentially active fault line is about 11 miles northwest of the Planning Area (Bryant, 2005).

Geologic and Seismic Hazards

Geologic Hazards

Geologic hazards include soil erosion and landslides, subsidence, and expansive soils.

Soil Erosion and Landslides

Soil erosion is the process by which soil materials are worn away and transported to another area, either by wind or water. A landslide is the downhill movement of masses of earth material under the force of gravity. Rapid erosion and landslides are most likely to occur on sloped areas. As the Planning Area is relatively flat, it has almost no potential for landslides, with the exception of steep banks along the Tuolumne River. Erosion may take place over time as soil is exposed to wind, water, and human activity.

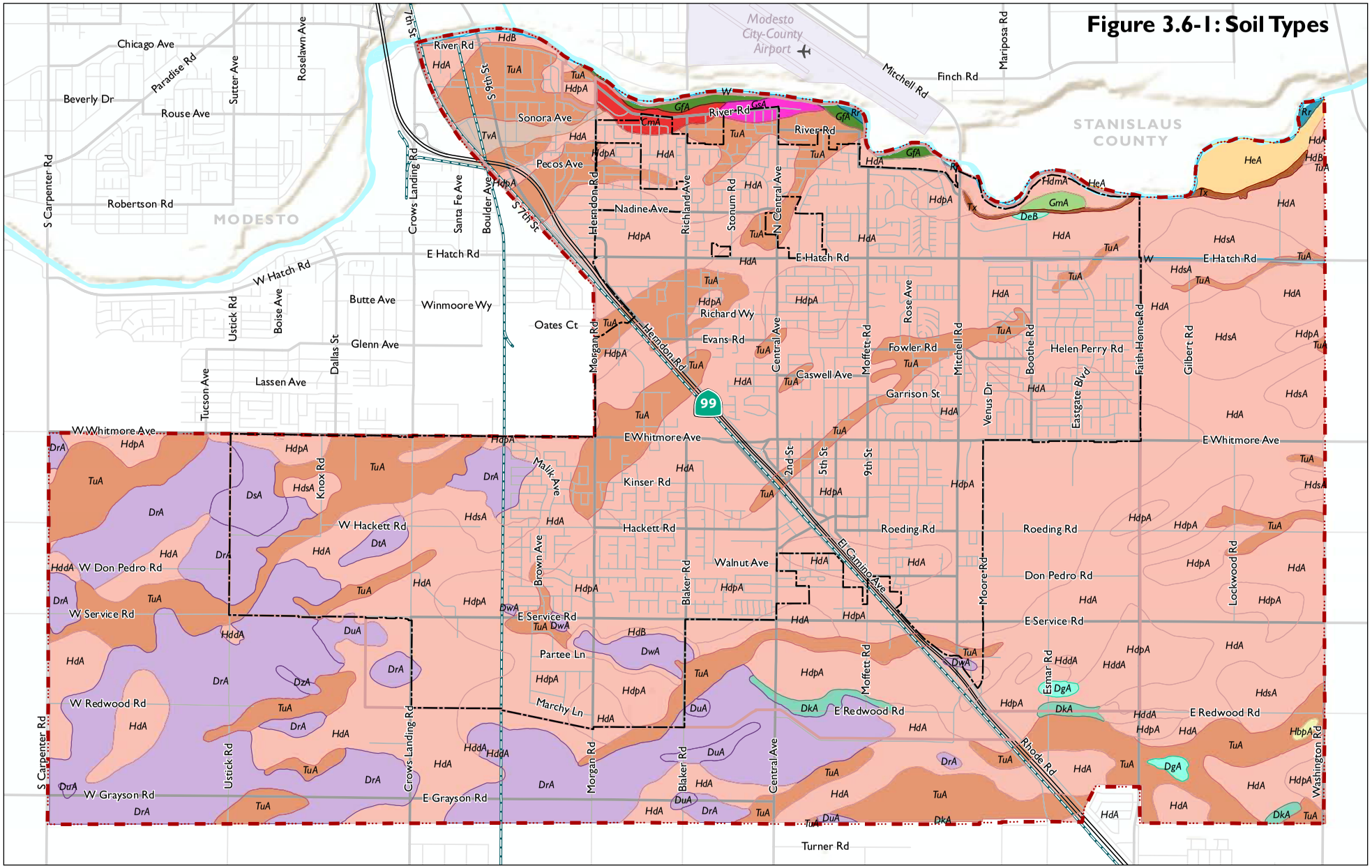
Subsidence

Subsidence occurs when a large portion of land is displaced vertically. This typically is due to the withdrawal of groundwater, oil, or natural gas. In the Planning Area, this would most likely occur with the removal of groundwater from the Turlock Subbasin. Subsidence is more likely to occur in soils with high clay content. Soils in the Planning Area have low clay content, and thus have a lower potential for subsidence.

Expansive Soils

Expansive soils have shrink-swell capacity, meaning they may swell when wetted and shrink when dried. Expansive soils can be a hazard for built structures, and may cause cracks in building foundations, distortion of structural elements, and warping of doors and windows. The higher the clay content of a soil, the higher its shrink-swell potential. Soils in the Planning Area, including Hanford Sandy Loam and Tujunga Loamy Sand, have low clay content, and therefore low shrink-swell potential.

Figure 3.6-1: Soil Types



- Columbia Silt Loam (CmA)
- Delhi Loamy Sand (DeB, DgA)
- Dello Loamy Sand (DkA)
- Dinuba Sandy Loam (DrA)
- Dinuba Fine Sandy Loam (DmA)
- Grangeville Fine Sandy Loam (GfA)
- Grangeville Very Fine Sandy Loam (GmA)
- Greenfield Sandy Loam (GsA)
- Hanford Fine Sandy Loam (HbA, HbpA)
- Hanford Sandy Loam (HdA, HdB, HdsA, HdmA, HdpA, HddA)
- Hanford Very Fine Sandy Loam (HeA)
- Riverwash (Rr)
- Terrace Escarpments (Tx)
- Tujunga Loamy Sand (TuA, TuB)
- Tujunga Sand (TvA)
- Water (W)
- River
- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, USDA Soils Data, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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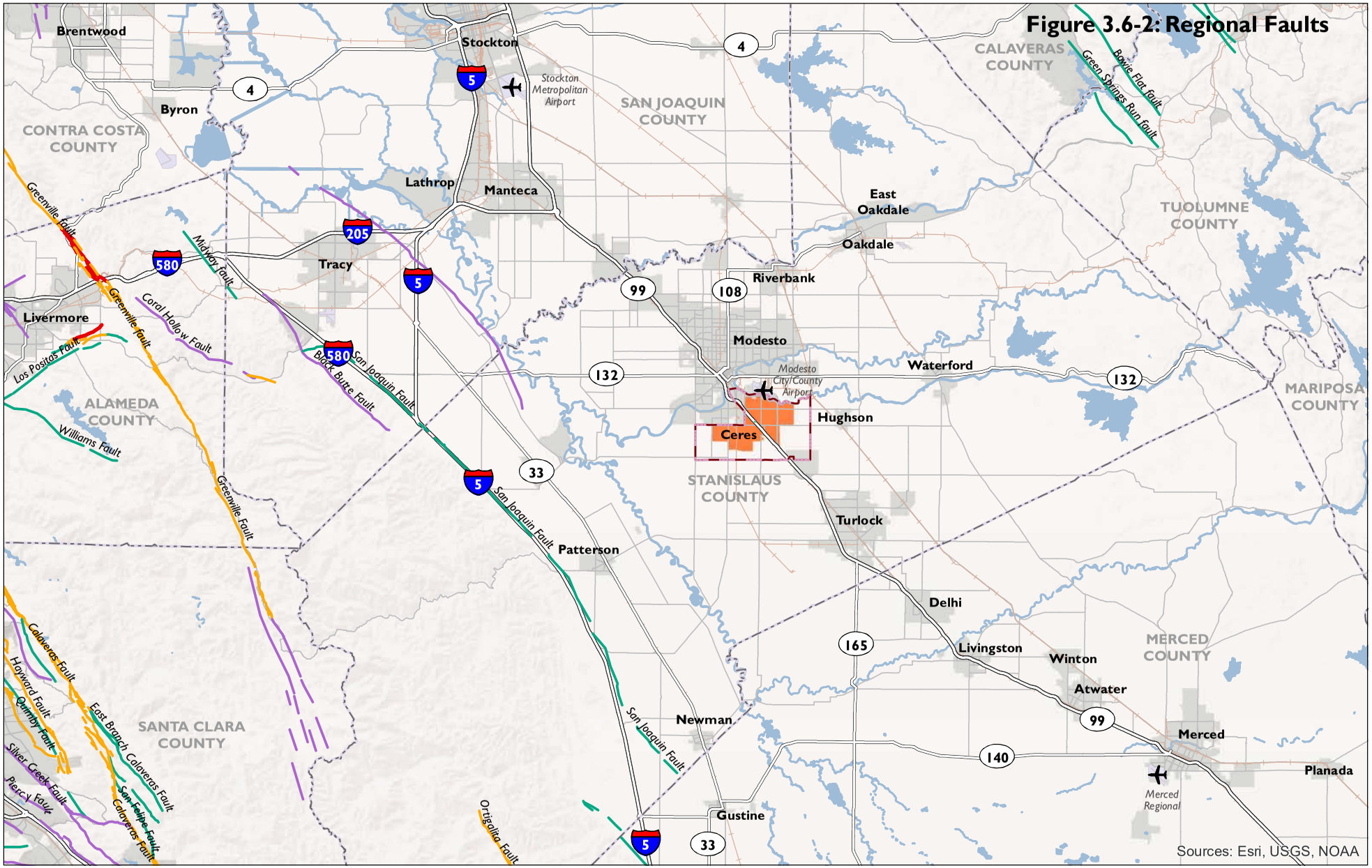

Data Source: Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, Version 2.0, California Geological Survey, 2005; Stanislaus County Geographic Information Systems, 2015; Dyett & Bhatia, 2015;

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City of Ceres

Seismic Hazards

Seismic hazards related to earthquakes include groundshaking, surface rupture, and ground failure.

Groundshaking and Surface Rupture

In the Planning Area, the primary seismic hazard is groundshaking, which can be caused by activity along faults in the broader region. Groundshaking effects can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material, and can result in damage to or the collapse of buildings and other structures. The nearest active faults include the Greenville, Los Positas, and Otrigalita faults, located approximately 25 to 40 miles from the city. The nearest potentially active fault line is about 11 miles northwest of Ceres. Due to the absence of active faults in the Planning Area, the risk of surface rupture, or the breaking of the ground along a fault during an earthquake, is very low.

Ground Failure

Types of seismic ground failure include liquefaction, lateral spreading, subsidence, and landslides. Liquefaction is the rapid transformation of saturated, loose, fine-grained sediment (such as silt and sand) into a fluid state as a result of severe vibratory motion. Lateral spreading refers to a type of landslide that forms on gentle slopes and has rapid fluid-like movement. Factors determining the potential for liquefaction and lateral spreading are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Due to the Planning Area's well-drained, relatively stable soils, distance from active faults, and depth of the groundwater table, the risk of liquefaction and lateral spreading are low. Earthquakes can also trigger subsidence and landslides, which are discussed under geological hazards, above.

REGULATORY SETTING

Federal Regulations

U.S. Geological Survey Landslide Hazard Program

The United States Geological Survey (USGS) created the Landslide Hazard Program in the mid-1970s; the primary objective of the program is to reduce long-term losses from landslide hazards by improving our understanding of the causes of ground failure and suggesting mitigation strategies. The federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a state and local responsibility. In Stanislaus County, plans and programs designed for the protection of life and property are coordinated by the Stanislaus County Office of Emergency Services.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1977 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was last amended in 2004 by NEHRP.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the National Institute of Standards and Technology (NIST) as the lead agency of the program. As lead agency, it develops, evaluates, and tests earthquake resistant design and construction practices for implementation in the building codes and engineering practice. Under NEHRP, the Federal Emergency Management Agency (FEMA) is responsible for developing earthquake risk reduction tools and promoting their implementation, as well as supporting the development of disaster-resistant building codes and standards. USGS monitors seismic activity, provides earthquake hazard assessments, and conducts and supports targeted research on earthquake causes and effects. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards.

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (DMA2K) (Public Law 106-390) amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 to establish a Pre-Disaster Mitigation (PDM) program and new requirements for the federal post-disaster Hazard Mitigation Grant Program (HMGP). DMA2K encourages and rewards local and state pre-disaster planning. It promotes sustainability and seeks to integrate state and local planning with an overall goal of strengthening statewide hazard mitigation. This enhanced planning approach enables local, tribal, and state governments to identify specific strategies for reducing probable impacts of natural hazards such as floods, fire, and earthquakes. In order to be eligible for hazard mitigation funding after November 1, 2004, local governments are required to develop a Hazard Mitigation Plan that incorporates specific program elements of the DMA2K law. Stanislaus County has adopted a Local Hazard Mitigation Plan, and the City of Ceres participates in the Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan, as described under Local Regulations, below.

State Regulations

California Multi-Hazard Mitigation Plan

The State of California Multi-Hazard Mitigation Plan, also known as the State Hazard Mitigation Plan (SHMP), was approved by FEMA in 2013. The SHMP outlines present and planned activities to address natural hazards. The adoption of the SHMP qualifies the State of California for federal funds in the event of a disaster. The State is required under the Disaster Mitigation Act of 2000, described above, to review and update its SHMP and resubmit for FEMA approval at least once every 5 years to ensure the continued eligibility for federal funding. The SHMP provides goals and strategies which address minimization of risks associated with natural hazards and response to disaster situations. The SHMP notes that the primary sources of losses in the State of California are fire and flooding.

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (California

Code of Regulations Title 24). Where no other building codes apply, Chapter 18 of the CBC regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the Federal Uniform Building Code (FUBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The FUBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The State earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires an evaluation of seismic design that falls into Categories A–F (where F requires the most earthquake-resistant design) for structures designed for a project site. The CBC philosophy focuses on "collapse prevention," meaning that structures are designed for prevention of collapse for the maximum level of groundshaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

The CBC has been amended and adopted as Chapter 15.02 of the Ceres Municipal Code, which regulates all building and construction projects within the city.

California Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures used for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on top of active faults. The law only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards, such as groundshaking or landslides.

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones or Alquist–Priolo Zones) around the surface traces of active faults, and to issue appropriate maps. The maps are then distributed to all affected cities, counties and state agencies for their use in planning and controlling new or renewed construction. Generally, construction within 50 feet of an active fault zone is prohibited. As discussed in the Physical Setting section, there are no active faults in the Planning Area, and therefore no designated Alquist-Priolo fault zones.

Hospital Facilities Seismic Safety Act of 1973

The Alfred E. Alquist Hospital Facilities Seismic Safety Act (HSSA) was passed in 1973 to ensure that hospitals in California conform to high construction standards and are reasonably capable of providing services to the public after a disaster. The HSSA requires the establishment of rigorous seismic design regulations for hospital buildings and requires that new hospitals and additions to hospitals have the capacity, as far as is practical, to remain functional after a major earthquake. State law requires that all existing hospital buildings providing general acute care as licensed under provisions of Section 1250 of the California Health and Safety Code be in compliance with the intent of the HSSA by the year 2030.

Seismic Hazards Mapping Act, California Public Resources Code Sections 2690–2699.6

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong groundshaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit is granted for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design. Geotechnical investigations conducted within Seismic Hazard Zones must incorporate standards specified by CGS Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards (CGS, 1997).

California Department of Transportation (Caltrans)

Jurisdiction of the California Department of Transportation (Caltrans) includes State and interstate routes within California. Any work within the right-of-way of a federal or State transportation corridor is subject to Caltrans regulations governing allowable actions and modifications to the right-of-way. Caltrans standards incorporate the California Building Code, and contain numerous rules and regulations to protect the public from seismic hazards such as surface fault rupture and groundshaking. In addition, Caltrans standards require that projects be constructed to minimize potential hazards associated with cut and fill operations, grading, slope instability, and expansive or corrosive soils, as described in the Caltrans Highway Design Manual (HDM).

National Pollution Discharge Elimination System Permits

In California, the State Water Resources Control Board (SWRCB) and its Regional Water Quality Control Board (RWQCB) administer the National Pollution Discharge Elimination System (NPDES) program. The NPDES permit system was established as part of the Federal Clean Water Act to regulate both point source discharges and non-point source discharges to surface water of the United States, including the discharge of soils eroded from construction sites.

The NPDES program consists of characterizing receiving water quality, identifying harmful constituents (including siltation), targeting potential sources of pollutants (including excavation and grading operations), and implementing a comprehensive stormwater management program. Construction and industrial activities typically are regulated under statewide general permits that are issued by the SWRCB. Additionally, the SWRCB issues Water Discharge Requirements that also serve as NPDES permits under the authority delegated to the RWQCBs, under the Clean Water Act. See Section 3.9: Hydrology and Water Quality, for more information about the NPDES.

Local Regulations

Stanislaus County General Plan

Conservation/Open Space Element

Goal Five of the Conservation/Open Space Element is to reserve, as open space, lands subject to natural disaster in order to minimize loss of life and property of residents of Stanislaus County. Associated policies and implementation actions seek to discourage development on lands subject to flooding, landslide, faulting, or any natural disaster; and to plan for evacuation routes and hazard mitigation to minimize impacts of a disaster. The Stanislaus County General Plan applies to unincorporated areas of the Ceres Planning Area.

Safety Element

The Safety Element addresses several potential hazards in Stanislaus County, including seismic and geologic hazards. Goals of this element are to prevent loss of life and reduce property damage as a result of natural disasters, and to minimize the effects of hazardous conditions. Policy Three states that development should not be allowed in areas that are particularly susceptible to seismic hazard. Policy Five supports efforts to identify and rehabilitate structures that are not earthquake resistant.

Stanislaus County Local Hazard Mitigation Plan

The Stanislaus County Office of Emergency Services completed an update to the Stanislaus County Local Hazard Mitigation Plan (LHMP) in July 2017. The LHMP recognized earthquakes, floods, dam inundation, landslides and wildfire as the local natural hazards. The LHMP also states mitigation strategies and actions that serve as the long-term blueprint for reducing potential losses. Activities such as issuing building permits, repairing roads and training first responders are examples of specific actions which can be taken to prevent or minimize damage. Such activities have been identified for each hazard in the LHMP.

Prior to the 2017 update, the County had coordinated the development of a multi-jurisdictional hazard mitigation plan (MJHMP) to cover multiple jurisdictions in the county. The decision to focus the 2017 update on the development of a LHMP was made after Stanislaus County Office of Emergency Services staff reviewed the previous hazard mitigation plans and the short timeline to complete the update. References to the MJHMP in other County plans should be considered synonymous with the term LHMP. The County's LHMP is available for use as a base plan by other local governments within Stanislaus County in order to complete their own LHMPs.

In 2011, the City of Ceres adopted the County's 2010 MJHMP for a period of five years. Since then, the City has not adopted an updated hazard mitigation plan.

City of Ceres Subdivision Ordinance

Section 17.12.140 of the City of Ceres Code of Ordinances states that septic tanks may be authorized to be used only for the period anticipated before sanitary sewers will be available to the subdivisions, and only when soil conditions, percolation qualities, stormwater conditions, topography, and water table are determined by the Stanislaus County Health Officer to be suitable for a septic system.

Stanislaus County Subdivision Ordinance

Section 20.52.210 of the Stanislaus County Code states that septic tanks may be authorized to be used only for the period anticipated before sanitary sewers will be available to the subdivision, and when soil conditions, percolation qualities, stormwater conditions, topography, and water tables are determined by the Stanislaus County Director of Environmental Resources to be suitable for sewage disposal by this method. The minimum parcel size permitted for the use of septic tanks is established in the Zoning Ordinance.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic groundshaking.

iii) Seismic-related ground failure, including liquefaction.

iv) Landslides.

Criterion 2: **Result in substantial soil erosion or the loss of topsoil;**

Criterion 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;**

Criterion 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;**

Criterion 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.**

METHODOLOGY AND ASSUMPTIONS

This evaluation of geologic and seismic hazard conditions was completed using published geologic, soils, and seismic maps and studies from USGS, CGS, and Stanislaus County. In order to reduce or mitigate potential hazards from earthquakes or other local geologic hazards, implementation of the Proposed Project would ensure that development will continue to be completed in compliance with local and State regulations. These regulations include the CBC and the Seismic Hazard Mapping Act. Policies, and implementation measures developed for the Proposed Project include continued conformance with these applicable local and State building regulations.

SUMMARY OF IMPACTS

Future development under the Proposed Project could result in substantial adverse effects from seismic groundshaking. However, as described below, the proposed General Plan includes policies that focus on geologic, soil, and seismic safety. Furthermore, future development projects would be subject to State regulations and the CBC, ensuring that risks from seismic and geologic conditions are minimized. Implementation of these goals, policies, and regulations would ensure potential impacts would remain below a level of significance.

IMPACTS

Impact 3.6-1 **Implementation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of a known fault; strong seismic groundshaking; seismic-related ground failure, including liquefaction; and landslides. *(Less than Significant)***

The proposed General Plan would have less than significant impacts regarding substantial adverse effects from fault rupture, groundshaking, and liquefaction as discussed below.

Fault Rupture

As noted in the Physical Setting section, the Planning Area is located among a high number of faults that are considered active or potentially active by the California Geological Survey - Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, Version 2.0. However, none of these faults pass through the Planning Area. Additionally, no Alquist-Priolo Earthquake Fault Zones overlap with the Planning Area. Potential adverse effects on people or structures from the rupture of a known earthquake fault would be minimized to the greatest extent feasible by CBC requirements that protect buildings from fault rupture. Due to the absence of active faults in the Planning Area, the risk of surface rupture, or the breaking of the ground

along a fault during an earthquake, is very low. Thus, impacts related to fault rupture are less than significant.

Groundshaking

Earthquakes in and near the Planning Area have the potential to cause groundshaking of significant magnitude. Figure 3.6-2: Regional Faults displays the location and extent of the profiled earthquake faults near the Planning Area based on the USGS earthquake model that shows probabilistic peak ground acceleration. The Proposed Project would allow for additional development within the Planning Area, which could expose people and property to strong seismic groundshaking. However, all new buildings would be constructed in compliance with the CBC. Section 1613 of the CBC requires all structures be designed and constructed to resist the effects of earthquake motions in accordance with the Minimum Design Loads for Buildings and Other Structures established by the American Society of Civil Engineers. Additionally, the proposed General Plan policies listed below to ensure access to updated information on seismic hazards and ensure the safety of existing and new development would further reduce any potential impacts associated with strong seismic groundshaking. Therefore, compliance with the CBC and implementation of the Proposed Project would result in less than significant impacts to people and structures from strong seismic groundshaking.

Liquefaction

Liquefaction typically occurs in areas underlain with loose saturated cohesionless soils within the upper 50 feet of subsurface materials. These soils, when subjected to groundshaking, can lose their strength as a result of the buildup of excess pore water pressure, causing them to behave closer to a liquefied state. Due to the Planning Area's well-drained, relatively stable soils, distance from active faults, and depth of the groundwater table, the risk of liquefaction and lateral spreading are low. Therefore, the potential impact related to liquefaction is less than significant.

Seismically Induced Landslides

Rapid erosion and landslides are most likely to occur on sloped areas. As the Planning Area is relatively flat, it has almost no potential for landslides, with the exception of steep banks along the Tuolumne River. Proposed General Plan policies that would prevent development from occurring within 50 feet of the top of river bank, thus avoiding development on the river's slopes, and that generally seek to protect the hydrologic and geologic integrity of the Tuolumne River would serve to reduce impacts in this area to below a level of significance.

Furthermore, the potential impacts from landslides on development of future land uses associated with the Proposed Project would be addressed through site-specific geotechnical studies prepared in accordance with CBC requirements and standard industry practices, as needed, which would specifically address landslide hazards located in landslide hazard areas, should any be identified in the future. Development would conform to the current design provisions of the CBC to mitigate losses from landslides. Therefore, the potential for adverse landslide impacts related to proposed changes from implementation of the Proposed Project is considered less than significant.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Development Element

2.A.15 **Ordinance Enforcement.** Continue to enforce the Municipal Code to address property and buildings that become eyesores or present health and safety problems.

Goal 4.B Conserve and, where possible, enhance open space lands for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety.

4.B.1 **Open Space Network.** Protect and enhance the city's open space network to support a variety of open space uses across the city and Planning Area, including open space areas in parkland, farmland, and the Tuolumne River, connected by wildlife corridors and pedestrian and bicycle routes.

4.B.5 **River Bluffs.** Support efforts to preserve river bluffs as open space and to enhance the bluffs as part of the hydrological system and river habitat.

4.C.4 **Riparian Setback.** Protect the integrity of habitats, hydrology, and soils along the river by prohibiting development within a distance of at least 50 feet as measured from the limit of riparian vegetation or as measured from the top of the channel bank, whichever is greater. Smaller buffers may be allowed only where it can be demonstrated that a 50-foot buffer is not possible due to site-specific constraints or if the development is for public, passive park or passive recreational uses, and the proposed narrower buffer would adequately protect the biological, hydrologic, and geologic integrity of the riparian corridor.

4.F.8 **Graded and Disturbed Areas.** Require that new development provides landscaping and re-vegetation of graded or disturbed areas with drought-tolerant native or non-invasive plants.

4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation.

Health and Safety Element

Goal 5.G Minimize loss of life, injury, and property damage due to seismic and geologic hazards.

5.G.1 **Building Standards.** Require that new structures and alterations to existing structures be designed and constructed according to current California Building Code standards to minimize risk to the safety of occupants during groundshaking.

5.G.2 **Improving Knowledge Base.** Support investigations conducted by local, State, and federal agencies and other institutions to refine, enlarge, and improve the body of

knowledge regarding active fault zones, unstable areas, groundshaking risks, and other seismic conditions in the Planning Area.

5.G.3 **Historic Building Safety.** Support improvements to the structural safety and stability of structures of designated historic significance while maintaining their historic character according to the State Historic Building Code.

5.G.4 **Dangerous Buildings.** Continue to implement the California Building Code for the Abatement of Dangerous Buildings to identify and address seismic or geologic risk in older buildings.

5.G.5 **Seismic and Geologic Hazard Assessment.** Require a geotechnical report for subdivisions and any project shown to have expansive soils or geologic instability, or potential risk for such soils or instability. Reports shall include the following:

- A description of the site and geologic conditions;
- Assessment of any threats from or impacts on seismic hazards such as groundshaking and ground failure, and geological hazards such as expansive soils and subsidence; and
- Recommendations to mitigate any hazards identified in the analysis.

5.G.6 **Expansive Soils.** Limit the siting of structures across soil materials of substantially different expansive properties. Require appropriate design specifications, including special slabs, where foundations are located in areas of expansive soils.

5.G.7 **Critical Facilities.** Ensure that critical facilities are sited, designed, and maintained to avoid damage from seismic and geologic hazards. Critical facilities include, but are not limited to, water and wastewater facilities, energy stations, hospitals, and public safety facilities.

5.G.8 **Construction Erosion.** Require the use of best management practices to control and mitigate soil erosion during construction activities.

Mitigation Measures

None required.

Impact 3.6-2 Implementation of the Proposed Project would not result in substantial soil erosion or topsoil loss. *(Less than Significant)*

Development associated with the Proposed Project would likely include earthwork activities that could expose soils to the effects of erosion or loss of topsoil. Once disturbed, either through removal of vegetation, asphalt, or an entire structure, stockpiled soils can be exposed to the effects of wind and water if not managed properly. The proposed General Plan includes policies, listed below, that require the use of best management practices (BMPs) to control soil erosion during and after ground-disturbing activities and geotechnical reports for projects requiring grading permits, and that would prevent development within 50 feet of the top of the bank of the Tuolumne River, thus avoiding disturbance of the slopes along the banks.

In addition, development that disturbs more than one acre would be subject to compliance with a NPDES permit, including the implementation of BMPs, some of which are specifically implemented to reduce soil erosion or loss of topsoil, and the implementation of a storm water pollution prevention plan (SWPPP) through the local jurisdiction. BMPs that are required under a SWPPP include erosion prevention measures that have proven effective in limiting soil erosion and loss of topsoil. Generally, once construction is complete and exposed areas are revegetated or covered by buildings, asphalt, or concrete, the erosion hazard is substantially eliminated or reduced.

Therefore, the potential for adverse soil erosion and topsoil loss impacts related to land use changes from implementation of the Proposed Project is less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Goal 5.G and policies 4.C.4, 4.F.8, 4.F.9, 5.G.2, 5.G.5, and 5.G.8, as listed under Impact 3.6-1 above.

Mitigation Measures

None required.

Impact 3.6-3 Implementation of the Proposed Project would not locate structures on expansive soils or on a geologic unit or soil that 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, or create substantial risks to life or property. (*Less than Significant*)

Some improvements associated with implementation of the Proposed Project could be located on geologic units or soils that are unstable, or that could become unstable and result in geologic hazards if not addressed appropriately. Areas with underlying materials that include undocumented fills, soft compressible deposits, or loose debris could be inadequate to support development, especially multi-story buildings. Soils that exhibit expansive properties when exposed to varying moisture content over time could result in damage to foundations, walls, or other improvements. Structures, including residential units and commercial buildings, could be damaged as a result of settlement or differential settlement where structures are underlain by

materials of varying engineering characteristics. Construction of new structures in the vicinity of relatively steep slopes could provide additional loading causing landslides or slope failure from unstable soils or geologic units. Slope failure can occur naturally through rainfall or seismic activity, or through earthwork and grading related activities. However, as Ceres is relatively flat, it has almost no potential for landslides, with the exception of steep banks along the Tuolumne River.

The potential hazards of unstable soil or geologic units would be addressed largely through the integration of geotechnical information in the planning and design process for projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided requirements, such as CBC requirements that are used to minimize the risk associated with these hazards. Geotechnical investigations would be required to thoroughly evaluate site-specific geotechnical characteristics of subsurface soils and bedrock to assess potential hazards and recommend site preparation and design measures to address any hazards which may be present. These measures are enforced through compliance with the CBC to avoid or reduce hazards relating to unstable soils and slope failure. Furthermore, policies in the proposed General Plan would prevent development within 50 feet of the top of the bank of the Tuolumne River, thus avoiding development along the river's slopes, and generally seek to preserve the hydrologic and geologic integrity of the Tuolumne River, and would serve to reduce potential impacts in the vicinity of the river. The potential for landslide, lateral spreading, subsidence, liquefaction, or collapse impacts related to changes from implementation of the Proposed Project is less than significant.

Proposed General Plan Policies that Reduce the Impact

Goal 5.G and policies 4.C.4, 4.F.8, 4.F.9, 5.G.2, 5.G.5, 5.G.6, and 5.G.8, as listed under Impact 3.6-1 above.

Mitigation Measures

None required.

Impact 3.6-4 Implementation of the Proposed Project would not result in 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. *(Less than Significant)*

Future development that may result from implementation of the Proposed Project in areas where sewers are not available could include septic systems or other alternative waste water disposal systems. In general, future development is subject to the City and County subdivision ordinances regulating the use of septic systems. The ordinances would permit the use of septic systems in new subdivisions only if soil conditions and other environmental factors would be conducive to the safe operation of the system, and only if adequate sewer service is not yet available. The proposed General Plan policy listed below would prohibit the use of septic systems unless soil conditions were adequate to support the system. Therefore, the Proposed Project would have a less than significant impact related to soils capability to support wastewater disposal.

Proposed General Plan Policies that Reduce the Impact

Goal 5.G and policies 4.F.9, 5.G.2, 5.G.5, and 5.G.6, as listed under Impact 3.6-1 above, as well as the following policy.

6.E.3 **On-Site Wastewater Treatment and Disposal.** Prohibit new on-site wastewater treatment and disposal facilities within the City's service area, except where such systems are deemed appropriate and will not pose health risks or risks to groundwater, and where soil conditions, percolation qualities, and topography would support the use of such facilities.

Mitigation Measures

None required.

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3.7 Hazards and Hazardous Materials

This section assesses potential impacts from future development under the Proposed Project as related to hazards and hazardous materials, including those associated with the transport, use, or disposal of hazardous materials; hazardous materials use in the vicinity of a school; hazardous materials sites; airport hazards; emergency planning; and wildland fire hazards. This section provides context regarding hazardous materials, airport hazards, emergency management, and fire hazards in the Planning Area, as well as relevant federal, State, and local regulations and programs. For discussion of geologic and seismic hazards, see Section 3.6: Geology, Soils, and Seismicity. For discussion of hydrologic and flood hazards, see Section 3.9: Hydrology and Water Quality.

Responses to the NOP regarding topics addressed in this section included the following:

- A member of the public commented to request that the EIR include content to confirm all known Leaking Underground Storage Tanks (LUSTs) have been fully remediated and any suspect LUSTs are reviewed for possible required remediation. While confirming that LUSTs have been remediated or are reviewed for remediation is outside of the scope of this EIR, this section describes the State of California's approach to identifying and remediating potentially hazardous sites, summarizes the status of potentially hazardous sites identified by State resources, and evaluates potential program-level environmental impacts of the Proposed Project in relation to hazardous materials and sites.
- A member of the public commented to request that the proposed designation of a parcel at Roeding Road and McGee Road as Light Industrial be assessed in terms of safety due to its proximity to an existing school and existing and proposed residential uses. Potential hazardous materials or emissions related to the Light Industrial land use designation in proximity to the existing school are discussed under Impact 3.7-3.

Environmental Setting

PHYSICAL SETTING

Hazardous Materials

Hazardous materials, as defined by the California Code of Regulations (CCR), are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. This refers to a variety of injurious substances, including pesticides, herbicides, toxic metals and chemicals, liquefied natural gas, explosives, volatile chemicals, and radioactive materials. Hazardous

materials are commonly found throughout the Planning Area in households, businesses, and agricultural operations. Typical residential and commercial substances include motor oil, paint, cleaners and solvents, gasoline, refrigerants, and lawn and gardening chemicals. Pesticides and herbicides are often used in conjunction with agricultural operations.

A hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. The criteria that render a material hazardous also make a waste hazardous. Nearly all businesses and households generate hazardous waste, and some businesses (such as industrial operations, gas stations and auto-related businesses, printers, and dry cleaners) may generate larger amounts. Medical waste, generated by hospitals, clinics, and laboratories, is also potentially hazardous. If improperly handled, hazardous materials and hazardous waste can be released into soils, groundwater, or air, where they can pose hazards to public health.

Hazardous Materials Transport

Within the Planning Area, hazardous materials may be transported by vehicle along roadways or through transmission lines such as pipelines. Major transportation routes include State Route 99 (SR-99) and surface streets, particularly arterials and expressways that accommodate truck traffic, such as Hatch Road, Whitmore Avenue , Service Road, Morgan Road, Central Avenue, and Mitchell Road. Additionally, two rail lines serving freight trains operate within the Planning Area. One generally parallels SR-99, and grade-separated crossing are provided at major roadways, including Hatch Road, Whitmore Avenue, and Service Road. The second line has a north-south orientation and is located equidistant between Crows Landing Road and Morgan Road, with at-grade crossings. Additionally, natural gas pipelines are located throughout the Planning Area, including Pacific Gas & Electric (PG&E) distribution lines along portions of SR-99, Morgan Road, Whitmore Avenue, and Crows Landing Road (PG&E, 2017).

Hazardous Materials Sites

Sites where hazardous chemical compounds have been released into the environment can pose threats to health and the ecological systems. Historic or current activities, most often associated with industrial or commercial uses (including gas stations, car washes, etc.), may result in the release, leak, or disposal of toxic substances on or below the ground surface, where they can then contaminate soil and ground water. Furthermore, disturbance of the ground through grading or excavation can result in exposure of these chemicals to the public. Improper handling of contaminated sites may result in further exposure via airborne dust, surface water runoff, or vapors.

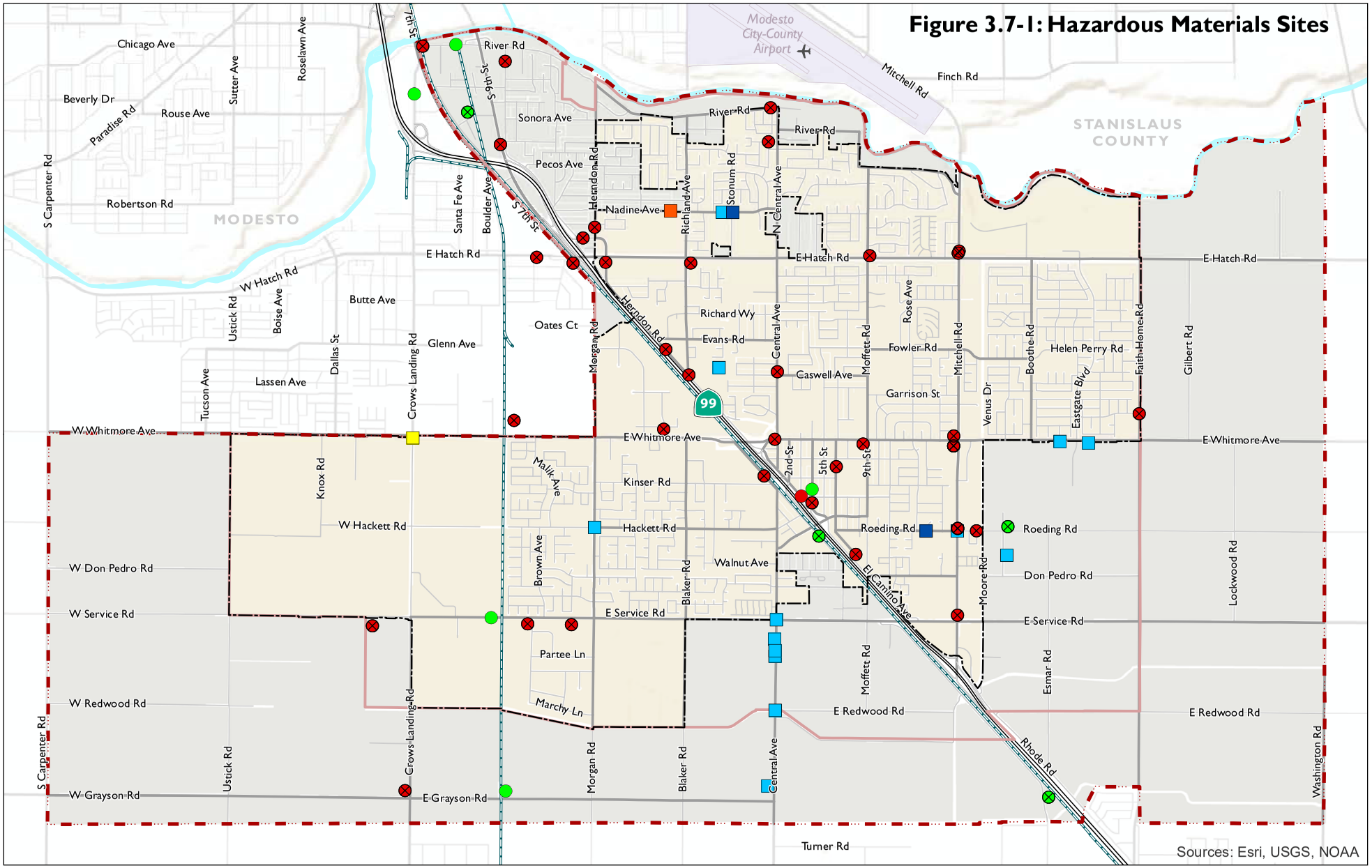
The California Department of Toxic Substances Control (DTSC) and State Water Resources Control Board (SWRCB) track and identify sites with known or potential contamination and sites that may impact groundwater in accordance with Section 65962.5 of the California Public Resources Code (PRC). The list produced in accordance with this code is also known as the Cortese List.

- **EnviroStor.** The DTSC EnviroStor hazardous waste facility and cleanup sites database identifies sites that have known contamination or potentially contaminated sites requiring further investigation, and facilities permitted to treat, store, or dispose of hazardous waste. The EnviroStor database includes lists of the following site types: federal

Superfund sites; State Response, including military facilities and State Superfund; voluntary cleanup; and school sites.

- **GeoTracker.** The SWRCB GeoTracker database tracks sites that impact groundwater or have the potential to impact groundwater. It includes sites that require groundwater cleanup such as Leaking Underground Storage Tanks (LUSTs), Department of Defense, and Site Cleanup Program sites; as well as permitted facilities that could impact groundwater such as operating Underground Storage Tanks (USTs), irrigated lands, oil and gas production sites, and land disposal sites.

Hazardous sites in the Planning Area or within a quarter mile of the Planning Area boundary as designated by both the State Water Resources Control Board (SWRCB) and the California Department of Toxic Substances Control (DTSC) are shown on Figure 3.7-1: Hazardous Materials Sites and are listed in Table 3.7-1: DTSC and SWRCB Hazardous Sites. In general, sites with contamination are largely clustered around major roadways including Whitmore Avenue, Central Avenue, and Mitchell Road. This contamination may be the result of underground storage tank releases, spills, accidental releases, or other activities involving the use of hazardous materials, such as previous agriculture activities. In addition, DTSC investigates and oversees cleanup of potential contamination on proposed school sites. For example, the State investigated Lucas Elementary School for lead and pesticide contamination and excavated the contaminated soil in 2013. Most of the cases are closed and the hazardous sites have been remediated. As of 2017, there are two SWRCB Cleanup Program sites and one LUST Cleanup Site with open cases in Ceres, and two open SWRCB Cleanup Program sites in the unincorporated portions of the Planning Area. Additionally, there is one open SWRCB Cleanup Program site outside of the Planning Area but within a quarter mile of the Planning Area boundary.



Highway
Ramps
Major Roads
Local Roads
Railroads

Hazardous Sites (SWRCB)
- LUST Cleanup Site
- Cleanup Program Site
- Closed Sites

Hazardous Sites (DTSC)
- Corrective Action
- School Cleanup
- School Investigation
- State Response

River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: GeoTracker, State Water Resources Control Board (SWRCB), 2017; Envirostor, Department of Toxic Substances Control (DTSC), 2017; City of Ceres, 2015

GENERAL PLAN UPDATE
City of Ceres

Table 3.7-1: DTSC and SWRCB Hazardous Sites

Site Name	*Site Type*	*Status*	*Location*
DTSC Sites (Envirostor)			
Ceres			
1.87-Acre Property	School Investigation	No Action Required	4231 Central Ave.
Alternative Education School	School Investigation	No Further Action	Roeding Rd. at Mitchell Rd.
Central Valley High School Addition	School Investigation	No Further Action	4137 Central Ave.
Ceres High School Site	School Investigation	No Further Action	Service Rd. at Central Ave.
East No. 1 Elementary School Site	School Investigation	No Further Action	3500 McGee Rd.
Elementary #13 - Walt Hanline Elementary School	School Investigation	No Further Action	4225 Central Ave.
Elementary #14 - Lucas Elementary School	School Cleanup	Certified	2842 Roeding Rd.
Hatch Property	School Investigation	No Further Action	1832 Nadine Ave.
Old Memorial South Hospital	School Investigation	No Action Required	1905 Memorial Dr.
Proposed Junior High School #3	School Investigation	No Further Action	3600 Whitmore Ave.
West Elementary School	School Investigation	No Further Action	Morgan Rd. at Hackett Rd.
Whitmore-Eastgate School Site	School Investigation	No Further Action	3766 East Whitmore Ave.
Southwest No. 1 Elementary School Site	School Investigation	No Further Action	Redwood Rd. at Central Ave.
Elementary School #15 Site A	School Investigation	No Further Action	West of Central Ave. and north of Grayson Rd.
Planning Area outside of City Limits			
John F. Kennedy High School	School Cleanup	Certified	1900 Nadine Ave.
Martinez Property	State Response	Certified	1627 Nadine Ave.
USIS DBA G-3 Enterprises Label Division	Corrective Action	No Action Required	2612 Crows Landing Rd.
SWRCB Permitted Sites (Geotracker)			
Ceres			
Arco #5421	LUST Cleanup Site	Completed – Case Closed	2507 Ninth St.
Arco #5732	LUST Cleanup Site	Completed –	3936 Mitchell Rd.

Table 3.7-1: DTSC and SWRCB Hazardous Sites

Site Name	*Site Type*	*Status*	*Location*
		Case Closed	
B&H Manufacturing	Cleanup Program Site	Completed – Case Closed	3461 Roeding Rd.
Barbours Save Center Case #2	LUST Cleanup Site	Completed – Case Closed	2954 Whitmore Ave.
Barbours Texaco Case #1	LUST Cleanup Site	Completed – Case Closed	2954 Whitmore Ave.
Beacon #532	LUST Cleanup Site	Completed – Case Closed	2925 Whitmore Ave.
Borden and Sons Crane and Rigging	LUST Cleanup Site	Completed – Case Closed	1112 Service Rd.
Ceres Cleaners	Cleanup Program Site	Open – Inactive	2939 Fourth St.
Ceres Unified School District	LUST Cleanup Site	Completed – Case Closed	2720 Sixth St.
Chevron #94405	LUST Cleanup Site	Completed – Case Closed	1501 Herndon Rd.
ER Vine and Sons Inc	LUST Cleanup Site	Completed – Case Closed	2825 Railroad Ave.
Eagle Gas	LUST Cleanup Site	Open – Site Assessment	3006 El Camino Ave.
ER Vine & Sons	LUST Cleanup Site	Completed – Case Closed	820 Service Rd.
Fairview General Store	LUST Cleanup Site	Completed – Case Closed	2301 Fairview Dr.
Farmers Lumber	LUST Cleanup Site	Completed – Case Closed	2022 Herndon Rd.
Gary Adams Texaco	LUST Cleanup Site	Completed – Case Closed	1960 Central Ave.
George Schuler Inc	LUST Cleanup Site	Completed – Case Closed	1842 Herndon Rd.
Griffin Shell	LUST Cleanup Site	Completed – Case Closed	3021 Fourth St.
Jims Fast Freight	LUST Cleanup Site	Completed – Case Closed	2407 Faith Home Rd.
Modesto Disposal Fuel USTs	LUST Cleanup Site	Completed – Case Closed	2769 Hatch Rd.
Northern Refrigerated Transport	LUST Cleanup Site	Completed – Case Closed	3131 Roeding Rd.
Panella Drayage	LUST Cleanup Site	Completed – Case Closed	3606 Sixth St.

Table 3.7-1: DTSC and SWRCB Hazardous Sites

Site Name	*Site Type*	*Status*	*Location*
Seven 11 #22814	LUST Cleanup Site	Completed – Case Closed	1460 Mitchell Rd.
Seven 11 Store #23108 Case #2	LUST Cleanup Site	Completed – Case Closed	3240 Mitchell Rd.
Seven 11 #2243-23108 Case #1	LUST Cleanup Site	Completed – Case Closed	3240 Mitchell Rd.
Steves Car Wash	LUST Cleanup Site	Completed – Case Closed	1319 Herndon Rd.
Stuart's Furniture	Cleanup Program Site	Completed – Case Closed	3419 Railroad Ave.
Time Oil/Jackpot Food Mart	LUST Cleanup Site	Completed – Case Closed	2080 Whitmore Ave.
Cape Hart & Sons Trucking	Cleanup Program Site	Open – Inactive	719 East Grayson Rd.
Foster Farms- Ceres Feedmill	Cleanup Program Site	Completed – Case Closed	5001 Prairie Flower Rd.
Arco #5627	LUST Cleanup Site	Completed – Case Closed	1700 East Hatch Rd.
Central Estates Project	LUST Cleanup Site	Completed – Case Closed	Central Ave. at Butcher Ave.
Planning Area outside of City Limits			
Darpetro Inc	LUST Cleanup Site	Completed – Case Closed	1517 Morgan Rd.
Donald P Latourette Trust	LUST Cleanup Site	Completed – Case Closed	2041 River Rd.
Gas N Shop Mini Mart	LUST Cleanup Site	Completed – Case Closed	837 S Ninth St.
Gustavo's Auto Dismantlers	Cleanup Program Site	Open – Inactive	411 River Rd.
Helena Chemical	LUST Cleanup Site	Completed – Case Closed	312 West Service Rd.
Hoagland Transport	LUST Cleanup Site	Completed – Case Closed	445 Bystrum Rd.
Pepsi Cola Distributing Co.	LUST Cleanup Site	Completed – Case Closed	200 River Rd.
Shell AKA Griffen AKA Eqiva	LUST Cleanup Site	Completed – Case Closed	1467 Mitchell Rd.
Stanislaus Farm Supply	Cleanup Program Site	Open – Remediation	624 East Service Rd.
UNOCAL #5715	LUST Cleanup Site	Completed – Case Closed	1212 Joyce Ave.

Table 3.7-1: DTSC and SWRCB Hazardous Sites

Site Name	*Site Type*	*Status*	*Location*
Royaltone Paints	Cleanup Program Site	Completed – Case Closed	451 Sonora Ave.
Joe's Food Mart	LUST Cleanup Site	Completed – Case Closed	4955 Crows Landing Rd.
Outside of Planning Area			
Crop Production Services, Crows Landing Rd	Cleanup Program Site	Open – Inactive	541 Crows Landing Rd.
Gilroy Foods Case #2	LUST Cleanup Site	Completed – Case Closed	705 Whitmore Ave.
Stop N Save Liquors	LUST Cleanup Site	Completed – Case Closed	904 Hatch Rd.

Notes:

1. The Land Disposal program regulates waste discharge to land for treatment, storage, and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

2. Site not mapped due to lack of location data.

Certified = Completed sites with previously confirmed release that are subsequently certified by DTSC as having been remediated satisfactorily under DTSC oversight.

No Action Required = Sites where a Phase I Environmental Assessment was completed and resulted in a no action required determination

No Further Action = Completed sites where DTSC determined after investigation that the property does not pose a problem to public health or the environment.

Referred to IWMB = Sites that, based on limited information available to DTSC, appear to be more appropriately addressed by the California Integrated Waste Management Board.

Referred to RWQCB = Sites that, based on limited information available to DTSC, appear to be more appropriately addressed by the California Regional Water Quality Control Boards.

Sources: DTSC, 2017; SWRCB, 2017.

Household Hazardous Waste

Household hazardous waste includes a variety of substances, including cleaners, adhesives, pesticides, and pharmaceuticals. Stanislaus County operates a Household Hazardous Waste Program to collect and safely dispose of these substances for all residents of Stanislaus County. A permanent collection facility is located in Modesto at County Center IV (1710 Morgan Road) to receive drop-offs.

Hazardous Materials Release

Prevention

The Stanislaus County Hazardous Material Division of the Department of Environmental Resources is the State-designated Certified Unified Program Agency (CUPA) for County areas. The CUPA program is designed to consolidate, coordinate, and uniformly and consistently administer permits, inspection activities, and enforcement activities throughout Stanislaus County. As a CUPA, the County manages seven hazardous material and hazardous waste programs. These include the Hazardous Waste Management Plan, UST Program, Household Hazardous Waste Collection Program, Medical Waste Program, Hazardous Materials Disclosure Program (including Hazardous Materials Business Plans), Conditionally Exempt Small Quantity Generator Program, and the DTSC Tiered Permits Program.

Response

The County Department of Environmental Resources maintains hazardous materials response teams and implements the County's Area Plan for emergencies from chemical spills to assist public and fire agencies during chemical spills.

The Ceres Fire Department is responsible for fire protection within the city and covers a 15-square-mile protection area that includes the city and two surrounding districts. Ceres Fire Department staff has Hazardous Materials specialists and technicians who handle minor local hazardous materials incidents.

Airport Hazards

The Modesto City-County Airport is located just north of Ceres, on the north side of the Tuolumne River. The airport is owned by the City of Modesto and occupies approximately 82 acres. The airport opened in 1920 and was used during World War II as a training center for the Army Air Corps. The airport is the only commercial-service airport in the County, although it is used primarily for general aviation. It includes two parallel runways: Runway 10L-28R is 5,911 feet long and 150 feet wide and designated as the air carrier runway. The smaller runway, 10R-28L, is 3,459 feet long and 100 feet wide.

Hazards associated with airport operations include those to people and property located in the vicinity of the airport and those to the safety of persons aboard an aircraft. On the ground, risk levels are highest in areas closest to the airport runways, where maneuvers such as takeoffs and landings take place. In the air, hazards include tall structures and activities that can cause electronic or visual impairment to navigation or that attract large numbers of birds.

To reduce risks related to airport operations, Airport Land Use Commissions (ALUCs) are charged with developing airport land use compatibility plans (ALUCPs) that contain policies to ensure that development can coexist with nearby airports without either constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or hazards (see Section 3.11, "Noise," of this EIR for discussion of airport noise). The Stanislaus County ALUC is responsible for the Stanislaus County ALUCP, which covers the Modesto City-County Airport and two other airports in the county. Adopted in October 2016, the ALUCP designates compatibility zones surrounding the Modesto City-County Airport based on levels of risk related to airport operations, associated with conditions for development appropriate in those areas. The ALUCP establishes an airport influence area (AIA) in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses. The AIA constitutes the area within which land use actions are subject to ALUC review to determine consistency with the ALUCP. A portion of the city and Planning Area are covered by the Modesto City-County Airport AIA and safety zones, as shown in Figure 3.7-2: Airport Influence Area and Safety Zones. Additional discussion of the ALUCP is in the Regulatory Setting section below; additional discussion related to the land use aspects of the ALUCP can be found in Section 3.10: Land Use, Population, and Housing; and additional discussion related to the noise aspects of the ALUCP can be found in Section 3.11: Noise.

Emergency Management

Emergency operations in the Planning Area are undertaken by the City of Ceres and Stanislaus County. For Stanislaus County, disaster preparedness, response, and evacuation is coordinated through the Office of Emergency Services (OES), a division of the County's Chief Executive Office. The OES works with all County departments and nine cities, and many non-government organizations. In the event of an emergency the OES manages the County's Emergency Operations Center (EOC) and coordinates the County's disaster response expenses for recovery from State and federal governments. For the City of Ceres, disaster preparedness, response, and evacuation is coordinated by the Ceres Fire Department.

The Planning Area is located in the Stanislaus Operational Area. The Operational Area Emergency Management system consists of all County Departments, the nine cities within the county, unincorporated areas, and special districts, together with the private and volunteer sector. This system represents all resources available within the County that may be applied to disaster response and recovery. The Operational Area was formed in 2014 with a cooperative agreement between Stanislaus County and the nine cities located within the County. This agreement formed the Stanislaus County Counsel as part of the Stanislaus Operational Area and recognizes the County OES as the lead agency for the Operational Area.

Fire Hazards

Urban Fires

The main fire threat in Ceres and its Planning Area is urban fire affecting structures and vegetation in areas already developed for urban and agricultural uses. Fire risk in the city is mitigated in a number of ways, including through the enforcement of updated fire codes and involvement of the County Office of Emergency Services and City of Ceres Fire Department in

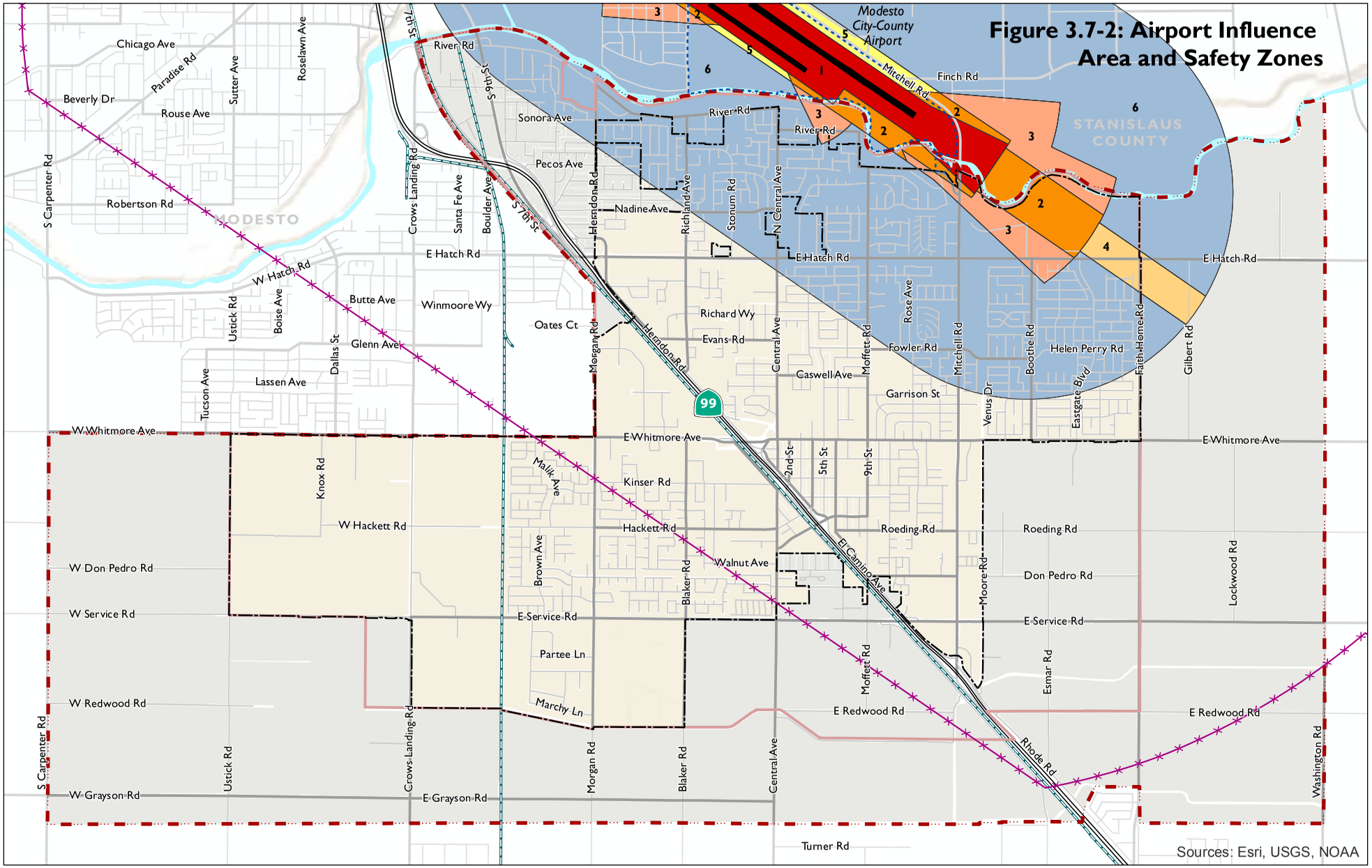
the development review process. Fire services are discussed in Section 3.12: Public Services and Recreation.

Wildland Fires

Wildland fires occur in rural or heavily vegetated areas where abundant surface fuels are available to sustain a fire. Ceres and the surrounding Planning Area are at very low risk for wildland fires, due to the lack of forest, brush, or grasslands in the vicinity. The Planning Area has minimal surface fuels due to the developed nature of the city and irrigated croplands, and therefore has a low fire hazard. The California Department of Forestry and Fire Protection (CAL FIRE) maps areas of significant fire hazards throughout the state. Figure 3.7-3: Fire Hazards shows areas of fire hazard in the Planning Area as mapped by CAL FIRE; as shown, there is only one small area mapped as Moderate Fire Hazard near Morgan Road, and the rest of the Planning Area is classified as Unzoned.[1] Fire hazard areas are identified based on weather, terrain, fuels (e.g. type of ground vegetation), and other factors. The Planning Area is classified as a Local Responsibility Area (LRA), meaning that the City and other local fire districts are responsible for fire protection services.

[1] Unzoned areas represent areas that cannot sustain active fire spread as determined by the State.

Figure 3.7-2: Airport Influence Area and Safety Zones



Highway
Ramps
Major Roads
Local Roads
Railroads

River
Airport Property Line
Airport Influence Area
Existing Runway

Safety Zones (Composite)
1, Runway Protection Zone
2, Approach/Departure Zone
3, Inner Turning Zone
4, Outer Approach/Departure Zone
5, Sideline Zone
6, Traffic Pattern Zone

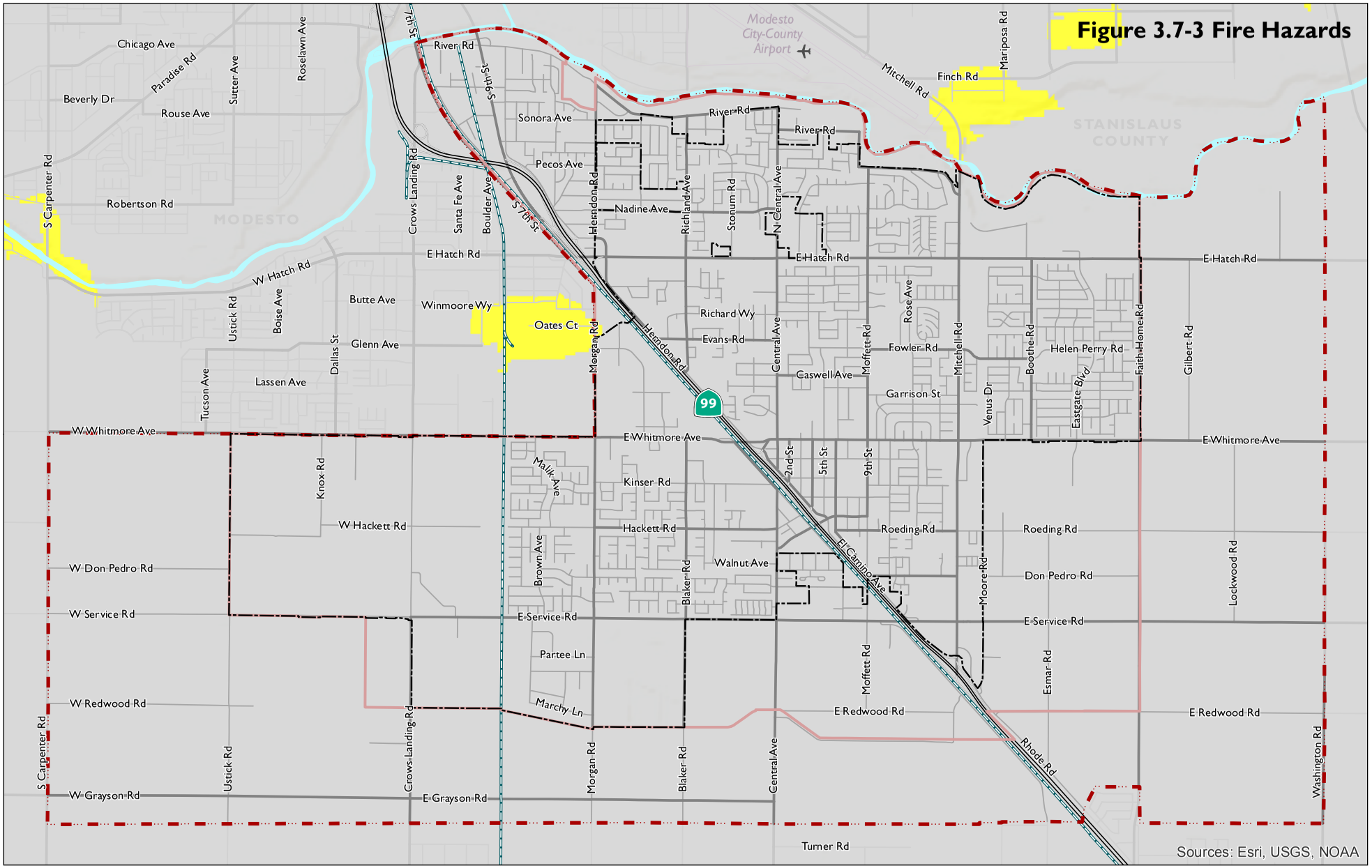
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: Stanislaus County Airport Land Use Compatibility Plans, Modesto City-County Airport, 2016; City of Ceres, 2015;

GENERAL PLAN UPDATE
City of Ceres

Figure 3.7-3 Fire Hazards



Highway
Ramps
Major Roads
Local Roads
Railroads
River

Fire Hazard Severity Zones
LRA Moderate
LRA Unzoned

City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: CALFIRE Fire Hazard Severity Zones, Local Responsibility Area (LRA), 2008; City of Ceres, 2015; Stanislaus County GIS, 2015;

GENERAL PLAN UPDATE
City of Ceres

REGULATORY SETTING

Federal Regulations

Environmental Protection Agency

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the HSWA.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for clean up when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List, which is a list of contaminated sites warranting further investigation by the EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

United States Department of Transportation (USDOT)

The USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 40, 42, 45, and 49 of the Code of Federal Regulations, and implemented by Title 17, 19, and 27 of the CCR. The USDOT Hazardous Materials Regulations (HMR) apply to persons who undertake transportation of hazardous materials. The Pipeline and Hazardous Materials Safety Administration (PHMSA) issues the HMR. PHMSA has also issued procedural regulations, including provisions on registration and public sector training and planning grants (49 CFR Parts 105, 106, 107, and 110). PHMSA's regulatory functions include issuing rules and regulations governing the safe transportation of hazardous materials and representing USDOT in international organizations and working to assure the compatibility of domestic regulations with the regulations of bodies such as the Federal Motor Carrier Safety Administration (FMCSA). The FMCSA issues regulations concerning highway routing of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials.

Federal Emergency Management Agency

The primary mission of the Federal Emergency Management Agency (FEMA) is to reduce the loss of life and property and to protect the nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

Robert T. Stafford Disaster Relief and Emergency Assistance Act

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 100-707) was signed into law on November 23, 1988 and amended the Disaster Relief Act of 1974 (Public Law 93-288). The Stafford Act constitutes the statutory authority for most Federal disaster response activities especially as they pertain to the FEMA and FEMA programs.

Disaster Mitigation Act

The Disaster Mitigation Act of 2000 (Public Law 106-390) provides the legal basis for FEMA mitigation planning requirements for state, local and Indian Tribal governments as a condition of mitigation grant assistance. The act 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions and replacing them with a new set of requirements that emphasize the need for state, local, and Indian Tribal entities to closely coordinate mitigation planning and implementation efforts. The requirement for a state mitigation plan is continued as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans. The act also established a requirement for local mitigation plans and authorized up to 7 percent of Hazard Mitigation Grant Program funds available to a state for development of state, local, and Indian Tribal mitigation plans.

Hazard Mitigation Planning and Hazard Mitigation Grant Program

FEMA requires state, tribal, and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. Jurisdictions must update their hazard mitigation plans and re-submit them for FEMA approval every five years to maintain eligibility. Through the Hazard Mitigation Assistance (HMA) grant programs (Hazard Mitigation Grant Program, Pre-Disaster Mitigation, and Flood Mitigation Assistance), FEMA offers planning grants that support state, tribal, and local governments in developing and updating mitigation plans.

Emergency Planning and Community Right-To-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 was included under SARA law and is commonly referred to as SARA Title III. EPCRA was passed in response to concerns regarding the environmental and safety hazards proposed by the storage and handling of toxic chemicals. EPCRA establishes requirements for federal, state, and local governments, Indian Tribes, and industry regarding emergency planning and Community Right-to-Know reporting on hazardous and toxic chemicals. SARA Title III requires states and local emergency planning groups to develop community emergency response plans for protection from a list of Extremely Hazardous Substances (40 CFR Appendix B). The Community Right-to-Know provisions help increase the public's knowledge of and access to information on chemicals at individual facilities, their uses, and their release into the environment.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act (HMTA) of 1975 was created to provide adequate protection from the risks to life and property related to the transportation of hazardous materials in commerce by improving regulatory enforcement authority of the Secretary of Transportation.

Occupational Safety and Health Administration (OSHA)

With the Occupational Safety and Health Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) to assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance.

State Regulations

California Code of Regulations Title 22

Hazardous substances are regulated by state and federal agencies in order to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that threaten life, health, property, or environment. The California Code of Regulations (CCR) Title 22 provides the following definition:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration or physical, chemical, or infectious characteristics, may either (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible or incapacitating irreversible illness; or (2) pose a substantial present or potential hazard to human health and safety, or the environment when improperly treated, stored, transported or disposed of. Hazardous materials include waste that has been abandoned, discarded, or recycled on the property and as a result represents a continuing hazard as the development is proposed. Hazardous materials also include any contaminated soil or groundwater.*

California Environmental Protection Agency

The management of hazardous materials and waste within California is under the jurisdiction of the CalEPA, which was created by the State of California to establish a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of state resources.

California Health and Safety Code, Hazardous Materials Disclosure Program

The California Health and Safety Code Chapter 6.95 includes provisions for Hazardous Materials Release Response Plans and Inventory. The intent of the code is to protect the public health and safety and the environment; it is necessary to establish business and area plans relating to the handling and release or threatened release of hazardous materials. It calls for the establishment of a statewide environmental reporting system. In Stanislaus County, this program is referred to as the Hazardous Materials Disclosure Program, and is operated by the County's CUPA.

The Hazardous Materials Business Plan required by the Program is intended to provide information regarding hazardous materials at facilities to emergency responders and the general public, along with coordinating the reporting of releases and spill response among businesses to local, State, and federal government authorities. Facilities are required to disclose all hazardous materials and wastes above certain designated quantities which are used, stored, or handled at their facility, and to update their plans regularly. Facilities are also required to provide initial and annual training for employees to safely handle chemicals and to take appropriate emergency response actions. In Stanislaus County, an Emergency Response/Contingency Plan is also

required to satisfy the contingency plan requirement for hazardous waste generators. Any business subject to any of the CUPA permits is required in Stanislaus County to file an Emergency Response/Contingency Plan using the California Environmental Reporting System (CERS). A new business going through the process of obtaining County or City planning or building approval is required to comply with the Emergency Response/Contingency Plan requirement prior to obtaining final certificate of occupancy and prior to bringing hazardous materials onto the property.

Senate Bill (SB) 1889, Accidental Release Prevention Law/Chemical Accident Release Prevention Program (CalARP)

SB 1889 required California to implement a federally mandated program governing the accidental airborne release of chemicals listed under Section 112 of the Clean Air Act. Effective January 1, 1997, CalARP replaced the previous California Risk Management and Prevention Program (RMPP) and incorporated the mandatory federal requirements. CalARP addresses facilities containing specified hazardous materials that, if involved in an accidental release, could result in adverse off-site consequences. CalARP defines regulated substances as chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive. The CalARP program in Stanislaus County is implemented by the County's CUPA.

Cortese List

The Cortese List refers to provisions in Government Code Section 65962.5. Section 65962.5 requires the DTSC, State Department of Health Services, SWRCB, and designated local enforcement agencies to compile and update lists of hazardous materials sites under their purview as specified in the code. The "Cortese List" consists of the information provided by these agencies under the code.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the California Emergency Management Agency, which coordinates the responses of other agencies, including CalEPA, the California Highway Patrol, CDFW, and RWQCB.

Office of Environmental Health Hazard Assessment

The State of California Office of Environmental Health Hazard Assessment oversees implementation of many public health-related environmental regulatory programs within CalEPA, including implementing the provisions of the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Proposition 65 requires the governor to publish, at least annually, a list of chemicals known to the state to cause cancer or reproductive toxicity. The proposition was intended by its authors to protect California citizens and the state's drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm and to inform citizens about exposures to such chemicals.

The California Department of Toxic Substances Control

Within CalEPA, the California DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law. Since August 1, 1992, the DTSC has been authorized to implement the state's hazardous waste management program for the CalEPA.

The California Department of Transportation

The California Department of Transportation (Caltrans) manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first responder for hazardous material spills and releases that occur on highway and freeway lanes and inter-city rail services.

State Water Resources Control Board

The Central Valley RWQCB is authorized by the SWRCB to enforce provisions of the Porter–Cologne Water Quality Control Act of 1969. This act gives the Central Valley RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the state is threatened and to require remediation of the site, if necessary.

California Multi-Hazard Mitigation Plan

The State of California Multi-Hazard Mitigation Plan, also known as the State Hazard Mitigation Plan (SHMP), was approved by FEMA in 2013. The SHMP outlines present and planned activities to address natural hazards. The adoption of the SHMP qualifies the State of California for federal funds in the event of a disaster under the Disaster Mitigation Act of 2000. The SHMP provides goals and strategies which address minimization of risks associated with natural hazards and response to disaster situations.

Safe School Plan (California Education Code Sections 32282 et seq.)

This statute requires public schools to prepare a school safety plan, which includes routine and emergency disaster procedures and a school building disaster plan. The plan can be amended as needed and shall be evaluated at least once a year to ensure that the comprehensive school safety plan is properly implemented.

Title 27, CCR

The California Department of Resources Recycling and Recovery (CalRecycle) and the SWRCB jointly issue regulations pertaining to waste disposal on land, including criteria for all waste management units, facilities, and disposal sites; documentation and reporting; enforcement, financial assurance; and special treatment, storage, and disposal units.

State Aeronautics Act

Through the State Aeronautics Act, the State of California requires every county that contains a public airport to develop and comply with an ALUCP with a 20-year planning horizon. The purpose of an ALUCP is to protect public health, safety, and welfare by providing for the orderly

growth and land use development of the area surrounding the airport. ALUCP policies generally set controls on land use and development standards that ensure safe and efficient airport and flight operations and minimize the public's exposure to excessive noise and safety hazards within the airport's vicinity. An ALUCP does not designate land uses, but instead establishes criteria to encourage the development of compatible land uses. It also has no ability to alter existing non-conforming uses; the focus is on future development.

The body responsible for creating and carrying out the ALUCP is each respective county's ALUC or other designated agency. The Stanislaus County ALUC is responsible for the Stanislaus County ALUCP, which covers the Modesto City-County Airport as described below.

California Emergency Services Act

The California Emergency Services Act (Government Code Chapter 7, Sections 8550-8668) was adopted in 1970. The act's purpose is to ensure that preparations within the state will be adequate to deal with the effects of natural, manmade, or war-caused emergencies. The act provides for emergency powers to be conferred upon the Governor and local executives; the establishment of the State Office of Emergency Services; the coordination and direction of state entities during an emergency, and mutual aid by the State and its departments and agencies, as well as political subdivisions.

2010 California Strategic Fire Plan

The California Fire Plan is a statewide plan developed by the State Board of Forestry and Fire Protection and CAL FIRE to achieve a natural environment that is more resilient and man-made assets that are more resistance to the occurrence and effects of wildland fire through local, State, federal, and private partnerships. The plan focuses on fire suppression and prevention efforts, including hazard and risk assessment, land use planning, cooperation between fire protection jurisdictions, fire-resistant development, as well as post-fire recovery efforts. Land use policies include providing for defensible space, fuel management, development review, and fire-resistant construction.

State Responsibility Areas and Very High Fire Hazard Severity Zones

The California Government Code and Public Resources Code contain provisions for land use development in State Responsibility Areas (SRAs) and Very High Fire Severity Zones. These include the following:

- **Senate Bill (SB) 1241 (Kehoe)**. Government Code Sections 65302 and 65302.5, established by SB 1241 (Kehoe), which require that, for jurisdictions with SRAs or very high fire hazard severity zones, during the next revision of the housing element on or after January 1, 2014, the safety element shall be reviewed and updated as necessary to address the risk of fire in the SRAs and very high fire hazard severity zones.
- **California Subdivision Requirements.** Section 66474.02 of Government Code Title 7, Chapter 4 states that before approving a tentative map, or parcel map for which a tentative map was not required, for an area located in an SRA or a very high fire hazard severity zone, a legislative body of a county shall make the following three findings: that the design and location of each lot in the subdivision, and the subdivision as a whole, are

consistent with any applicable regulations adopted by the State Board of Forestry and Fire Protection pursuant to Sections 4290 and 4291 of the Public Resources Code, that that structural fire protection and suppression services will be available for the subdivision, and that to the extent practicable, ingress and egress for the subdivision meets the regulations regarding road standards for fire equipment access adopted pursuant to Section 4290 of the Public Resources Code and any applicable local ordinance.

- **Public Resources Code Sections 4290 and 4291.** Public Resources Code Sections 4290 and 4291 apply to SRA lands, and establish minimum requirements for development in hazardous fire areas and mountainous, forest-, brush-, and grass-covered lands. According to Section 4290, the Board of Forestry shall adopt regulations including road standards for fire equipment access, standards for signs, minimum private water supply reserves for emergency fire use, and fuel breaks and greenbelts that act as minimum fire safety standards related to defensible space that are applicable to state responsibility area lands under CAL FIRE's authority. Section 4291 states that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall adhere to minimum requirements for defensible space and fuel modification.

As shown in Figure 3.7-1: Hazardous Materials Sites, there are no SRAs or very high fire hazard severity zones in the Planning Area.

Local Regulations

City of Ceres Fire Code

The Fire Code is Chapter 15.10 of the Ceres Municipal Code. It adopts an amended version of the California Fire Code. Amendments are related to permit application processes, permit requirements, fire hydrants, and other topics.

2017 Stanislaus County Local Hazard Mitigation Plan

The Stanislaus County Office of Emergency Services adopted the Stanislaus County Local Hazard Mitigation Plan (LHMP) in July 2017 as an update to the 2010 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The LHMP identifies risks posed by hazards including earthquakes, floods, dam inundation, landslides, and wildfire, and identifies ways to minimize damage from those hazards. The plan is a comprehensive resource document that serves many purposes, including: enhancing public awareness and understanding, creating a decision tool for management, promoting compliance with State and Federal program requirements, enhancing local policies for hazard mitigation capability, and providing inter-jurisdictional coordination. The LHMP also contains mitigation strategies and actions that serve as the long-term blueprint for reducing potential losses identified in the risk assessment.

Prior to the 2017 update, the County had coordinated the development of a MJHMP to cover multiple jurisdictions in the county. The decision to focus the 2017 update on the development of a LHMP was made after Stanislaus County Office of Emergency Services staff reviewed the previous hazard mitigation plans and the short timeline to complete the update. References to the MJHMP in other County plans should be considered synonymous with the term LHMP. The

County's LHMP is available for use as a base plan by other local governments within Stanislaus County in order to complete their own LHMPs.

In 2011, the City of Ceres adopted the County's 2010 MJHMP for a period of five years. Since then, the City has not adopted an updated hazard mitigation plan.

City of Ceres Emergency Operations Plan

The City of Ceres adopted an Emergency Operations Plan (EOP) in 2004. The City of Ceres EOP addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting the City of Ceres. The plan establishes the emergency management organization required to mitigate any significant emergency or disaster affecting the City of Ceres; identifies the policies, responsibilities and procedures required to protect the health and safety of the City of Ceres, public and private property and the environmental effects of natural and technological emergencies and disasters; and establishes the operational concepts and procedures associated with Initial Response Operations (field response) to emergencies, the Extended Response Operations (City and County Emergency Operations Center activities) and the recovery process. The plan establishes the framework for implementation of the California Standardized Emergency Management System (SEMS) for the City of Ceres and is intended to facilitate multi-agency and multi-jurisdictional coordination.

Stanislaus County Emergency Operations Plan

The Stanislaus County EOP addresses the planned response to extraordinary emergency situations associated with natural or human-cause disasters, technological incidents, and national security emergencies in or affecting the county. The County EOP serves as the basis for response as well as recovery efforts and activities within the county. The County EOP is based on the National Incident Management System (NIMS) and its component parts, along with the California SEMS, including the five functional areas of incident or event management, operational coordination, planning, logistical support, and finance/administration support. The plan also identifies Emergency Support Functions that represent core emergency response categories performed by agencies and jurisdictions with primary and supporting responsibilities within Stanislaus County. These ESFs are based on the State of California's Emergency Function Annexes and the Federal Emergency Support Function Annexes.

Stanislaus County Airport Land Use Compatibility Plan

The Modesto City-County Airport is covered by the current Stanislaus County ALUCP, adopted in October 2016. The ALUCP establishes compatibility criteria applicable to new development around the airport in order to promote compatibility between the airport and surrounding land uses. California Government Code Section 65302.3 establishes that each county and city affected by an ALUCP must make its general plan and any applicable specific plans consistent with the compatibility plan. The ALUCP provides a set of policies that apply to the City of Ceres and Stanislaus County regarding the evaluation of compatibility between proposals for land use development within the vicinity of the Modesto City-County Airport and operations at the airport unless overridden.

Policies in the ALUCP address land use safety with respect both to people and property on the ground and to occupants of aircraft, protection of airspace, and general concerns related to aircraft overflights. Policies generally apply to the AIA, which encompasses all lands on which the uses could be negatively affected by present or future aircraft uses at the airport and lands on which the uses could negatively affect the airport. Compatibility concerns also extend to other lands on which certain land use characteristics could adversely affect the safety of flight. Table 3.7-2: Stanislaus County ALUCP Safety Compatibility Criteria for Modesto City-County Airport reproduces Table 2 of the ALUCP, which summarizes land use compatibility criteria for the Modesto City-County Airport.

Airspace protection policies include height limits for structures, trees, and other objects in the vicinity of the airport, avigation easement requirements, and restrictions on other flight hazards in the AIA. Requirements for avigation easement dedication preserve the right of flight in the airspace above a property; restrict the height of structures, trees, and other objects on the property; and prohibit other potential hazards to flight. Restrictions on other flight hazards disallow characteristics such as glare or distracting lights; sources of dust, steam, or smoke; sources of electrical interference; and uses that attract large flocks of birds.

Stanislaus County General Plan

The 2015 Stanislaus County General Plan, which applies to unincorporated portions of the county, contains a Safety Element that aims to reduce the potential risk of death, injury, property damage, and economic and social dislocation resulting from fires, flooding, earthquakes, landslides, erosion, and hazardous waste. Policies seek to minimize potential risks through education, information provision, and emergency preparedness; protect people and property from fire, flooding, and other natural and man-made disasters; minimize exposure to geologic and seismic hazards; and minimize exposure to aviation hazards; provide adequate emergency evacuation and access; and provide a Hazard Mitigation Plan.

Stanislaus County Airport Regulations Ordinance

The Stanislaus County Airport Regulations Ordinance is Chapter 17.04 in the County Code. To prevent obstructions to navigation in the vicinity of airports, the ordinance regulates and restricts the height of structures and objects of natural growth, and otherwise regulates the use of property in the vicinity of the Modesto City- County Airport.

Stanislaus County Agricultural Commissioner's Office Permit Program

In 2010, the Stanislaus County Agricultural Commissioner's Office implemented a restricted materials permit condition that prohibits use of California Restricted Materials to be applied within one-quarter mile of schools while schools are in session or during school sponsored activities. To help growers maintain compliance with this prohibition, the Stanislaus County Geographic Information System Division and the Agricultural Commissioner's Office provides an online map showing the location of each school and a one-quarter mile buffer around each school in the county (http://www.stanag.org/ag-comm-disclaimer.shtm).

Table 3.7-2: Stanislaus County ALUCP Safety Compatibility Criteria for Modesto City-County Airport

Land Use Category	Safety Zone						Criteria for Conditional Uses
▸ Multiple land use categories and compatibility criteria may apply to a project ▸ Land uses not specifically listed shall be evaluated using the criteria for similar uses ▸ Numbers in brackets for some uses are occupancy load factors [1]	1	2	3	4	5	6	▸ Numbers below indicate zone in which condition applies ▸ Nonresidential development must satisfy both forms of intensity limits *(see Policy 3.3.3)* ▸ Up to 10% of total floor area may be devoted to ancillary use *(see Policy 3.3.3(d))* ▸ See *Policy 3.3.4* for information on how to calculate nonresidential intensity ▸ Maximum Intensity criteria apply to Normally Compatible as well as Conditional land uses
Max. Sitewide Average Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** *applicable to all nonresidential development*	**10** **20** [2]	**60** **120**	**100** **300**	**150** **450**	**100** **300**	**300** **1000**	
Legend *(see last page of table for interpretation)*	***Normally Compatible***				***Conditional***		***Incompatible***
Outdoor Uses (limited or no activities in buildings)							
Natural Land Areas: woods, brush lands, desert							1: Objects above runway elevation not allowed in Object Free Area (OFA) [3] All: Also see Airspace Protection Policy 3.4.3 regarding wildlife hazards to flight
Water: flood plains, wetlands, lakes, reservoirs [4]							1: Objects above runway elevation not allowed in Object Free Area (OFA) [3] All: Also see Airspace Protection Policy 3.4.3 regarding wildlife hazards to flight
Agriculture (except residences and livestock): crops, orchards, vineyards, pasture, range land							1: Not allowed in Object Free Area (OFA) [3] All: Also see Airspace Protection Policy 3.4.3 regarding wildlife hazards to flight
Livestock Uses: feed lots, stockyards, breeding, fish hatcheries, horse stables [4]							All: Also see Airspace Protection Policy 3.4.3 regarding wildlife hazards to flight
Outdoor Major Assembly Facilities (capacity ≥1,000 people): spectator-oriented outdoor stadiums, amphitheaters, fairgrounds, zoos [5]							6: Allowed only if alternative site outside zone would not serve intended function
Group Recreation (limited spectator stands): athletic fields, water recreation facilities, picnic areas							3, 4: Allowed only if alternative site outside zone would not serve intended function
Small/Non-Group Recreation: golf courses,[4] tennis courts, shooting ranges							2: Allowed only if alternative site outside zone would not serve intended function and intensity criteria met
Local Parks: children-oriented neighborhood parks, playgrounds							
Camping: campgrounds, recreational vehicle/ motor home parks							3, 4: Allowed only if intensity criteria met
Cemeteries (except chapels)							

Table 3.7-2: Stanislaus County ALUCP Safety Compatibility Criteria for Modesto City-County Airport (cont.)

Land Use Category › Multiple land use categories and compatibility criteria may apply to a project › Land uses not specifically listed shall be evaluated using the criteria for similar uses › Numbers in brackets for some uses are occupancy load factors [1]	Safety Zone 1	2	3	4	5	6	Criteria for Conditional Uses › Numbers below indicate zone in which condition applies › Nonresidential development must satisfy both forms of intensity limits *(see Policy 3.3.3)* › Up to 10% of total floor area may be devoted to ancillary use *(see Policy 3.3.3(d))* › See *Policy 3.3.4* for information on how to calculate nonresidential intensity › Maximum Intensity criteria apply to Normally Compatible as well as Conditional land uses
Max. Sitewide Average Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** *applicable to all nonresidential development*	**10** **20** [2]	**60** **120**	**100** **300**	**150** **450**	**100** **300**	**300** **1000**	
Legend *(see last page of table for interpretation)*	***Normally Compatible***			***Conditional***		***Incompatible***	
Residential and Lodging Uses							
Single-Family Residential (<8 d.u./acre): individual dwellings, townhouses, mobile homes, bed & breakfast inns [6]							2: Incompatible at density >1 d.u./10.0 acres. Dwelling unit should be situated outside of safety zone boundaries where feasible 3: Incompatible at density >1 d.u./5.0 acres sitewide average or 0.2 d.u. per any single acre, except in the AIA for the Modesto City-County Airport, where density 1 d.u./2 acres sitewide average or 0.5 d.u. per any single acre 4: Incompatible at density >1 d.u./5 acres sitewide average or 0.2 d.u. per any single acre, except in the AIA for the Modesto City-County Airport, where density 1 d.u./2.5 acres sitewide average or 0.4 d.u. per any single acre
Multi-Family Residential (≥8 d.u./acre): condominiums, apartments, agricultural-related housing [6]							
Long-Term Lodging (>30 nights): extended-stay hotels, dormitories							
Short-Term Lodging (≤30 nights): hotels, motels, other transient lodging (except conference/assembly facilities) [approx. 200 s.f./person]							3, 4: Ensure intensity criteria met
Congregate Care: retirement homes, assisted living, nursing homes, intermediate care facilities [7]							
Educational and Institutional Uses							
Family day care homes (≤14 children)							3, 4: Allowed only in existing dwellings or where new single-family residential is allowed See *Policy 3.3.2(d)*
Children's Schools: K-12, day care centers (>14 children); school libraries [7]							3, 4: No new sites or land acquisition 6: Not allowed unless there are no other available/feasible sites outside of the safety zone 3, 4, 6: Bldg replacement/expansion allowed for existing school sites; expansion limited to ≤50 students (not school staff) See *Policy 3.6.3(c)*
Adult Education classroom space: adult schools, colleges, universities [approx. 40 s.f./person]							3, 4: Ensure intensity criteria met; also see individual components of campus facilities (e.g., assembly facilities, offices, gymnasiums)
Community Libraries [approx. 100 s.f./person]							3, 4: Ensure intensity criteria met

Table 3.7-2: Stanislaus County ALUCP Safety Compatibility Criteria for Modesto City-County Airport (cont.)

Land Use Category	Safety Zone						Criteria for Conditional Uses
› Multiple land use categories and compatibility criteria may apply to a project › Land uses not specifically listed shall be evaluated using the criteria for similar uses › Numbers in brackets for some uses are occupancy load factors [1]	1	2	3	4	5	6	› Numbers below indicate zone in which condition applies › Nonresidential development must satisfy both forms of intensity limits *(see Policy 3.3.3)* › Up to 10% of total floor area may be devoted to ancillary use *(see Policy 3.3.3(d))* › See *Policy 3.3.4* for information on how to calculate nonresidential intensity › Maximum Intensity criteria apply to Normally Compatible as well as Conditional land uses
Max. Sitewide Average Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** *applicable to all nonresidential development*	**10** **20** [2]	**60** **120**	**100** **300**	**150** **450**	**100** **300**	**300** **1000**	
Legend *(see last page of table for interpretation)*	***Normally Compatible***				***Conditional***		***Incompatible***
Indoor Major Assembly Facilities (capacity ≥1,000 people): auditoriums, conference centers, concert halls, indoor arenas [4]							6: Allowed only if beyond ½ mile from runway and alternative site outside zone would not serve intended function; not allowed within ½ mile of runway
Indoor Large Assembly Facilities (capacity 300 to 999 people): movie theaters, places of worship, cemetery chapels, mortuaries [4] [approx. 15 s.f./person]							3, 4: Ensure intensity criteria met
Indoor Small Assembly Facilities (capacity <300 people): places of worship, cemetery chapels, mortuaries, meeting halls [approx. 30 s.f./person]							3, 4: Ensure intensity criteria met
Indoor Recreation: gymnasiums, club houses, athletic clubs, dance studios [approx. 60 s.f./person]							3, 4: Ensure intensity criteria met
In-Patient Medical: hospitals, mental hospitals [7]							3, 4: No new sites or land acquisition; replacement/expansion of existing facilities limited to existing size
Out-Patient Medical: health care centers, clinics [approx. 240 s.f./person]							3, 4: Ensure intensity criteria met
Penal Institutions: prisons, reformatories [7]							
Public Safety Facilities: police, fire stations [7]							3, 4: Allowed only if alternative site outside zone would not serve intended public function 5: Allowed only if airport serving
Commercial, Office, and Service Use							
Major Retail: regional shopping centers, 'big box' retail [approx. 110 s.f./person]							3, 4: Ensure intensity criteria met; capacity <1,000 people per bldg; evaluate eating/ drinking areas separately if >10% of total floor area
Local Retail: community/neighborhood shopping centers, grocery stores [approx. 170 s.f./person]							3, 4: Ensure intensity criteria met; evaluate eating/ drinking areas separately if >10% of total floor area
Eating/Drinking Establishments: restaurants, fast-food dining, bars [approx. 60 s.f./person]							3-5: Ensure intensity criteria met
Limited Retail/Wholesale: furniture, automobiles, heavy equipment, lumber yards, nurseries [approx. 250 s.f./person]							2, 5: Ensure intensity criteria met; design site to place parking inside and bldgs outside of zone if possible
Offices: professional services, doctors, finance, civic; radio, television & recording studios, office space associated with other listed uses [approx. 215 s.f./person]							2-5: Ensure intensity criteria met 6: Review intensity compliance if >3 story bldg and <½ mile from runway

Table 3.7-2: Stanislaus County ALUCP Safety Compatibility Criteria for Modesto City-County Airport (cont.)

Land Use Category › Multiple land use categories and compatibility criteria may apply to a project › Land uses not specifically listed shall be evaluated using the criteria for similar uses › Numbers in brackets for some uses are occupancy load factors [1]	Safety Zone 1	Safety Zone 2	Safety Zone 3	Safety Zone 4	Safety Zone 5	Safety Zone 6	Criteria for Conditional Uses › Numbers below indicate zone in which condition applies › Nonresidential development must satisfy both forms of intensity limits *(see Policy 3.3.3)* › Up to 10% of total floor area may be devoted to ancillary use *(see Policy 3.3.3(d))* › See *Policy 3.3.4* for information on how to calculate nonresidential intensity › Maximum Intensity criteria apply to Normally Compatible as well as Conditional land uses
Max. Sitewide Average Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** *applicable to all nonresidential development*	**10** **20** [2]	**60** **120**	**100** **300**	**150** **450**	**100** **300**	**300** **1000**	
Legend *(see last page of table for interpretation)*	***Normally Compatible***				***Conditional***		***Incompatible***
Personal & Miscellaneous Services: barbers, car washes, print shops [approx. 200 s.f./person]							2-5: Ensure intensity criteria met
Vehicle Fueling: gas stations, trucking & transportation terminals							5: Allowed only if airport serving
Industrial, Manufacturing, and Storage Uses							
Hazardous Materials Production: oil refineries, chemical plants [7]							6: Allowed only if alternative site outside zone would not serve intended function
Heavy Industrial [7]							3, 4: Avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft
Light Industrial, High Intensity: food products preparation, electronic equipment [approx. 200 s.f./person]							2-4: Ensure intensity criteria met; avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft
Light Industrial, Low Intensity: machine shops, wood products, auto repair [approx. 350 s.f./person]							2-4: Ensure intensity criteria met 5: Single story only; max. 10% in mezzanine 2-5: Avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft
Indoor Storage: wholesale sales, warehouses, mini/other indoor storage, barns, greenhouses [approx. 1,000 s.f./person]							2, 5: Single story only; max. 10% in mezzanine
Research & Development [approx. 300 s.f./person]							3, 4: Ensure intensity criteria met; avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft
Outdoor Storage: public works yards, automobile dismantling							
Mining & Extraction [8]							2: Allowed only if intensity criteria met

Table 3.7-2: Stanislaus County ALUCP Safety Compatibility Criteria for Modesto City-County Airport (cont.)

Land Use Category	Safety Zone						Criteria for Conditional Uses
› Multiple land use categories and compatibility criteria may apply to a project › Land uses not specifically listed shall be evaluated using the criteria for similar uses › Numbers in brackets for some uses are occupancy load factors [1]	1	2	3	4	5	6	› Numbers below indicate zone in which condition applies › Nonresidential development must satisfy both forms of intensity limits *(see Policy 3.3.3)* › Up to 10% of total floor area may be devoted to ancillary use *(see Policy 3.3.3(d))* › See *Policy 3.3.4* for information on how to calculate nonresidential intensity › Maximum Intensity criteria apply to Normally Compatible as well as Conditional land uses
Max. Sitewide Average Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** *applicable to all nonresidential development*	**10** **20** [2]	**60** **120**	**100** **300**	**150** **450**	**100** **300**	**300** **1000**	
Legend *(see last page of table for interpretation)*	***Normally Compatible***			***Conditional***		***Incompatible***	
Transportation, Communication, and Utilities							
Airport Terminals: airline, general aviation							
Rail & Bus Stations							2: Allowed only if alternative site outside zone would not serve intended public function 5: Allowed only if airport serving
Transportation Routes: road & rail rights-of-way, bus stops							1: Not allowed in Object Free Area (OFA) [2]
Auto Parking: surface lots, structures							1: Not allowed in Object Free Area (OFA) [2]
Communications Facilities: emergency communications, broadcast & cell towers [7, 9]							3-5: Allowed only if alternative site outside zone would not serve intended public function; not allowed within ½ of runway 6: Not allowed within ½ mile of runway
Power Plants [7, 9]							
Electrical Substations [7]							2, 5: Allowed only if alternative site outside zone would not serve intended public function
Wastewater Facilities: treatment, disposal [7]							2, 5: Allowed only if alternative site outside zone would not serve intended public function
Solid Waste Disposal Facilities: landfill, incineration [4]							2: Allowed only if alternative site outside zone would not serve intended public function
Solid Waste Transfer Facilities, Recycle Centers [3]							

Land Use Acceptability		Interpretation/Comments
	Normally Compatible	Normal examples of the use are compatible under the presumption that usage criteria will be met. Atypical examples may require review to ensure compliance with usage intensity criteria. Noise, airspace protection, and/or overflight limitations may apply.
	Conditional	Use is compatible if indicated conditions are met.
	Incompatible	Use should not be permitted under any circumstances.

Notes

1. Common occupancy load factors source (approx. number of square feet per person): compiled by Mead & Hunt, Inc. based upon information from various sources including building and fire codes, facility management industry sources, and ALUC surveys.
2. No new structures intended to be regularly occupied are allowed.
3. Object Free Area (OFA): Dimensions are established by FAA airport design standards for the runway and are depicted on the respective Safety Zones Policy Maps in Chapter 3.
4. These uses may attract birds or other wildlife that could pose hazards to flight. See *Section 3.4* for applicable airspace protection policies.
5. Occupancy limits for Large and Major Assembly Facilities coincide with International Building Code categories.
6. Construction of a single-family home, including a second dwelling unit as defined by state law, allowed on a legal lot of record if such use is permitted by local land use regulations. A family day care home (serving ≤14 children) may be established in any dwelling. See *Policies 2.3.4(a)(4)* and *3.3.2(d).*
7. These uses constitute uses of special concern for which safety restrictions apply irrespective of usage intensities. See Policy 3.3.5.
8. These uses may generate dust or other hazards to flight. See *Section 3.4* for applicable policies.
9. Power lines or other tall objects associated with these uses may be hazards to flight. See *Section 3.4* for applicable policies.

Source: Stanislaus County Airport Land Use Compatibility Plan, 2016.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;**

Criterion 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;**

Criterion 3: **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;**

Criterion 4: **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;**

Criterion 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 for people residing or working in the project area;**

Criterion 6: **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or**

Criterion 7: **Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.**

METHODOLOGY AND ASSUMPTIONS

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from implementation of the Proposed Project, and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. The analysis includes a qualitative evaluation of impacts associated with the potential presence of hazardous materials or hazards in the Planning Area, and an evaluation of the extent to which the Proposed Project would allow industrial uses and other uses that commonly employ or generate hazardous materials or waste in their production processes. It is based on a review of materials ranging from the Envirostor and Geotracker databases, hazard mapping, and relevant plans and regulations at the federal, State, and local levels.

SUMMARY OF IMPACTS

Implementation of the Proposed Project may result in increased risk from hazardous materials, airport hazards, disruptions to emergency responses, and wildland fires related to new development under the proposed General Plan. The Proposed Project allows a range of land uses, some of which may require the routine use, transport, and disposal of hazardous material and waste. The Proposed Project could also allow development on sites within the Planning Area that have been identified on the Cortese List as hazardous materials sites. However, as described below, the Proposed Project includes policies that reduce these threats, including requiring facilities with hazardous materials permits to work with the County to regulate their hazardous materials and providing industrial buffers for new industries that store or process hazardous materials sufficient to protect public health.

It is possible that land uses allowed by the Proposed Project within a quarter-mile of existing schools may use hazardous materials. Although existing federal and State regulations, as well as policies proposed in the Project would reduce the impact, the Project allows for industrial uses within one-quarter mile of eight schools in the Planning Area. Therefore, the impact from the use of hazardous materials in proximity to schools is significant.

Although portions of the Planning Area are proximate to the Modesto City-County Airport, the proposed land uses and policies in the General Plan are compatible with relevant airport guidelines. Policies in the proposed General Plan also reduce the risk from potential new obstacles to emergency responses, by supporting the implementation of the Hazardous Materials Disclosure Program, improving emergency access, and improving emergency preparedness. There is only one small area mapped by CAL FIRE as Moderate Fire Hazard near Morgan Road, and the rest of the Planning Area is classified as Unzoned. Additionally, policies in the proposed General Plan promote fire safety and require adherence to applicable building and fire codes.

Implementation of the proposed General Plan policies along with existing federal, State, and local regulations pertaining to hazardous materials, airport hazards, emergency response, and wildland fires would ensure potential impacts would remain below a level of significance.

IMPACTS

Impact 3.7-1 Development under the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (*Less than Significant*)

The Proposed Project itself would not create any hazards related to the routine transport, use, or disposal of hazardous materials. However, implementation of the Proposed Project would allow for the development of land uses, including residential, mixed-use, recreational, industrial, commercial, and office uses, that may require the routine use, transport, and disposal of hazardous material and waste within the Planning Area. Additionally, future construction activities associated with buildout of Proposed Project may generate hazardous materials and waste, such as fuels and oils from construction equipment and vehicles.

As described in the Regulatory Setting section, federal and State regulations require adherence to specific guidelines regarding the use, transportation, disposal, and accidental release of hazardous materials. Regulations associated with using, transporting, or disposing of hazardous materials include RCRA, EPCRA, HMTA, California Health and Safety Code, CCR Title 22, CCR Title 27, SB 1889, and the Consolidated Fire Code. Locally, facilities requiring a hazardous materials permit would be subject to routine inspection by the Stanislaus County Division of Environmental Resources, further minimizing foreseeable risks of an accident that could create a hazard to the public or environment.

Transportation of hazardous waste in connection with construction and operations of future development under the Proposed Project would be subject to USDOT's requirements for hazardous materials transport, and would require carriers to register with the DTSC. Policies in the proposed General Plan seek to lessen the risk from transport through the Planning Area by providing for more direct access between the highways and more intense land uses, reducing the amount of truck traffic on local roads near residential areas, and protecting the public from damaged fuel lines and hazardous cargos.

In compliance with existing regulations, businesses handling or storing certain amounts of hazardous materials would be required to prepare a Hazardous Materials Business Plan to inventory hazardous materials on-site and provide information on safe use and emergency response regarding such materials. Businesses would also be required to implement health and safety policies and procedures regarding hazardous materials used. For future development where employees would be expected to handle or work around hazardous materials, compliance with federal and State laws to eliminate or reduce the consequence of hazardous materials accidents would be required. Existing regulations also specify storage areas for hazardous materials, designed to prevent accidental release and to protect against moderate explosion hazard, high fire or physical hazard, or health hazards. Additionally, future projects developed in accordance with the Proposed Project would be required to complete all applicable environmental review processes and to conform with environmental regulations related to new construction, and hazardous materials use and storage.

To further minimize risks from hazardous materials usage that may occur in implementing the Proposed Project, policies in the proposed General Plan ensure that more intense land uses that may be more likely to utilize hazardous materials are sufficiently buffered from lower-intensity uses such as residential. Proposed policies also require that all projects, including those using hazardous materials, meet development standards to ensure public safety, and that emergency responders have the appropriate facilities and agreements in place to act quickly in case of an upset.

There are currently no permitted hazardous waste facilities in the Planning Area. Any future disposal of hazardous waste by a hazardous waste generator, transporter, or treatment storage and disposal facility would require compliance with relevant federal and State law, including permitting through the DTSC and compliance with the County's CUPA requirements for hazardous waste generation and onsite treatment.

Implementation of the applicable federal, State, and local regulations and policies would serve to lessen the risk of death, injury, and/or property loss associated with the transport, use, or disposal

of hazardous materials by promoting safe handling and storage, documentation and information sharing, and appropriate emergency planning and response. In addition, compliance with proposed General Plan policies would further ensure safe practices regarding hazardous materials. Therefore, compliance with the proposed General Plan policies and federal and State regulations will ensure the impact of routine use, transport, and disposal of hazardous materials associated with implementation of the Proposed Project would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Health and Safety Element

Goal 5.I Minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials.

5.I.1 **Hazardous Materials Standards.** Ensure that the use and disposal of hazardous materials in the city comply with local, State, and federal safety standards. Ensure that industrial facilities are constructed and operated in accordance with current safety and environmental protection standards and best practices.

5.I.2 **Soil Investigations.** Require preliminary (Phase 1) soil investigations in conjunction with areawide plans and/or prior to approving residential development plans or tentative maps.

5.I.3 **Sensitive Uses.** Discourage the development of sensitive uses, such as residential uses, hospitals, nursing homes, near known hazardous waste disposal or handling facilities.

5.I.4 **Hazardous Materials Projects.** Review all proposed development projects that would manufacture, use, or transport hazardous materials to ensure compliance with the County's Hazardous Materials Disclosure Program.

5.I.5 **County Cooperation.** Work with the County to strictly regulate the storage of hazardous materials and wastes.

5.I.6 **Development Standards.** Ensure that industrial facilities and other uses where hazardous materials are created, stored, or disposed of are designed, constructed, and operated in accordance with current safety and environmental protection standards. Require secondary containment and periodic examination for storage of large quantities of toxic materials.

5.I.7 **Industrial Buffers.** Require that new industries that store and process hazardous materials provide a buffer zone between the installation and the property boundaries of a distance and with screening materials sufficient to protect public health and safety.

5.I.8 **Radioactive Materials.** Encourage the State Department of Public Health and the California Highway Patrol to review permits for radioactive materials on a regular basis and to publish and enforce public safety standards for the use of these materials, including the placarding of transport vehicles.

5.I.9 **Hazardous Use Siting.** Review development proposals for uses involving hazardous materials storage, maintenance, use and disposal to ensure that the proposed development would not pose significant safety risks to sensitive uses (such as schools, hospitals, nursing homes, and residences).

5.I.10 **Coordinated Emergency Response.** Work with other agencies, including the City of Modesto and Stanislaus County, to ensure an adequate countywide response capability for hazardous materials emergencies. Provide for safe and efficient hazardous waste emergency response and contaminated site cleanup.

5.I.11 **Hazardous Materials Information.** Provide the public, industry, agriculture, and Stanislaus County with the information needed to take rational steps to minimize, recycle, treat, dispose of, and otherwise manage hazardous waste.

5.I.12 **Hazardous Household Waste.** Work with the County to provide for the education of small quantity, household, and agricultural generators regarding their responsibilities for source reduction and proper and safe hazardous waste management.

Mitigation Measures

None required.

Impact 3.7-2 Development under the Proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (*Less than Significant*)

As described under Impact 3.7-1, implementation of the Proposed Project would result in future development of land uses that may involve the use, transportation, disposal, and storage of hazardous materials in the Planning Area. Thus, personal injury, property damage, environmental degradation, or death could potentially result from the release of hazardous materials caused by upset or accident conditions.

Although the risk of upset and accident conditions involving the release of hazardous materials into the environment cannot be completely eliminated, it can be reduced to a manageable level. Existing regulations at the federal, State, and local levels serve to minimize the potential for upset during routine transportation, use, and disposal as discussed under Impact 3.7-1. Additionally, regulations are in place to minimize the risk of upset or accident involving sites that have previously been contaminated by hazardous substances. Proper implementation of the County's CUPA programs would help to ensure documentation of releases and threatened releases as well as the development of risk management and hazardous materials release response plans. Given existing regulations and programs and proposed General Plan policies that reduce the potential for hazardous materials upsets and promote the ability of emergency services to respond to incidents, impacts associated with the release of hazardous materials into the environment would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goal and policies listed above under Impact 3.7-1.

Mitigation Measures

None required.

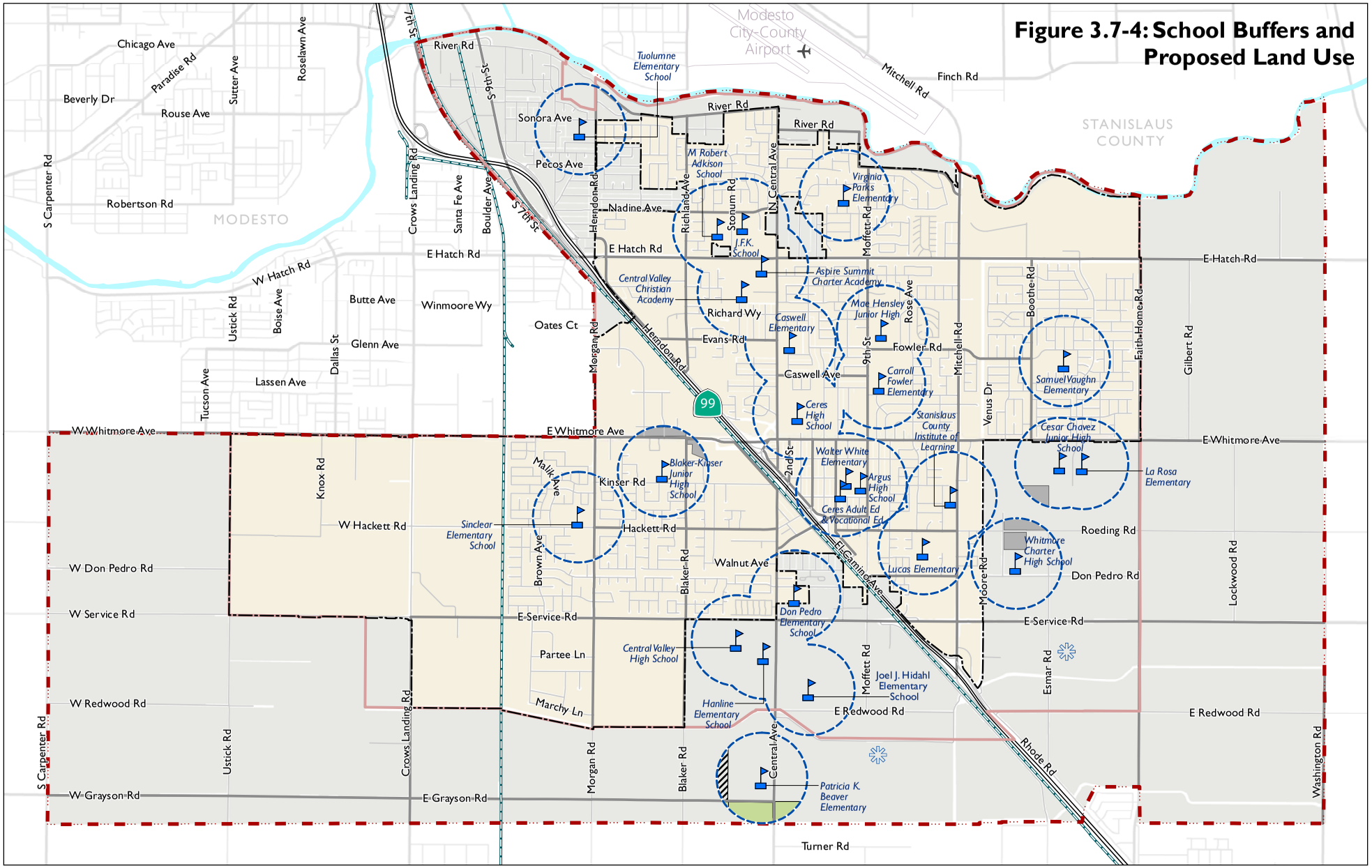
Impact 3.7-3 Development under the Proposed Project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (*Significant and Unavoidable*)

Implementation of the Proposed Project would allow land uses to be developed within a quarter-mile of existing schools that could be reasonably expected to handle hazardous materials or generate hazardous emissions. Table 3.7-3: Proposed Land Use Designations within ¼ Mile of Schools lists the proposed land use designations within one-quarter mile of the schools in the Planning Area. Of the 26 public and private schools in the Planning Area, there are 21 that are located in areas where the proposed General Plan contains only designations for residential, park, community facilities, other schools, commercial, or office uses within a quarter-mile. There are four schools in the Planning Area with Light Industrial uses proposed within a quarter-mile; and one school with Agriculture and Industrial Reserve uses proposed within a quarter-mile of the property. Figure 3.7-4: School Buffers and Proposed Land Use shows the schools in the Planning Area, a one-quarter mile around each, and the locations of Light Industrial, Industrial Reserve, and Agriculture land use designations. In total, five schools would be located within a quarter mile of industrial or agricultural land uses, the uses most likely to handle or emit hazardous materials. For example, in the Light Industrial and Industrial Reserve land use designation, uses could include light manufacturing, auto services, and contractors' yards, which could handle or emit toxic chemicals or volatile chemicals. Uses in the Agriculture land use designation could emit pesticides and herbicides.

In regards to the school in proximity to the Agriculture land use designation, the Stanislaus County Agricultural Commissioner's prohibition of applying California Restricted Materials within one-quarter mile of schools while schools are in session or during school sponsored activities reduces the potential for hazardous materials near schools. In all cases, future projects would be subject to regulations regarding the siting of uses handling hazardous materials. Also, according to the California Education Code, public schools are required to evaluate and potentially amend their school safety plan on an annual basis as described in the Regulatory Setting section above.

Proposed policies in the Project would also help reduce the impact. Policy 5.I.9 requires review of development proposals for uses involving hazardous materials to ensure that the proposed development would not pose significant safety risks to sensitive uses, including schools.

Figure 3.7-4: School Buffers and Proposed Land Use



Existing Schools

Potential Schools

Existing Schools Quarter Mile Buffer

Land Use

Agriculture

Industrial Reserve

Light Industrial

City of Ceres

Ceres Sphere of Influence

General Plan Planning Area

0 0.25 0.5 1

MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2017.

Table 3.7-3: Proposed Land Use Designations within ¼ Mile of Schools

Within ¼ Mile of Residential, Park, Community Facilities, Schools, Commercial, or Office	*Within ¼ Mile of Light Industrial Uses*	*Within ¼ Mile of Agriculture and Industrial Reserve*
- Argus High	- Blaker-Kinser Junior High	- Patricia K Beaver Elementary
- Aspire Summit Charter Academy	- Cesar Chavez Junior High	
- Caswell Elementary	- La Rosa Elementary	
- Carroll Fowler Elementary	- Whitmore Charter High	
- Central Valley Christian Academy		
- Central Valley High		
- Ceres Adult & Vocational Education		
- Ceres High		
- Don Pedro Elementary		
- Hanline Elementary		
- JFK Special Education		
- Joel J Hidahl Elementary		
- Lucas Elementary		
- M Robert Adkinson Elementary		
- Mae Hensley Junior High		
- Samuel Vaughn Elementary		
- Sinclair Elementary		
- Stanislaus County Institute of Learning		
- Tuolumne Elementary		
- Virginia Parks Elementary		
- Walter White Elementary		

Source: Dyett & Bhatia, 2017

The Project does not propose any new schools or new locations for school buildings. Based on population growth and changing demographics, new school facilities may be required in the Planning Area by the horizon year of 2035. In areas where residential development is expected, the Project's Land Use Diagram (Figure 2.3-1) includes symbols representing the sites of "potential schools." However, there are no land use designations associated with these potential schools and educational service providers are not required to site schools in those locations.

In the case that a new school is required, the California Department of Education regulates the siting of schools, including new facilities and upgrading construction projects. New facilities would not be allowed within one quarter-mile of facilities emitting or handling hazardous materials, consistent with California Department of Education requirements, and these siting requirements would prevent potential significant impacts by ensuring that school facilities are not developed near facilities emitting or handling hazardous materials.

Existing regulations reduce the potential harm from hazardous materials, and Policy 5.I.9 in the Proposed Project limits the safety risks from hazardous materials near schools. However, the Proposed Project allows for industrial development within one-quarter mile of five existing schools. Although Policy 5.I.9 reduces the threat of impacts from hazardous materials, industrial

uses in these areas could emit hazardous emissions or handle hazardous materials, substances, or waste. The impact is significant and unavoidable.

Proposed General Plan Policies that Reduce the Impact

Goal and policies listed above under Impact 3.7-1.

Mitigation Measures

The land use diagram of the Proposed Project reflects a policy determination to allow a certain amount of industrial development near schools. Changing the land use designations near schools would fundamentally alter the Proposed Project. The use of hazardous materials is inherent to industrial uses. Prohibiting the use of hazardous materials in areas with industrial land use designations would greatly limit the development potential of these areas, and would be difficult to enforce. Therefore, the use of hazardous materials is not directly mitigable. Beyond reviewing development proposals for safety risks as required by Policy 5.I.9, there is no further mitigation feasible. The impact would remain significant and unavoidable.

Impact 3.7-4 Development under the Proposed Project could result in a project 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*)

As discussed in the Physical Setting section, there are numerous sites in the Planning Area that are included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 or that need further investigation (see Figure 3.7-1: Hazardous Materials Sites and tables 3.7-1 through 3.7-3). Several of the sites have reported releases to the ground resulting in soil and groundwater contamination and which are subject to various State and federal laws and regulators, including CERCLA, EPA, DTSC, and the RWQCB, and are in various stages of the cleanup process as stipulated by the relevant agencies. Redevelopment of sites with existing soil or groundwater contamination in accordance with the Proposed Project could potentially pose a significant hazard to the public or the environment through releases of hazardous materials into the environment; however, as discussed in Impact 3.7-1, these sites are regulated by existing federal and State policies and have been or are being investigated and remediated.

Proposed General Plan policies would limit any impacts on new development from listed hazardous materials sites. Existing regulations and CUPA programs would also require the reporting and documentation of any hazardous materials incidents in the Planning Area such that property owners could be aware of potential hazards. For future projects, the California Environmental Quality Act (CEQA) requires developers to reference the Cortese List and state if the project or any alternatives would be located on a listed site. Compliance with these policies, regulations, and programs would reduce the impact to less than significant.

Proposed General Plan Policies that Reduce the Impact

The proposed General Plan goals and actions listed in Impact 3.7-1, Impact 3.7-2, and Impact 3.7-3 would also help to reduce the risk of significant hazard to the public or environment from a contaminated site.

Mitigation Measures

None required.

Impact 3.7-5 Development under the Proposed Project would not result in a safety hazard for people residing or working within an airport land use compatibility plan area or, where such a plan has not been adopted, within two miles of a public airport or public use airport. (*Less than Significant*)

The Planning Area includes portions that are covered by the Stanislaus County ALUCP, including areas within the Modesto City-County Airport AIA and safety zones 1, 2, 3, 4, and 6, as shown in Figure 3.7-2: Airport Influence Area and Safety Zones. Development within the AIA and airport safety zones could expose greater numbers of people to hazards related to airport operations.

The Stanislaus County ALUCP includes policies and compatibility criteria to minimize the exposure of individuals to safety hazards, primarily by limiting the density and intensity of land uses in the safety zones. The proposed General Plan contains a provision requiring that new development in the AIA comply with land use compatibility standards of the ALUCP. As the land uses proposed by the Proposed Project in the airport safety zones do not include minimum development densities or intensities, there would be no policy conflicts when ALUCP maximum density and intensity standards are applied to those areas. Additionally, there are no proposed General Plan policies that would conflict with policies and standards contained in the ALUCP.

The only area where potential conflict may be perceived involves the Park designation proposed for the area occupied by the Ceres River Bluff Regional Park, which falls within safety zones 2, 3, 4, and 6. The ALUCP considers group recreation facilities such as athletic fields and picnic areas to be incompatible in Safety Zone 2, and local park uses such as playgrounds to be incompatible in safety zones 2, 3, and 4. The River Bluff Regional Park does contain athletic fields and playgrounds in the portion of the park farthest away from the airport. The park, however, is an existing use that would not be subject to the ALUCP's policies and criteria for new development. The Proposed Project does not itself propose the intensification of activities at the park. Therefore, there would be no potential impacts in this area from the Proposed Project related to airport hazards.

As proposed land uses in the AIA allow for compatibility with safety requirements in the ALUCP, and as proposed General Plan policies specify that new development should be compatible with the ALUCP, exposure to hazards of persons or structures within the AIAs would be limited. Therefore, impacts on the safety of those working or residing within the Modesto City-County Airport land use plan area would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Health and Safety Element

Goal 5.J Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from airport hazards.

5.J.1 **Flight Hazard Reduction.** Work with the City of Modesto and Stanislaus County to ensure that new development in the Modesto City-County Airport Influence Area does not create safety hazards such as lights from direct or reflective sources, smoke, electrical interference, hazardous chemicals, or fuel storage in violation of adopted safety standards.

5.J.2 **Airport Land Use Compatibility Plan.** Ensure that new development within the Modesto City-County Airport Influence Area complies with the policies of the Stanislaus County Airport Land Use Compatibility Plan by coordinating the review of development proposals within the Airport Influence Area with the Stanislaus County ALUC.

Mitigation Measures

None required.

Impact 3.7-6 Development under the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (*Less than Significant*)

Relevant emergency response or evacuation plans in the Planning Area include the Stanislaus County EOP and the City of Ceres EOP, and, to the extent that that it mitigates potential hazards in the Planning Area, the Stanislaus County LHMP. Physical development under the Proposed Project, including new roadways, land uses, and increased densities, have the potential to create obstacles to the implementation of emergency response or evacuation plans adopted for the Planning Area. Policies and implementation actions in the proposed General Plan would eliminate or reduce these impacts by requiring the adoption and use of an updated EOP and Ceres LHMP for coordinated emergency response and hazard mitigation consistent with the County and neighboring jurisdictions. Other policies in the proposed General Plan aim to reduce local risks, such as those related to geologic hazards (see Section 3.6: Geology, Soils, and Seismicity), hydrologic hazards (see Section 3.9: Hydrology and Water Quality), hazardous materials incidents, fire hazards, and climate change impacts; reduce congestion and improve transportation infrastructure, thus improving opportunities for emergency access and egress; and improve inter-jurisdictional coordination. Thus, the impact would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies 5.I.5, 5.I.11, and 5.I.12, as listed under Impact 3.7-1 above, as well as the following policies.

Health and Safety Element

5.F.1 **Planning for Hazards.** Incorporate updated information about future climate change hazards, particularly those related to extreme weather such as drought, storms, heat waves, and flooding, into the City's hazard mitigation and emergency planning processes.

5.K.4 **Fire Safety Awareness.** Support the Ceres Fire Department in continuing education programs to increase public awareness of local fire hazards, response, and safety practices.

5.M.1 **Emergency Operations and Hazard Mitigation.** Use an updated Emergency Operations Plan and Local Hazard Mitigation Plan for coordinated emergency response and hazard mitigation consistent with the County and neighboring jurisdictions.

5.M.2 **Coordination.** Continue to coordinate emergency preparedness, response, recovery, and mitigation activities with Stanislaus County, special districts, service agencies, voluntary organizations, other cities within the county, and State and federal agencies.

Public Facilities and Services Element

6.K.1 **Meet NFPA Response Time Standards.** Strive to meet the National Fire Protection Association's (NFPA) National Response Time Standard of responding within nine minutes of the dispatch notification at least 90 percent of the time.

6.K.5 **Ensure Adequate Funding for Fire Services.** Within the City's overall budgetary constraints, ensure that fire and emergency medical services have modern facilities, equipment, and staffing needed to perform their duties and ensure efficient response time. Seek grants and funding when facilities, equipment, and staffing needs exceed the City's budget.

6.K.6 **New Development Funding of Fire Services.** Require new development to develop or fund fire protection facilities, personnel, and operations and maintenance that, at a minimum, maintains the above service level standards.

Implementation Actions

5.14 Update the Emergency Operations Plan as needed to reflect changes in the Planning Area and in emergency management techniques, including specific local hazards that may not be included in the plan.

5.15 Adopt a Ceres Local Hazard Mitigation Plan.

5.16 Update the Ceres Local Hazard Mitigation Plan with up-to-date information and best practices for identifying hazard risks and vulnerabilities including hazards due to or exacerbated by climate change, identifying and prioritizing mitigation actions, encouraging the development of local mitigation, and providing technical support for these efforts.

6.12 Monitor response times and patrol time to review staffing requirements necessary to maintain established levels of service.

Mitigation Measures

None required.

Impact 3.7-7 Development under the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (*Less than Significant*)

As shown in Figure 3.7-3: Fire Hazards, there is only one small area mapped as Moderate Fire Hazard near Morgan Road, and the rest of the Planning Area is classified as Unzoned. The proposed policies listed below require all development to adhere to safety standards provided in the CBC and California Fire Code, and promote close coordination with the Ceres Fire Department to ensure the safety of new development and to increase fire safety awareness. Therefore, impacts related to the exposure of people or structures to wildland fire would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies 5.K.4, 6.K.1, 6.K.5, and 6.K.6 and implementation action 6.12, as listed under Impact 3.7-1 above, as well as the following policies.

Health and Safety Element

Goal 5.K Prevent and minimize the risk of loss of life, injury, and damage to property and natural resources resulting from fires.

5.K.1 **Fire Safety Standards.** Require that new development meet State, County, and local fire district standards for fire protection.

5.K.2 **Development Review.** Require that the Fire Department review all development proposals for compliance with fire safety standards.

5.K.3 **Public Buildings.** Ensure that new and existing buildings of public assembly incorporate adequate fire protection measures to reduce the risk of loss of life and property in accordance with State and local codes and ordinances.

5.K.5 **Smoke Detectors.** Encourage and promote the installation and maintenance of smoke detectors in existing residences and commercial facilities that were constructed prior to the requirement for their installation.

5.K.6 **Fire Prevention Outreach.** Develop and promote fire prevention and outreach programs to support residential fire safety, including a program to offer voluntary home inspections and teach awareness of home fire prevention measures.

Public Facilities and Services Element

Goal 6.K Protect residents of and visitors to Ceres from injury and loss of life, and protect property from fires.

6.K.2 **Establish and Achieve Service Ratio.** Establish and strive to achieve service standard ratios (i.e. number of responders per 1,000 residents).

6.K.3 **Fire Safety Education.** Identify key fire loss problems and design appropriate fire safety education programs to reduce fire incidents and losses, and promote awareness of fire hazards and safety.

6.K.4 **Project Review.** Endeavor through project review to control fire losses and fire protection costs through requiring use of automatic fire detection, control, and suppression systems.

Implementation Actions

5.12 Undertake a review of critical facilities, including, but not limited to: water and wastewater facilities, energy stations, hospitals, and public safety facilities, and identify potential vulnerabilities and any necessary upgrades required to reduce risk.

Mitigation Measures

None required.

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3.8 Historic and Cultural Resources

This section assesses potential environmental impacts on historic and cultural resources from future development under the Proposed Project, including those related to historic, archaeological, tribal cultural resources, and paleontological resources, as well as human remains. The section describes the historical setting of the Planning Area, as well as the context for historic, archaeological, tribal cultural, and paleontological resources in the Planning Area. It also includes a description of relevant federal, State, and local regulations and programs related to historic and cultural resources. There were no responses to the NOP regarding topics addressed in this section of the EIR.

Environmental Setting

PHYSICAL SETTING

Historical Setting

Prehistory and Native Americans in the Historical Period

Ceres and the surrounding area are part of territory inhabited by the Northern Valley Yokuts, who inhabited the Central Valley from the Diablo Range in the west to the Sierra Nevada foothills in the east. The Yokuts were divided into 50 tribelets, based on linguistic variations, and primarily lived in large settlements along the banks of rivers and their tributaries.

The Yokuts used a number of dwelling types, including a mat-covered, gabled kawi, or communal dwelling; a wedge-shaped tule house, in which only one family lived; small, elliptical tule houses; conical, tule-covered dwellings that were placed in rows; and a bark house called a samish. A wide variety of foods were available to the Yokuts, who gathered many varieties of plants and seeds, in addition to hunting small game, fishing, and shellfishing. Where acorns were available, they served as a primary component of their subsistence. The Yokuts maintained trade links with coastal villages where they traded furs and other materials for shells, such as abalone and clams. Shell disks and dentelium beads, as well as polished cylindrically-shaped magnesite rocks and bi-valves, were used as money.

The pre-contact population of the Yokuts was among the largest in California, with one of the highest regional population densities. Euro-American contact with the Northern Valley Yokuts began with infrequent excursions by Spanish explorers traveling through the Sacramento and San Joaquin Valleys in the late 1700s and early 1800s. European settlement of the territory led to a rapid decline in the Yokut population due to conflicts, disease epidemics, and other forms of upheaval, though members of the Yokut ethnic group continue to exist in the modern day.

Early Development and Founding of the City

The City of Ceres was founded by Daniel Whitmore, who arrived in the Ceres area in 1867. The Whitmore family eventually acquired 9,000 acres, which included what would later become the town site of Ceres. By 1875, Daniel Whitmore's brother R.K. Whitmore had surveyed the area, and a map was filed for the layout of the town.

The first home in Ceres was that of Daniel Whitmore and his family, which was built in 1870 and inhabited in 1871. This home is still standing, at 2928 5th Street, and is on the National Register of Historic Places. After the town was laid out, Whitmore gave away alternate lots for free, with the stipulation that the owner build on it and occupy it, and uphold a temperance clause which was inserted into the deed. Ceres was set apart from other towns in the area as apparently the only temperance town in the vicinity. The first deed was given to two sisters, Mrs. Fellows and Mrs. Conner, who started the town's first boarding house. The next person to accept the offer was Mr. J.G. Annear, who built the town's first blacksmith shop.

In 1872, the railroad crossed the Tuolumne River into Ceres, and the town became a flag stop. A few years later, a depot was built, and Mr. Whitmore had petitioned for a post office. The town was named "Ceres" (the name Daniel Whitmore had used in commenting on the first wheat crops) by Elma Carter, one of the town's residents. The first store was built in 1873, followed by a schoolhouse in 1874, a public meeting hall in 1880, a "flouring mill" in 1881, and a Baptist church in 1882. Many people would move to Ceres in the years to come, and the economic infrastructure required to support them would also develop. Branch's History of Stanislaus County (1881) stated that "the town has made rapid progress during the last year...There are two warehouses--the largest being owned by Mr. Whitmore...It is only three miles from Modesto and in the midst of a vast grain-growing region." In the History of the Counties (1892) Ceres is referred to as "quite a business point, and contains all the facilities of a good agricultural town."

By the late 1800s, however, the end of the "grain era" and the necessity of irrigation was becoming evident. In the late 1880s, in response to the thriving agriculture, the Modesto and Turlock Irrigation Districts were created to allow local farmers to irrigate crops more efficiently and effectively. Dairy farming was also introduced into the area during this period. By the early 1900s, Ceres was still a small town, yet its population was growing at a steady rate. The first civic library opened in 1901 and the high school welcomed its first students in 1915. Ceres incorporated in 1918 with a population of 1,000. The city was generally considered to be prosperous at this time. Agricultural products included figs, peaches, grapes, pears, apricots, various berries, alfalfa, beans, melons, poultry, and dairy products.

20th Century Development

In the first half of the 20th century, Ceres remained a small rural settlement. Ceres had a population of 1,332 before World War II, but the population nearly doubled after the postwar boom and reached 2,351 by 1950. Like most California cities, Ceres experienced residential growth during the post–World War II period. Subdivisions, including the Caswell Tract and Morrow Village, were established and new elementary and middle schools and a hospital were built. Peaches became the primary agricultural crop and were used in the dried-fruit industry. A large dehydrating plant, the Ceres Dehydrating Plant, became a major local employer.

In 1968, the California Department of Transportation modernized State Route 99, which traveled through the community of Ceres. The highway project bisected Ceres and resulted in the demolition of most of the central business district. However, the improved highway also brought growth and expansion to the city. By 1970, the population reached a high of 6,000. During this period, Ceres's commercial center was focused along Central and Whitmore Avenues and Hatch Road. As the population of Ceres expanded, new municipal services were needed and the City built its wastewater treatment plant in 1979. Ceres continued to grow in the 1980s, and by 1990 its population was 25,000. Today, the city continues to be an agriculturally-based community (Benziger, 2010; City of Ceres, 1997).

Historic Resources

A historic resource is a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old. Historic resources are often designated and listed on the national, State, or a local register, making them eligible for certain protections or other benefits. The National Register of Historic Places (NRHP) is the nation's official list of historic places. The register is overseen by the National Park Service, and requires that a resource eligible for listing on the register meet one of several criteria at the national, State, or local level and also retain sufficient physical integrity of those features necessary to convey historic significance. The Daniel Whitmore Home at 2928 5th Street is the only property in the Planning Area currently listed on the NRHP.

The California Office of Historic Preservation (OHP) offers four different registration programs, including the California Historical Landmarks, California Points of Historical Interest, California Register of Historical Resources (CRHR), and the NRHP. Each registration program is unique in the benefits offered and procedures required. If a resource meets the criteria for registration, it may be nominated by any individual, group, or local government to any program at any time. Resources do not need to be locally designated before being nominated to a State program nor do they need to be registered at the State level before being nominated to the National Register. The California Register includes buildings, sites, structures, objects, and districts significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Resources listed in the National Register are automatically listed in the CRHR, thus the Daniel Whitmore Home is also on the CRHR. The 7th Street Bridge over the Tuolumne River, also known as the Lion Bridge, is listed on the CRHR and is eligible for listing on the NRHP. There currently no State Historical Landmarks or State Points of Historical Interest in the Planning Area (CCIC, 2014). Figure 3.8-1: Historical and Cultural Resources shows the historical resources in the Planning Area.

Archaeological Resources

The National Parks Service defines archaeological resources as any material remains of human life or activities that are at least 100 years of age and are capable of providing scientific or humanistic understandings of past human behavior, cultural adaptation, and related topics. Prehistoric and historic archaeological resources have been found in the Planning Area, and there are a number of known sites in the Planning Area that may be sensitive for unrecorded resources. There is also the potential for the discovery of archaeological resources near the Tuolumne River and anywhere there has been occupation or use for at least 45 years (CCIC, 2014).

Figure 3.8-1: Historical and Cultural Resources

Highway
Ramps
Major Roads
Local Roads
Railroads

National Register of Historic Places (NRHP)
California Register of Historical Resources (CRHR)
Might be sensitive for unrecorded historic archaeological resources
Site of local significance

River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; Central California Information Center, California Historical Resources Information System, 2017; ESRI, 2015; Dyett & Bhatia, 2015.

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Tribal Cultural Resources

A tribal cultural resource is a site, feature, place, cultural landscape, sacred place, or object with cultural value to a tribe that is included or determined to be eligible for inclusion in the California Register of Historic Resources, included in a local register of historical resources, or otherwise determined to be significant by the lead agency of an environmental review process. A search of the Native American Heritage Commission (NAHC) Sacred Lands File for the Planning Area in November 2017 yielded negative results. However, the absence of specific resources information in the Sacred Lands File does not preclude the presence of Native American cultural resources in the Planning Area. As the presence of Native American archaeological resources have previously been reported in the Planning Area, there is potential for the Planning Area to contain tribal cultural resources from past Native American activities. The identification of tribal cultural resources can be supported by records from the CCIC or NAHC, but can only be fully determined through consultation with local Native American tribes. As part of the planning process for the Proposed Project, local Native American tribes were invited to consult with the City regarding any known tribal cultural resources in the Planning Area per Senate Bill 18 (SB 18) and Assembly Bill 52 (AB 52) (described under Regulatory Settings, below). Correspondence related to tribal consultation is included in Appendix C of this EIR.

Paleontological Resources

Paleontological resources are the fossil remains or traces of past life forms, including both vertebrate and invertebrate species, as well as plants. The Planning Area is underlain by the Modesto Formation, a rock unit of the Late Pleistocene age. Fossil remains of mammals from the Pleistocene, have been found throughout the Central Valley and in Stanislaus County in alluvial deposits referable to the Modesto Formation (AECOM, 2012). Therefore, though no paleontological resources have been uncovered in Ceres to date, there is potential that resources could be found in the future.

REGULATORY SETTING

Federal Regulations

National Historic Preservation Act and Section 106

The intent of the National Historic Preservation Act is to preserve historic and archaeological sites across the United States. The Act solidified the role of the National Parks Service as lead agency in the historic preservation program and created cooperative partners in the process, including the Advisory Council on Historic Preservation, State Historic Preservation Offices, and Tribal Historic Preservation Offices. Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their actions on historic properties. The goal of the Section 106 process is to identify historic properties potentially affected by the action in question, assess the effects, and provide ways to avoid, minimize, or mitigate any adverse effect that may occur to a historic property.

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's official list of historic places. The register is overseen by the National Park Service, and requires that a resource eligible for listing on the register meet one of several criteria at the national, state, or local level and also retain

sufficient physical integrity of those features necessary to convey historic significance. Resources listed in the National Register are automatically listed in the California Register. The criteria are:

- Property is associated with events that have made a significant contribution to the broad patterns of our history
- Property is associated with the lives of persons significant in our past. Eligible properties based on this criterion are generally those associated with the productive life of the individual in the field in which it achieved significance
- Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction
- Property has yielded, or is likely to yield, information important to prehistory or history.

In addition to meeting at least one of these four criteria, listed properties must also retain sufficient physical integrity of those features necessary to convey historic significance. The register has identified the following seven aspects of integrity: (1) location, (2) design, (3) setting, (4) materials, (5) workmanship, (6) feeling, and (7) association. Properties are nominated to the register by the State Historic Preservation Officer of the state in which the property is located, by the Federal Preservation Officer for properties under federal ownership or control, or by the Tribal Preservation Officer if on tribal lands.

Listing in the NRHP provides formal recognition of a property's historic, architectural, or archeological significance based on national standards used by every state. Once a property is listed on the NRHP, it becomes searchable in the NRHP's database of research information. Documentation of a property's historic significance helps encourage preservation of the resource. Listing in the NRHP provides incentives to property owners such as: federal preservation grants for planning and rehabilitation federal investment tax credits, preservation easements to nonprofit organizations, international building code fire and life safety code alternatives, state tax benefits, and grant opportunities. The Federal Tax Incentive Program encourages private sector rehabilitation of historic buildings and is a successful and cost-effective community revitalization program, which generates jobs and creates moderate and low-income housing in historic buildings. Listing does not lead to public acquisition or require public access. In addition, listing does not place any obligations on the private property owners; and there are no restrictions on use, treatment, transfer, or disposition of private property.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. NEPA created an environmental review process requiring federal agencies to consider the effects of their actions on the environment. Under NEPA, all federal agencies must carry out their regulations, policies, and programs in accordance with NEPA's policies for environmental protection, including project compliance with Section 106 of the National Historic Preservation Act, as previously discussed.

National Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) was passed in 1990 to provide for the protection of Native American graves. The act conveys to Native American's of demonstrated lineal decent, the human remains, including the funerary or religious items, that are held by federal agencies and federally supported museums, or that have been recovered from federal lands. NAGPRA makes the sale or purchase of Native American remains illegal, whether or not they were derived from federal or Native American lands.

State Regulations

California Historic Resources

OHP offers four different registration programs, including the California Historical Landmarks, California Points of Historical Interest, California Register of Historical Resources, and the NRHP. Each registration program is unique in the benefits offered and procedures required. If a resource meets the criteria for registration, it may be nominated by any individual, group, or local government to any program at any time. Resources do not need to be locally designated before being nominated to a state program nor do they need to be registered at the state level before being nominated to the National Register. The California Register includes buildings, the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Resources on the California Register have met criteria for designation or have been included due to their presence on the NRHP, the State Historical Landmark program, or the California Points of Historical Interest program. The Daniel Whitmore Home and the 7th Street Bridge (the Lion Bridge) are listed on the California Register of Historic Resources (see Figure 3.8-1: Historical and Cultural Resources for locations).

State Historical Landmark Program

California Historical Landmarks are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of several criteria. The resource must be the first, last, only, or most significant of its type in the state or within a large geographic region; associated with an individual or group having a profound influence on California history; or be a prototype of, or outstanding example of, a period, style, architectural movement, or construction, or be one of the more notable works or best surviving work in a region of a pioneer, designer, or master builder. There are no State Historical Landmarks in the Planning Area.

California Points of Historical Interest

In addition to Landmarks, the Study Area contains California Points of Historical Interest, which are sites, buildings, features, or events of local (city or county) significance, having anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Criteria are the same as those for Historical Landmarks, but directed to local areas. There are no Points of Historical Interest listed in the Planning Area. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register. No historical resource may be designated as both a Landmark and a Point; if a Point is subsequently granted status as a Landmark, the Point designation will be retired (California OHP). There are no California Points of Historical Interest in the Planning Area.

California Environmental Quality Act

A "historical resource" includes, but is not limited to, any object, building, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. CEQA mandates that lead agencies consider a resource "historically significant" if it meets the criteria for listing in the California Register of Historic Resources (California Register). Such resources meet this requirement if they (1) are associated with events that have made a significant contribution to the broad patterns of California history, (2) are associated with the lives of important persons in the past, (3) embody distinctive characteristics of a type, period, region, or method of construction, and/or (4) represent the work of an important creative individual or possesses high artistic value. These criteria mimic the criteria utilized to determine eligibility for the National Register.

In addition, Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5(f) recognize that historical or unique archaeological resources other than potential Native American burials may be accidentally discovered during project construction. This guideline recommends that immediate evaluation defined by qualified archaeologists be included in mitigation measures. This guideline also recommends that if the find is determined to be a historical or unique archaeological resource, that contingency funding and time allotments sufficient to allow for implementation and avoidance measures be available.

California Government Code Section 65040.2(g)

California Government Code Section 65040.2(g) provides guidelines for consulting with Native American tribes for the following: (1) the preservation of, or the mitigation of impacts on places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code; (2) procedures for identifying through NAHC the appropriate California Native American tribes; (3) procedures for continuing to protect the confidentiality of information concerning the specific identity, location, character, and use of those places, features, and objects; and (4) procedures to facilitate voluntary landowner participation to preserve and protect the specific identity, location, character, and use of those places, features, and objects.

Senate Bill 18 (SB 18)

Signed into law in September 2004, and effective March 1, 2005, SB 18 permits California Native American tribes recognized by the NAHC to hold conservation easements on terms mutually satisfactory to the tribe and the landowner. The term "California Native American tribe" is defined as "a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC." The bill also requires that, prior to the adoption or amendment of a city or county's general plan, the city or county consult with California Native American tribes for the purpose of preserving specified places, features, and objects located within the city or county's jurisdiction. SB 18 also applies to the adoption or amendment of specific plans. This bill requires the planning agency to refer to the California Native American tribes specified by the NAHC and to provide them with opportunities for involvement.

The City contacted the NAHC in September of 2016 to obtain a list of California Native American tribes whom the City should engage for the purposes of avoiding, protecting, and/or mitigating

impacts on cultural resources pursuant to SB 18. The City contacted the three tribal contacts provided by the NAHC, also in September 2016, and received no responses.

Assembly Bill 52 (AB 52)

AB 52, passed in 2014, establishes a consultation process with all California Native American Tribes on the Native American Heritage Commission List and federally non-recognized tribes. It establishes a new class of resources: tribal cultural resources, and consideration is now given to Tribal Cultural Values in the determination of project impacts and mitigation. It requires Tribal notice and meaningful consultation (Public Resources Code 21080.3.2(b)). Consultation ends when Parties either agree to mitigation measures or avoid a significant effect on tribal cultural resources. The City contacted the NAHC in October 2017 to obtain a list of California Native American tribes who have requested the opportunity to consult on projects per AB 52. The NAHC provided a list of six contacts, whom the City contacted in November 2017. As of January 2018, the City has not received any responses.

Tribes must submit a written request to the lead agency requesting to be notified of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe. (§21080.3.1(b)(1)). The Lead agency must submit written notification to the tribe that requested notification within 14 days of determining that an application for a project is complete – notification must include project description and proposed location. (§21080.3.1(d)). Tribes must submit written response within 30 days of receiving notification requesting consultation. Tribes must designate a lead contact person. If no designation, or if a tribe designates multiple lead contacts, the lead agency shall consult with Native American Heritage Commission's SB 18 list contact person. (§21080.3.1(b)(2)). Consultation shall begin prior to the release of the environmental document. (§21080.3.1(b)). Consultation shall include discussion regarding alternatives, recommended mitigation measures, or significant effects, but only if the tribe requests consultation regarding these issues. (§21080.3.2(a)).

Consultation may include discussion concerning the type of environmental review necessary (in circumstances where consultation begins prior to that determination), the significance of tribal cultural resources, the significance of a project's impacts on tribal cultural resources, and, if necessary, project alternatives or mitigation measures. (§21080.3.2(a)). Any mitigation measures agreed upon during consultation must be recommended for inclusion in the environmental document. (§21082.3 (a)). Consultation shall be concluded when either occurs (§21080.3.2(b)):

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that a mutual agreement cannot be reached.

A "tribal cultural resource" is one of the following (§21074):

a. A site, feature, place, cultural landscape, sacred place, and object with cultural value to the tribe that is either (1) included or determined to be eligible for inclusion in the California Register of Historical Resources or (2) included in a local register of historical resources; or

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying these criteria, the lead agency must consider the significance of the resource to a California Native American tribe.

California Public Resources Code

Sections 5097–5097.6 of the California Public Resources Code outline the requirements for cultural resource analysis prior to the commencement of any construction project on state lands. The state agency proposing the project may conduct the cultural resource analysis or they may contract with the State Department of Parks and Recreation. In addition, this section stipulates that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California NAHC whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

The Public Resources Code Section 5097.9-991, regarding Native American heritage, outlines protections for Native American religion from public agencies and private parties using or occupying public property. Also protected by this code are Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property.

California Health and Safety Code

The California Health and Safety Code Section 7050.5 states that if human remains are discovered, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. This regulation is applicable to any project where ground disturbance would occur. Section 7052 of the California Health and Safety Code makes the willful mutilation, disinterment, or removal of human remains a felony.

Local Regulations

City of Ceres Historic Preservation Ordinance

Chapter 18.60 of the Ceres Zoning Ordinance provides for the identification, protection, enhancement, perpetuation, and use of improvements, buildings, structures, signs, objects, features, sites, and places that reflect special elements of the city's historic, architectural, aesthetic, and other heritage. The ordinance establishes the Planning Commission as the official authority

for the administration of the ordinance, and provides criteria and procedures for the designation of historic landmarks and sites by City Council. The ordinance also establishes a permit procedure for the demolition or alteration of any designated historic landmarks or sites, and states the responsibilities of property owners or occupants of historic or cultural resources.

City of Ceres Zoning Ordinance

Chapter 18.37 of the Ceres Municipal Code establishes the Historic Preservation Zone (H-P), an overlay zone intended to provide for additional review and property development standards for areas reflecting the city's historic, architectural, aesthetic, and other heritage as defined in the Historic Preservation Ordinance.

Stanislaus County General Plan

The Conservation/Open Space Element of the Stanislaus County General Plan includes policies related to historic and cultural sites within the County's jurisdiction. Goal Eight in the element states the County's intent to "preserve areas of national, state, regional, and local historical importance." Policies and implementation measures associated with this goal seek to support the preservation of the county's archaeological, historical, and paleontological resources; and to preserve "Qualified Historic Buildings" as defined by the State Building Code.

Stanislaus County Zoning Ordinance

Chapter 21.44 of the Stanislaus County Code establishes the Historical Site District (HS) to support and enhance the character of historical areas within the county. When new additions, alterations, or rehabilitation projects are proposed to existing structures and are approved by the Historical Site Subcommittee of the County Planning Commission or planning staff, these district regulations shall enable the building official to grant exemptions from building code requirements when in his or her opinion such maintenance of the historical character of such buildings or structures and the granting of the exemptions will not create or allow any condition which is immediately hazardous to life or property.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?**

Criterion 2: **Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?**

Criterion 3: **Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

Criterion 4: **Disturb any human remains, including those interred outside of formal cemeteries?**

Criterion 5: **Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native Tribe and that is:**

i) **Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or**

ii) **A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

METHODOLOGY AND ASSUMPTIONS

The analysis of potential cultural resources impacts is based upon a comprehensive records search conducted at the CCIC, located at California State University, Stanislaus. The records search included a review of all recorded historic and prehistoric cultural resources within the Planning Area. In addition, the California State Historic Property Data File (HRI), which includes the National Register of Historic Places (National Register), California Historical Landmarks, and California Points of Historical Interest was examined. The analysis also included a search of the NAHC Sacred Lands File, review of City of Ceres documents, State regulations, and proposed General Plan goals, policies, and actions.

SUMMARY OF IMPACTS

Implementation of the Proposed Project could result in impacts on cultural resources in the Planning Area, including historical, archaeological, tribal cultural, and paleontological resources. While the Proposed Project itself would not result in any direct impacts on these resources, activities related to future development allowed by the proposed General Plan could cause substantial adverse changes to cultural resources, as defined by CEQA Guidelines Section 15064.5, if not properly controlled. Such activities include grading, excavation, overland vehicle travel, and other ground-disturbing activities, and the facilitation of public access to sensitive sites. Various policies included in the proposed General Plan would serve to protect cultural resources by enabling access to information, establishing procedures to assess and plan for the potential discovery of resources prior to project approval, and promoting consultation with the Planning Area's Native American tribal groups. With implementation of the proposed General Plan's policies and adherence to State laws regarding cultural resources, potential impacts from the Proposed Project would be reduced to less than significant.

IMPACTS

Impact 3.8-1 Implementation of the Proposed Project could cause a substantial adverse change in the significance of a historical resource, as defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired (Guidelines Section 15064.5). (*Less than Significant*)

Implementation of the Proposed Project would not directly result in the destruction of or damage to historical resources; however, future development and redevelopment permitted under the Proposed Project could result in changes that affect historic resources. Changes could include demolition, alterations, and accidents caused by construction. The impact of such activities would be considered significant if they were to cause a substantial adverse change to the historical resources as defined by CEQA Guidelines Section 15064.5.

At the time development or redevelopment projects are proposed, the project-level CEQA document would need to identify potential impacts on known or potential historic sites and structures. The CEQA Guidelines require a project that will have potentially adverse impacts on historical resources to conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties. The City of Ceres Historic Preservation Ordinance establishes a permit procedure for the demolition or alteration of any designated historic landmarks or sites, and states the responsibilities of property owners or occupants of historic or cultural resources.

Additionally, the proposed General Plan includes policies that would minimize or avoid impacts on historical resources by requiring the preservation and maintenance of such resources, with specific attention on maintaining and improving the Whitmore Mansion. Proposed policies support the registration of historic sites with State and federal registries and encourage the adaptive reuse and preservation of historic structures. The proposed General Plan includes Implementation Actions, as well, to develop guidelines for the appropriate treatment of historic buildings.

Therefore, the impact of implementation of the Proposed Project on historical resources would be less than significant with implementation of existing State regulations and the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.B.1 **Place-Based Development.** Encourage development consistent with Ceres' history, location in the Central Valley, and evolving demographics to promote community identity and pride.

Agricultural and Natural Resources Element

Goal 4.H Preserve and maintain sites, structures, and landscapes that serve as significant, visible reminders of the city's social, architectural, and agricultural history.

4.H.1 **Register Historic Sites.** Support property owners in seeking registration of eligible historic structures and sites in registration programs such as California Historical Landmarks, California Points of Historical Interest, California Register of Historical Resources, and the National Register of Historic Places.

4.H.2 **Reuse of Historic Buildings.** Encourage the preservation, maintenance, and adaptive reuse of existing historic buildings in the Planning Area in order to prevent demolition and disrepair.

4.H.3 **Preservation of Historic Buildings.** Identify and preserve buildings of local historic importance Downtown and in surrounding areas through inclusion on the local historic resources register and the Historic Building Code.

4.H.4 **Relocation of Historic Buildings.** Where implementation of a project with a legitimate public purpose would threaten a historic resource, assess the feasibility of relocating the resource in a way that maintains its historical integrity.

4.H.5 **Historic Building Code.** Continue to implement the Historic Building Code for historic properties, periodically reviewing and updating the code as necessary to reflect current conditions and best practices.

4.H.6 **Whitmore Mansion.** Maintain and improve the Whitmore Mansion in an architecturally sensitive manner, and develop educational programming about its history for the benefit of the community.

Implementation Actions

4.10 Research, and if appropriate, apply an historic overlay zone to locally-important historic buildings or areas within the Downtown with concentrations of locally-important historic buildings.

4.11 Develop guidelines for the preservation, maintenance, and adaptive reuse of existing historic buildings.

4.12 Provide guidelines for the proper relocation of historic resources as a means of historic preservation.

Mitigation Measures

None required.

Impact 3.8-2 Implementation of the Proposed Project could cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. (*Less than Significant*)

Prehistoric and historic archaeological resources have been found in the Planning Area, and there are a number of known sites in the Planning Area that may be sensitive for unrecorded resources. There is also the potential for the discovery of archaeological resources near the Tuolumne River and anywhere there has been occupation or use for at least 45 years.

Future development projects or public works activities allowed under the Proposed Project may involve grading, excavation, overland vehicle travel, or other ground-disturbing activities, or could facilitate public access to archaeological sites, which could disturb or damage unknown archaeological resources. The impact of such activities would be considered significant if they were to cause a substantial adverse change to the archaeological resources as defined by CEQA Guidelines Section 15064.5.

Although implementation of the Proposed Project may result in actions that could adversely affect archaeological resources, policies in the proposed General Plan would minimize or avoid impacts by requiring the protection and preservation of such resources. In accordance with Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5(f), which recognize that historical or unique archaeological resources may be accidentally discovered during project construction, Policy 4.I.1 would require the City to consult with the California Archaeological Inventory at California State University, Stanislaus before approving any project that may adversely affect archaeological sites. Additional proposed policies require the City to establish a procedure for the management of archeological materials found on-site during a development and support the preservation in place of archaeological resources.

The impact of implementation of the Proposed Project on archaeological resources would be less than significant, with implementation of existing State regulations and the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Agricultural and Natural Resources Element

Goal 4.I Protect and preserve archaeological and paleontological resources in the Planning Area.

4.I.1 **Archaeological Sites.** Refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory at California State University, Stanislaus. Do not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting the California Archaeological Inventory, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the CEQA Guidelines.

4.I.2 **Archaeological Resource Management.** Establish a procedure for the management of archaeological materials found on-site during a development, including the following provisions:

- If significant resources are known or suspected to be present on a site, require that a qualified archaeologist conduct monitoring of building demolition and/or construction grading activities.
- If materials are found on-site during construction activities, require that work be halted until a qualified archaeologist evaluates the find and makes a recommendation for the preservation in place or recovery of the resource.

4.I.3 **Preservation in Place.** Seek to preserve discovered archaeological resources in place in order to maintain the relationship between the artifacts and their archaeological context, where feasible. Preservation can be achieved through measures such as planning construction to avoid archaeological sites, incorporating sites within open space areas, capping the site prior to construction, and permanently protecting the site using a conservation easement.

Mitigation Measures

None required.

Impact 3.8-3 Implementation of the Proposed Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (*Less than Significant*)

Fossil remains of mammals from the Pleistocene have been found throughout the Central Valley and in Stanislaus County in alluvial deposits referable to the Modesto Formation (AECOM, 2012). Therefore, though no paleontological resources have been uncovered in Ceres to date, there is potential that resources could be found in the future.

Implementation of the Proposed Project would not directly result in physical construction that could impact paleontological resources. However, future development and redevelopment allowed under the Proposed Project could result in direct or indirect impacts on paleontological resources. Construction activities such as grading, excavation, and ground-disturbing activities may result in the accidental destruction or disturbance of paleontological sites.

Policies in the proposed General Plan reduce the potential impact by requiring the City to establish a procedure for managing paleontological resources found on-site during a development, including consultation with a professional and appropriate treatment of any significant material.

The impact of implementation of the Proposed Project on paleontological resources would therefore be less than significant with implementation of the proposed policy below.

Proposed General Plan Policies that Reduce the Impact

Agricultural and Natural Resources Element

4.I.4 **Paleontological Resources.** Establish a procedure for the management of paleontological materials found on-site during a development, including the following provisions:

- If materials are found on-site during grading, require that work be halted until a qualified professional evaluates the find to determine if it represents a significant paleontological resource.
- If the resource is determined to be significant, the paleontologist shall supervise removal of the material and determine the most appropriate archival storage of the material.
- Appropriate materials shall be prepared, catalogued, and archived at the applicant's expense and shall be retained within Stanislaus County if feasible.

Mitigation Measures

Impact 3.8-4 Development allowed by the Proposed Project would have the potential to disturb human remains, including those interred outside of formal cemeteries. (*Less than Significant*)

Human remains, particularly those interred outside of formal cemeteries, could be disturbed during grading, excavation, or other ground-disturbing activities associated with future development or redevelopment projects allowed under the Proposed Project. The treatment of Native American human remains is regulated by Public Resources Code Section 5097.98, as amended by Assembly Bill 2641, which addresses the disposition of Native American burials, protects remains, and appoints the NAHC to resolve disputes. In addition, California Health and Safety Code Section 7050.5 includes specific provisions for the protection of human remains in the event of discovery, and Section 7052 makes the willful mutilation, disinterment, or removal of human remains a felony. The Health and Safety Code is applicable to any project where ground disturbance would occur.

Although the proposed General Plan does not include any goals or policies that directly address the disturbance of human remains, future development and redevelopment projects allowed under the proposed General Plan would be required to adhere to the State regulations discussed above.

The impact of implementation of the Proposed Project on human remains would therefore be less than significant with implementation of existing State regulation.

Mitigation Measures

None required.

Impact 3.8-5 **Implementation of the Proposed Project could cause an adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:**

(a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

(b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. (*Less than Significant*)

There are no known tribal cultural resources as defined by Public Resources Code Section 21074 in the Planning Area. However, the Planning Area has the potential to contain tribal cultural resources from past Native American activities as the presence of Native American archaeological resources have previously been reported. Sensitive areas include lands along the Tuolumne River—though there is potential that resources near waterways have been disturbed over time by alluvial processes and flooding.

Implementation of the Proposed Project would not directly result in physical construction that could impact tribal cultural resources. However, future development allowed under the Proposed Project could result in direct or indirect impacts through grading, overland vehicle travel, or other ground-disturbing activities, or through facilitation of access to culturally significant sites by the public. The impact of such activities would be considered significant if they were to cause a substantial adverse change to the resources as defined by CEQA Guidelines Section 15064.5.

Policies in the proposed General Plan would minimize or avoid potential impacts to any resources not known at this time that may be encountered in future, and would promote coordination with Native American tribes if any tribal resources are discovered at development sites. The impact of implementation of the Proposed Project on Native American tribal cultural resources would therefore be less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Agricultural and Natural Resources Element

Goal 4.J Protect Ceres' Native American heritage.

4.J.1 **Native American Outreach.** Conduct outreach to local Native American tribal contacts to identify potential opportunities to highlight the area's Native American history.

4.J.2 **Coordination with Native American Tribes.** Proactively coordinate with the local Native American tribes in the review and protection of any tribal cultural resources discovered at development sites.

4.J.3 **Tribal Cultural Resources.** Avoid the disturbance of tribal cultural resources and, where possible, seek to preserve resources in place, exploring opportunities for permanent protection of the resources where feasible. Treat tribal cultural resources with respect.

4.J.4 **Native American Consultation.** Conduct project specific Native American consultation early in the development review process to ensure adequate data recovery and mitigation for adverse impacts to significant Native American sites. Ensure that City staff and local developers are aware of their responsibilities to facilitate Native American consultation under SB 18 and AB 52.

Mitigation Measures

None required.

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3.9 Hydrology and Water Quality

This section assesses potential environmental impacts on hydrology and water quality from future development under the Proposed Project, including those related to water quality standards, groundwater, drainage, and flood hazards. The section describes existing surface water and groundwater hydrology, water quality, and flood hazards in the Planning Area, as well as relevant federal, State, and local regulations and programs.

There was one comment on the NOP regarding topics addressed in this section. The Central Valley Regional Water Quality Control Board (RWQCB) commented to provide information on regulations and permitting requirements that would apply to new development in the Planning Area. Where relevant, this information has been incorporated into this section.

Environmental Setting

PHYSICAL SETTING

Surface Water Hydrology

The Planning Area drains into four different subbasins that are all part of the San Joaquin River Basin, which covers 15,800 square miles including all Sacramento-San Joaquin River Delta watersheds south of the Sacramento River. The majority of the Planning Area is in the watershed of Turlock Lake, which is managed by the Turlock Irrigation District. Other portions of the Planning Area are located in the Lake Ramona-San Joaquin River, Salter Gulch-Tuolumne River, and Shiloh Bridge-Tuolumne River watersheds. Figure 3.9-1: Regional Watersheds and Surface Water shows the four watersheds of the Planning Area. The Tuolumne River flows along the northern border of the Planning Area between the cities of Ceres and Modesto on its path from the Sierra Nevada Mountains to the San Joaquin River. There are no other natural watercourses in the Planning Area.

Groundwater Hydrology

As shown in Figure 3.9-2: Groundwater, the Planning Area is in the San Joaquin Valley groundwater subbasin 5-22.03, the Turlock Subbasin. The Turlock Subbasin is bounded by the Tuolumne River on the north, the Merced River on the south, and the San Joaquin River on the west. The Subbasin stores approximately 50 million acre-feet of groundwater, and is relatively isolated from other subbasins. Discharges from the subbasin occur from well pumping; groundwater seepage to the Tuolumne, Merced, and San Joaquin rivers; discharges from subsurface agricultural drains; and water use by riparian vegetation. Groundwater from the subbasin is used to supply both agricultural and urban water demand. In addition to the City of

Ceres, four agricultural water districts and nine communities withdraw water from the Turlock Subbasin. The majority of groundwater recharge in the Subbasin results from agricultural and landscape irrigation, which was estimated to account for 393,000 acre-feet per year (afy) of recharge in 2008. Approximately 375,000 afy (or 72 percent of total recharge within the subbasin) of the estimated recharge was attributed to cropland irrigation. Other sources of recharge include precipitation, percolation from the Tuolumne and Merced Rivers, leakage from Turlock Lake, underflow from the Sierra Nevada foothills, and upward seepage from deep geologic fractures. Between 1997 and 2006, total recharge for the subbasin was calculated to be approximately 520,000 afy (Turlock Irrigation District, 2008).[1]

Groundwater Balance

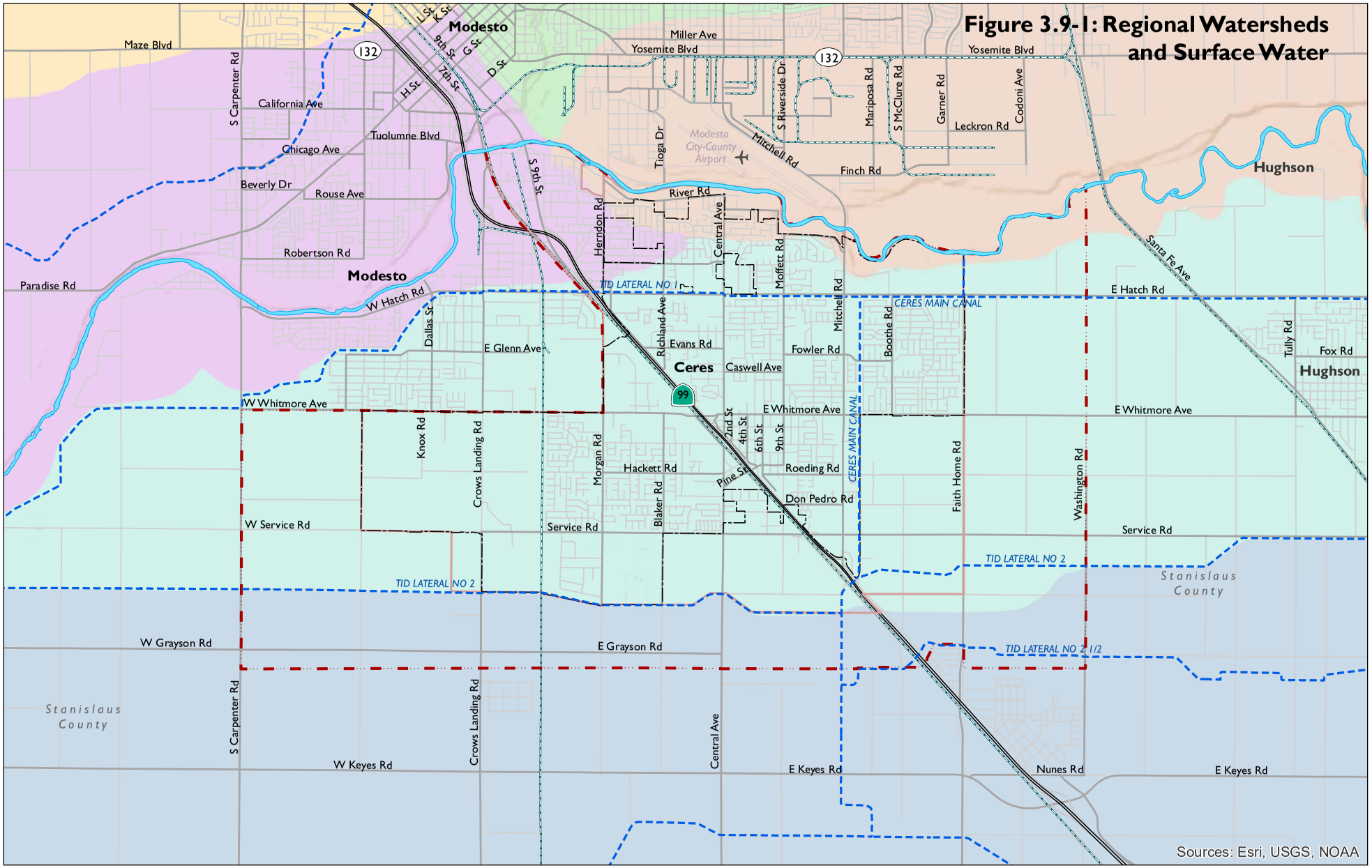
A water balance study of the Turlock Subbasin was prepared in 2003 and updated in 2007 to estimate the inflows and outflows from the subbasin between 1952 and 2006. The estimated average total outflow for the 1997 to 2006 period was 541,000 afy. Most of the outflow is related to agricultural, municipal, and rural residential supply and drainage well pumping, which collectively averaged 457,000 afy for the 1997 to 2006 period. The estimated average total inflow for the 1997 to 2006 period was 519,000 afy (TGBA, 2008). [2]

The contour maps used in the water balance study indicate that estimated groundwater storage decreased by approximately 21,500 afy between 1997 and 2006. However, the magnitude and direction of changes in groundwater storage cannot be fully characterized using an analysis based solely on groundwater contours. The Turlock Subbasin groundwater model was used to supplement this analysis and confirm that groundwater storage has decreased slightly in recent years, particularly between 2002 and 2006. The estimated reduction in storage between 2002 and 2006 suggests that the subbasin may no longer be in the equilibrium state that existed in the 1990s. Increases in land use types that rely on groundwater for supply have increased the net discharge from the subbasin (TGBA, 2008).

The Turlock Groundwater Basin Association (TGBA) commissioned a study, completed in 2008, to predict the impact on the subbasin's groundwater conditions as a result of expected land use changes. Many water use patterns in the subbasin are changing because of increased urbanization, changing agricultural cropping patterns, expansion of agriculture in areas east of the Turlock Irrigation District (TID) service area that depend on groundwater for their supplies, the expanded use of efficient irrigation practices, and increased conservation in urban areas. The study updated the TID groundwater model to include data through 2006 and to simulate land- and water-use changes into the future. The results of the study's simulations indicate that the western portion of the subbasin is relatively stable, but that groundwater levels in the eastern portion are projected to decrease. In some scenarios, groundwater levels in the eastern portion of the subbasin could decrease from 65 feet to as much as 265 feet below 2008 levels (AECOM, 2012).

[1] As of November 2017, this is the most recent source of information for total recharge of the Turlock Subbasin.

[2] As of November 2017, this is the most recent water balance study of the Turlock Subbasin.



Highway
Major Roads
Local Roads
Ramps
Railroads

Canal/Ditch
Stream/River

Watersheds

Lake Ramona-San Joaquin River
Modesto Reservoir-Dry Creek
Salter Gulch-Tuolumne River
Shiloh Bridge-Tuolumne River
Turlock Lake
Riley Slough

City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; National Hydrography Dataset, USGS, 2017; ESRI, 2015; Dyett & Bhatia, 2015.

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Figure 3.9-2: Groundwater

Highway
Ramps
Major Roads
Local Roads
Railroads

5-22 Basin number
5-22.02 Subbasin number

Groundwater Subbasin
Turlock
Modesto

River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: Department of Water Resources, CWP 2013; City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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City of Ceres

Surface Water

As a member of the Stanislaus Regional Water Authority (SRWA), the City has entered into a water sales agreement for delivery of 1,825 million gallons per year (5 mgd) of TID surface water. It is currently anticipated that the TID water will be available to the City by 2020. Current plans are to provide an initial water treatment plant capacity of 15 mgd for the cities of Turlock and Ceres, with 5 mgd capacity for the City of Ceres. The WTP will be expandable, with plans for potential future expansion up to 45 mgd. See Section 3.14: Utilities for more information on Ceres' water supply.

Water Quality

Water quality in the surface and groundwater systems can be affected by point and non-point sources of pollution. Point sources are single identifiable sources of pollution, such as a pipe or a drain, and can be agencies, businesses, or other parties discharging directly to a water body. The National Pollutant Discharge Elimination System (NPDES) is a federal program that regulates point sources of pollution (see Regulatory Settings below for more information). Point sources along the Tuolumne River adjacent to Ceres include four of the City's storm drains, which discharge stormwater to the river, and the City of Modesto wastewater treatment system, both of which are regulated by the NPDES program. The City of Ceres stormwater system is regulated by an NPDES Stormwater Management Program.

Non-point pollution come from many diffuse sources, and generally results from runoff, drainage, seepage, or hydrologic modification. Activities common to life in Ceres, including driving, farming, and lawn maintenance, produce non-point source pollutants that can enter surface water or groundwater through runoff. Stormwater runoff during storm events and runoff from irrigation and other urban uses of water carry contaminants such as gasoline, oil, pesticides, herbicides, and fertilizer into the river or groundwater supply. At high enough concentrations, runoff from these non-point sources could impair uses of the river, including recreational uses, and could damage wildlife habitats.

The Central Valley RWQCB has identified the lower Tuolumne River (from Don Pedro Reservoir to the San Joaquin River) as an impaired water body under Section 303(d) of the federal Clean Water Act (CWA) for the following constituents: chlorpyrifos, diazanon, Group A pesticides, mercury, water temperature, and toxicity (CVRWQCB, 2016).

The Turlock Subbasin Groundwater Management Plan (TGBA, 2008) found that overall groundwater quality in the subbasin is high, although salinity, nitrates, iron, manganese, boron, arsenic, radionuclides, bacteria, pesticides, trichloroethylene, and other trace organic compounds have been detected. The City's 2015 Urban Water Management Plan (UWMP) identified groundwater contaminants such as salinity, nitrate, arsenic, tetrachloroethylene, iron, manganese, radio-nucleotides, bacteria, and other petroleum hydrocarbons, as well as dibromochloropropane (DBCP) and ethylenedibromide (EDB), two pesticides resulting from agricultural use. The City's 2016 Consumer Confidence Report also reported 1,2,3-trichloropropane (TCP) from historical applications of soil fumigants; radiologicals; disinfection chemicals; and disinfection byproducts. Based on 2015 data, the water quality report by California State Water Resources Control Board's Environmental Working Group found TCP at a higher concentration than the California Public

Health Goal (Environmental Working Group, 2017). The presence of these chemicals in the water system can pose a health risk to humans as well as animals and ecosystems.

Flood Hazards

Flood Zones

The Federal Emergency Management Agency (FEMA) flood map identifies flooding hazards of various intensities, including 100-year and 500-year flood zones. The 500-year flood zone indicates those areas that have a 0.2 percent chance of flooding in a given year, and the 100-year flood zone indicates those areas having a 1.0 percent chance. As shown in Figure 3.9-3: Flood Zones, there are small portions of the Planning Area within 100- and 500-year flood zones along the Tuolumne River. In the Planning Area, both types of flood zones line the Tuolumne River along the northern border of Ceres. Within the City of Ceres, small areas of residential development along River Road are in the 500-year flood zone, and larger areas in Modesto where State Route 99 (SR 99) crosses the river are in the 100- year and 500-year flood zones.

Dam Inundation

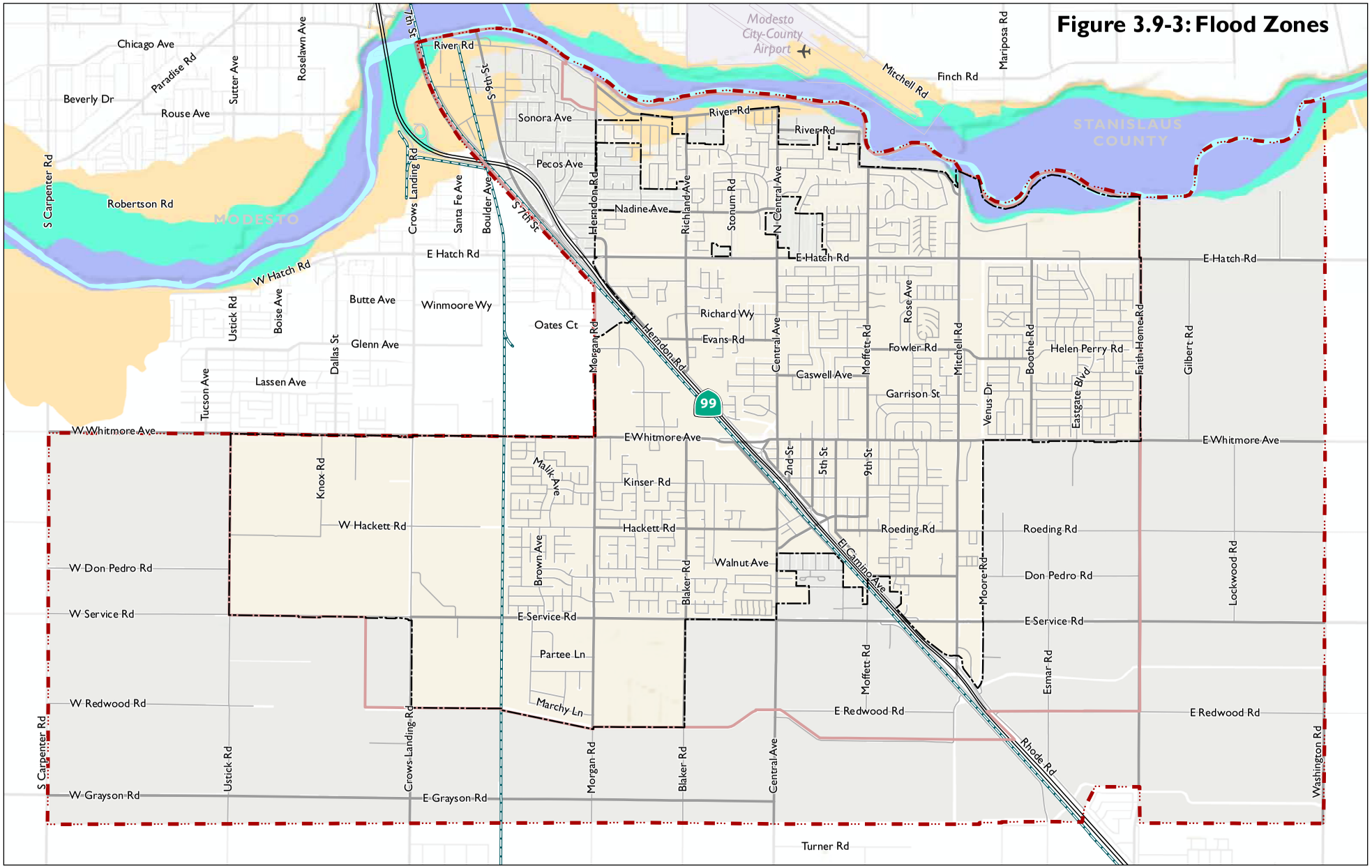
Dam failure is the collapse or failure of an impoundment that causes significant downstream flooding. Flooding of the area below the dam may occur as the result of structural failure or overtopping of the dam. Stanislaus County has mapped dam inundation areas in the northern portion of the Planning Area along the Tuolumne River and in the southwest portion near Carpenter and Grayson Roads (Figure 3.9-4: Dam Inundation Areas). Dams that may pose a risk of inundation to the Planning Area include the Don Pedro Dam, the New Exchequer Dam, the San Luis Dam, and the New Melones Dam.

The Don Pedro Dam, operated jointly by the Turlock and Modesto irrigation districts, is located approximately 30 miles upstream from the Planning Area. The reservoir has a gross pool capacity of 2,030,000 acre-feet. The inundation area for the Don Pedro Dam includes the northern portion of the Planning Area, including some portions within city limits.

The San Luis Dam is located nearly 40 miles south of the Planning Area in the Diablo Range in Merced County. It is operated by the U.S. Bureau of Reclamation and the California Department of Water Resources. The reservoir has a storage capacity of 2,041,000 acre-feet. The inundation area for the San Luis Dam covers the southwest corner of the Planning Area.

The New Exchequer Dam, operated by the Merced Irrigation District, is located approximately 30 miles east of the Planning Area on the Merced River in Mariposa County. Its reservoir, Lake McClure, has a gross storage capacity of 1,024,600 acre-feet. The New Melones Dam is located on the Stanislaus River approximately 30 miles northeast of the Planning Area in Calaveras County. It is operated by the U.S. Bureau of Reclamation, and the reservoir has a capacity of 2,400,000 acre-feet. The inundation areas for the New Exchequer and New Melones dams touch only a small part of the Planning Area at the northern edge.

Figure 3.9-3: Flood Zones



Highway
Ramps
Major Roads
Local Roads
Railroads

Flood Hazard Areas
Floodway
100 Year Floodzone (1% Annual Chance Flood Hazard)
500 Year Floodzone (0.2% Annual Chance Flood Hazard)

River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: FEMA Flood, 2015; City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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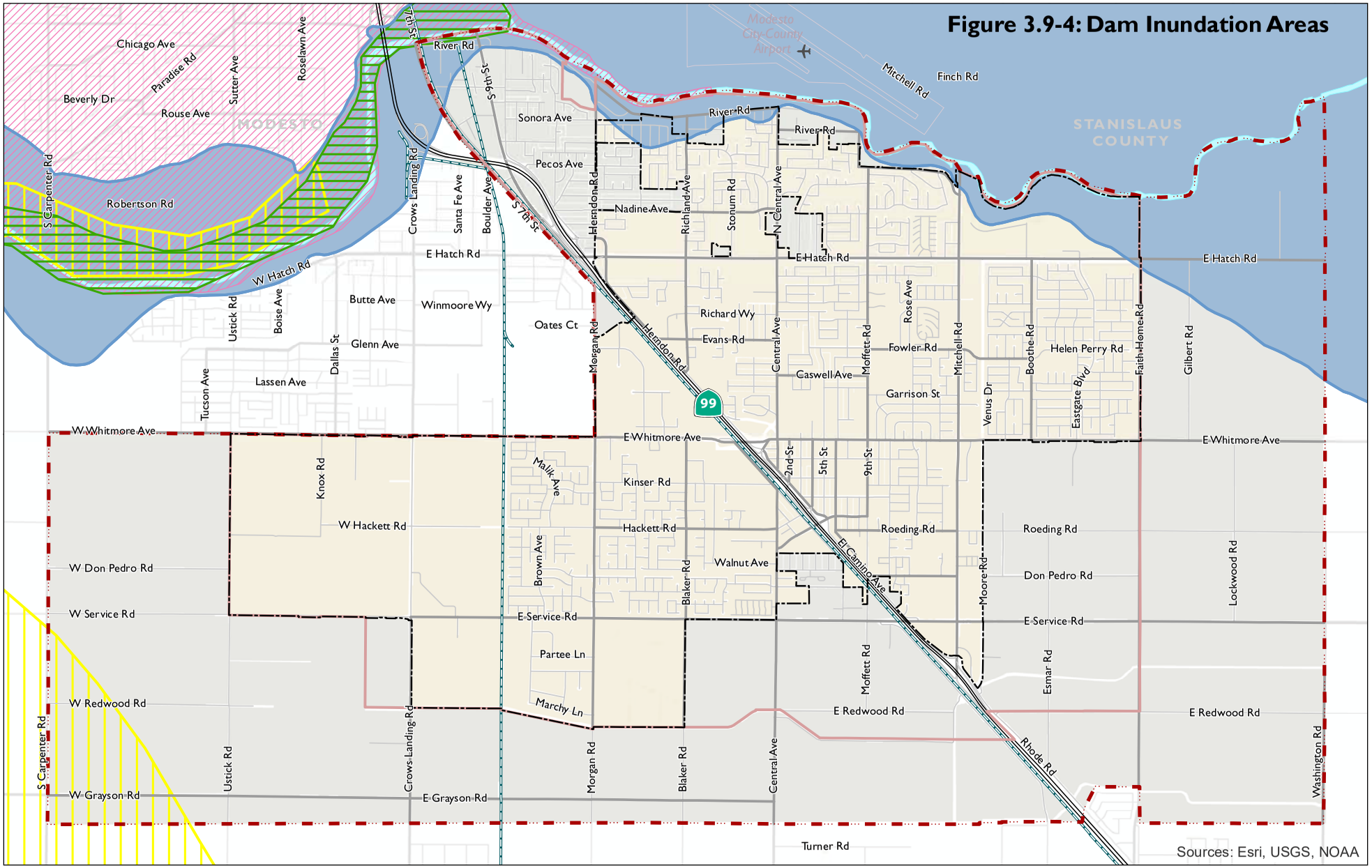
City of Ceres

Figure 3.9-4: Dam Inundation Areas



Highway
Ramps
Major Roads
Local Roads
Railroads

Dam Inundation Areas
Don Pedro
New Exchequer
San Luis
New Melones

River/Lakes
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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Seiche, Tsunami, and Mudflows

A seiche is a wave-like oscillatory movement in enclosed or semi-enclosed bodies of water, such as lakes or reservoirs. Potential effects from seiches include flooding damage and related hazards in surrounding areas from spilling or sloshing waves, as well as increased pressure on containment structures. There are no enclosed bodies of water or reservoirs of significant size in the Planning Area; therefore, risk from seiches is essentially nonexistent.

A tsunami is a long-wavelength ocean wave generated by sudden movements of the ocean bottom during events such as earthquakes, volcanic eruptions, or landslides. Due to its distance from the ocean, there are no tsunami inundation areas anticipated in the Ceres Planning Area. The California Geological Survey maintains mapping of tsunami hazards in the state, and none are mapped for Stanislaus County (California Geological Survey, 2015).

Mudflows are landslides consisting of material that is wet enough to flow rapidly, and that contains at least 50 percent sand-, silt-, and clay-sized particles. Land in the Planning Area is relatively flat, with elevations that vary gradually between approximately 70 and 100 feet above sea level (Esri, 2017). Therefore, the likelihood of mudflows is low, though some potential exists along the steep banks of the Tuolumne River.

REGULATORY SETTING

Federal Regulations

Clean Water Act (CWA)

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into "waters of the United States." The Act specifies a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Some of these tools include:

- Section 303(d) – Total Maximum Daily Loads
- Section 401 – Water Quality Certification
- Section 402 – National Pollutant Discharge Elimination System Program
- Section 404 – Discharge of Dredge or Fill Material

Section 303(d) requires states, territories, and authorized tribes to develop a list of water-quality limited segments of rivers and other water bodies under their jurisdiction. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for waters on the list and develop action plans, called Total Maximum Daily Loads (TMDL), to improve water quality. These are action plans designed to improve the quality of water resources. As part of the TMDL process, municipalities must examine the water quality problems and identify sources of pollutants in order to create specific actions designed to improve water quality.

Section 401 requires every applicant for a federal permit or license for any activity that may result in a discharge to a water body to obtain a water quality certification that the proposed activity will comply with applicable water quality standards.

Section 402 regulates point-source discharges to surface waters through the NPDES program. In California, the State Water Resources Control Board (SWRCB) oversees the NPDES program, which is administered by the Regional Water Quality Control Boards (RWQCBs). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. The NPDES program covers municipalities, industrial activities, and construction activities. The NPDES program includes an industrial stormwater permitting component that covers ten categories of industrial activity that require authorization under a NPDES industrial stormwater permit for stormwater discharges. Construction activities, also administered by the State Water Board, are discussed below. Section 402(p) of the federal Clean Water Act, as amended by the Water Quality Act of 1987, requires NPDES permits for stormwater discharges from municipal separate storm sewer systems (MS4s), stormwater discharges associated with industrial activity (including construction activities), and designated stormwater discharges, which are considered significant contributors of pollutants to waters of the United States.

On November 16, 1990, the U.S. Environmental Protection Agency (EPA) published regulations (40 CFR Part 122), which prescribe permit application requirements for MS4s pursuant to CWA 402(p). Phase I of the permitting program applied to municipal discharges of stormwater in urban areas where the population exceeded 100,000 persons. Phase I also applied to stormwater discharges from a large variety of industrial activities, including general construction activity, if the project would disturb more than 5 acres. For Phase II, the NPDES stormwater permit regulations that became effective in 2003 require that NPDES permits be issued for construction activity of projects that disturb 1 acre or more. Phase II of the municipal permit system (known as the NPDES General Permit for Small MS4s) requires that small municipal areas of fewer than 100,000 persons develop stormwater management programs. See Local Regulations below for a discussion of the City of Ceres' stormwater management program.

On May 17, 1996, the EPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems, which provided guidance on permit application requirements for regulated MS4s. MS4 permits include requirements for post-construction control of stormwater runoff in what is known as Provision C.3. The goal of Provision C.3 is for the Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

Section 404 establishes a permit program, administered by U.S. Army Corps of Engineers (USACE), to regulate the discharge of dredge or fill materials into waters of the U.S., including wetlands. Activities in waters of the U.S. that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development

(such as highways and airports), and conversion of wetlands to uplands for farming and forestry. CWA Section 404 permits are issued by USACE.

Federal Antidegradation Policy, 40 CFR 131.12

The federal antidegradation policy is designed to protect existing water uses, water quality, and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- Existing instream uses and the water quality necessary to protect those uses shall be maintained and protected;
- Where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and
- Where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

National Toxics Rule and California Toxics Rule, 40 CFR 131

In 1992, EPA promulgated the National Toxics Rule under the Clean Water Act to establish numeric criteria for priority toxic pollutants for 14 states to bring all states into compliance with the requirements of section 303(c)(2)(B) of the CWA. The National Toxics Rule established water quality standards for 42 pollutants not covered under California's statewide water quality regulations at that time. As a result of the court-ordered revocation of California's statewide Basin Plans in September 1994, EPA initiated efforts to promulgate additional federal water quality standards for California. In May 2000, EPA issued the California Toxics Rule, which includes all the priority pollutants for which EPA has issued numeric criteria not included in the National Toxics Rule.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), administered by the EPA in coordination with the states, is the main federal law that ensures the quality of drinking water. Under the SDWA, the EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The Department of Public Health administers the regulations contained in the SDWA in the State of California.

Regulations Covering Development in Floodplains

National Flood Insurance Program

Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in

floodplains. FEMA issues Flood Insurance Rate Map (FIRMs) for communities participating in the NFIP.

Executive Order 11988

Executive Order 11988 directs federal agencies to avoid to the extent practicable and feasible short- and long-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Further, this Executive Order requires the prevention of uneconomic, hazardous, or incompatible use of floodplains; protection and preservation of the natural and beneficial floodplain values; and consistency with the standards and criteria of the National Flood Insurance Program (NFIP).

Federal Highway Administration regulations require that a local hydraulic study and risk assessment be performed where a planned facility or action would encroach on a base floodplain or support incompatible floodplain development. When the hydraulic study indicates significant encroachment, findings must be made that it is the only practicable alternative. The hydraulic study and risk assessment protocol are set forth in the Caltrans Highway Design Manual (Caltrans, 2010). This manual provides guidance and procedures whenever an encroachment permit is anticipated.

Disaster Mitigation Act

In 2000, FEMA adopted revisions to Title 44 of the Code of Federal Regulations (44 CFR). This revision is known as Disaster Mitigation Act (DMA). DMA 2000, Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a Hazard Mitigation Plan (HMP) that describes the process for assessing hazards, risks, and vulnerabilities, identifying and prioritizing mitigation actions, and engaging/soliciting input from the community (public), key stakeholders, and adjacent jurisdictions/agencies.

State Regulations

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act established the SWRCB and divided the state into nine regional basins, each with a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, while the regional boards are responsible for developing and enforcing water quality objectives and implementation plans. The Planning Area is within the jurisdiction of Central Valley RWQCB.

The act authorizes the SWRCB to enact state policies regarding water quality in accordance with CWA 303. In addition, the act authorizes the SWRCB to issue WDRs for projects that would discharge to state waters. The Porter-Cologne Water Quality Control Act requires that the SWRCB or the Central Valley RWQCB adopt water quality control plans (basin plans) for the protection of water quality. A basin plan must:

- Identify beneficial uses of water to be protected;
- Establish water quality objectives for the reasonable protection of the beneficial uses; and

- Establish a program of implementation for achieving the water quality objectives.

Basin plans also provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every three years in accordance with Article 3 of Porter-Cologne Water Quality Control Act and CWA 303(c). The local basin plans are described under *Local Regulations*, below.

Cobey-Alquist Floodplain Management Act

The Cobey-Alquist Floodplain Management Act (California Water Code 8400-8415) and Executive Order B-39-77 give support to the National Flood Insurance Program. The Act encourages local governments to plan, adopt, and enforce land use regulations for floodplain management, in order to protect people and property from flooding hazards. The Act also identifies requirements that jurisdictions must meet in order to receive State financial assistance for flood control. In 2002, the California Floodplain Management Task Force created and recommended a proposed revised Executive Order for the State's consideration.

California Water Code and Regional Water Quality Control Boards

The California Water Code establishes the responsibility of the RWQCBs for adopting, implementing, and enforcing water quality control plans (i.e. basin plans), which set forth the State's water quality standards (i.e. beneficial uses of surface waters and groundwater) and the objectives or criteria necessary to protect those beneficial uses. The Planning Area lies within the jurisdiction of the Central Valley RWQCB.

Sustainable Groundwater Management Act

In 2014, California passed the Sustainable Groundwater Management Act (SGMA), to provide a framework for sustainable, local groundwater management. The SGMA requires Groundwater Sustainability Plans to be adopted for medium- or high-priority basins by a groundwater sustainability agency (GSA). A Groundwater Sustainability Plan must contain a description of the setting and characteristics of the basin, measurable objectives to meet the sustainability goal within 20 years of implementation, a planning and implementation horizon, monitoring information and protocols, and consideration of applicable general plans. The Turlock Subbasin is designated a high-priority basin. The West Turlock GSA, formed by water agencies and counties on the western side of the subbasin, will take responsibility for developing the Groundwater Sustainability Plan for the subbasin. The City of Ceres is a participating water agency in the West Turlock GSA.

California Department of Public Health

The Drinking Water Program, which regulates public water supply systems, is a major component of the State Department of Public Health Division of Drinking Water and Environmental Management. Regulatory responsibilities include the enforcement of the federal and State Safe Drinking Water Acts, the regulatory oversight of public water systems, issuance of water treatment permits, and certification of drinking water treatment and distribution operators. State regulations for potable water are contained primarily within the Food and Agricultural Code, the Government Code, the Health and Safety Code, the Public Resources Code, and the Water Code. Regulations are from Title 17 and Title 22 of the California Code of Regulations.

The regulations governing recycled water are found in a combination of sources including the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations. Issues related to treatment and distribution of recycled water are generally under the influence of the SWRCB.

State Water Quality Certification Program

The RWQCBs also coordinate the State Water Quality Certification Program, or Section 401 of the CWA. Under Section 401, states have the authority to review any permit or license that will result in a discharge or disruption to wetlands and other waters under state jurisdiction, to ensure that the actions will be consistent with the state's water quality requirements. This program is most often associated with Section 404 of the CWA, which obligates USACE to issue permits for the movement of dredge and fill material into and from the "waters of the United States." Additionally, Section 404 requires permits for activities affecting wetlands. Prospective alterations of hydrologic features such as wetlands, rivers, and ephemeral creek beds resulting from construction require Section 404 permits.

Streambed Alteration Agreement

The California Department of Fish and Wildlife (DFW) regulates streambed alterations in accordance with the California Fish and Game Code 1601–1616: Streambed Alterations. Whenever a project proposes to alter a streambed, channel, or bank, an agreement with DFW is required. The agreement is a legally binding document that describes measures agreed to by both parties to reduce risks to fish and wildlife in the stream system during the project. This is a separate process from California Environmental Quality Act (CEQA) approval but is usually coordinated with CEQA compliance.

California Construction Stormwater Permit

The California Construction Stormwater Permit (Construction General Permit),[3] adopted by the SWRCB, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or 40 Code of Federal Regulations 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;

[3] *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the Nation;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

In order to obtain coverage under the NPDES Construction General Permit, the Legally Responsible Person must electronically file all Permit Registration Documents with the SWRCB prior to the start of construction.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Construction Dewatering Permit

The RWQCB construction dewatering permit is required for construction activities such as excavating and trenching in areas with shallow groundwater. Dewatering is regulated under state requirements for stormwater pollution prevention and control. Discharge of non-stormwater from an excavation or trench that contains sediments or other pollutants to water bodies is prohibited. Discharge of uncontaminated groundwater from an excavation or trench is a conditionally exempted discharge by the RWQCB. Since the removed water could be contaminated by chemicals released from construction equipment, disposal of this water would require permits either from the RWQCB for discharge to surface creeks or local agencies for discharge to sewers. Dewatering operations would require a NPDES permit, or an exemption, from the RWQCB, which would establish discharge limitations for specific chemicals, as applicable.

SB 5 and 17; AB 5, 70, 156, and 162; 2007 Flood Legislation; and sections in the California Government Code, Health and Safety Code, Public Resources Code, and Water Code

In 2007, the State legislature enacted six interrelated bills to strengthen the linkage between local land use planning decisions and flood management practices. SB 5 and 17, and AB 5, 70, 156, and 162 added or amended over 25 sections of the Government Code, Health and Safety Code, Public Resources Code and Water Code:[4]

- California Government Code Sections 11564, 13332.11.1, 65007, 65300.2, 65302, 65302.7, 65302.9, 65303.4, 65352, 65584.04, 65860.1, 65865.5, 65962, and 66474.5;
- Health and Safety Code Section 50465;
- Public Resources Code Section 5096.830; and

[4] The complete list of Code changes as a result of this legislation can be found at http://www.water.ca.gov/legislation/2007-reference.pdf.

- Water Code Sections 8200, 8201, 8306, 8307, 8521, 8522.3, 8522.5, 8523, 8550, 8551, 8552, 8554, 8575, 8577, 8578, 8580-8582, 8590, 8610.5, 8612, 8613, 9110, 9120, 9121, 9122, 9130, 9140, 9141, 9142, 9600-9625, 9650-9651, 12585.12, 12878, 12878.1, 12878.21, and 12878.23.

There was considerable overlap between these bills. Together they significantly modified floodplain planning and management at the State, regional, and local levels. The six flood protection bills of 2007 (in the order they were signed) are summarized below:

- **SB 5 (Machado).** Enacts the Central Valley Flood Protection Act of 2008. Requires the California Department of Water Resources (DWR) and the Central Valley Flood Protection Board (CVFPB; previously known as the State Reclamation Board) to prepare and adopt a Central Valley Flood Protection Plan (CVFPP) by 2012. Establishes that 200-year protection is to be the minimum urban level of flood protection. Sets deadlines for cities and counties in the Central Valley to amend their general plans and their zoning ordinances to conform to the Plan. Restricts approval of development agreements and subdivision maps in flood hazard zones, once the general plan and zoning ordinance amendments have been enacted, unless certain findings are made. Mandates Central Valley counties to develop flood emergency plans within 24 months of adoption of the Plan. Legislative intent for SB 5 is also included in AB 5 and AB 156.
- **SB 17 (Florez).** Sets compensation for the members of the CVFPB. Establishes the duties of the Board. The provisions of this bill were also enacted by AB 5.
- **AB 5 (Wolk).** Establishes the CVFPB and its duties. Sets out requirements and deadlines for reports on the flood control system to be prepared by DWR and the Board, including levee flood zone protection maps to be prepared by DWR. The same requirements are also enacted by AB 156.
- **AB 70 (Jones).** Provides that cities and counties will share liability with the State in the case of litigation over unreasonably approved new development on agricultural lands. This would not apply where the city or county has amended its general plan and zoning, and otherwise makes land use decisions consistent with the CVFPP. "Unreasonably approving" is defined as approval without appropriate consideration of known significant risks of flooding.
- **AB 156 (Laird).** Requires DWR and the Board to adopt a schedule for mapping flood risk areas within the Central Valley. Sets out requirements for reports on the flood control system to be prepared by DWR and the Board, including levee flood zone protection maps to be prepared by DWR by December 31, 2008. Mandates DWR to provide yearly notices to owners of property within a levee protection zone, beginning September 1, 2010. The same requirements are also enacted by AB 5.
- **AB 162 (Wolk).** Requires cities and counties to amend the land use, conservation, safety, and housing elements of their general plans to address flood-related matters. These amendments are required to be made by the next scheduled revision of the housing element after January 1, 2009.

Since 2007, there have been a number of legislative amendments to provide further clarifications to these bills, and to require further related actions at both the state and local level.

California planning law has long required that city and county general plans identify flood prone areas and limit development within those areas. The 2007 flood bills revised the requirements for the Land Use, Conservation, and Safety elements of city and county general plans with the most extensive changes taking place in the requirements for the Safety Element. These requirements apply to all cities and counties statewide. However, jurisdictions within the Central Valley (of which Ceres is one) face additional scrutiny to ensure conformity between their general plans and the CVFPP.

State Multi-Hazard Mitigation Plan

The State of California Multi-Hazard Mitigation Plan, also known as the State Hazard Mitigation Plan (SHMP), was approved by FEMA in 2013. The SHMP outlines present and planned activities to address natural hazards, including flooding hazards. The adoption of the SHMP qualifies the State of California for federal funds in the event of a disaster. The State is required under the Disaster Mitigation Act of 2000, described above, to review and update its SHMP and resubmit for FEMA approval at least once every 5 years to ensure the continued eligibility for federal funding. The SHMP provides goals and strategies which address minimization of risks associated with natural hazards and response to disaster situations. The SHMP notes that the primary sources of losses in the State of California are fire and flooding.

Local Regulations

Water Quality Control Plan for the Sacramento and San Joaquin River Basins

The Central Valley RWQCB has adopted two basin plans for areas under its jurisdiction in compliance with the Porter-Cologne Water Quality Control Act. The basin plans include the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, which contains the Planning Area, and the Water Quality Control Plan for the Tulare Lake Basin. Basin plans must include beneficial uses, water quality objectives, and a program of implementation for achieving water quality objectives. The Water Quality Control Plan for the Sacramento and San Joaquin River Basins identify beneficial uses for water bodies in the basins, define water quality objectives (the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area) for both surface waters and groundwater, and actions to achieve objectives, including those related to agricultural drainage discharges, toxicity, heavy metals, mercury, pesticides, dredging, and nitrates in the basins, as well as other actions targeted towards specific locations outside of the Planning Area.

City of Ceres Municipal Code Chapter 13.18 – Urban Water Quality Control

Chapter 13.18 of the City of Ceres Municipal Code contains regulations and restrictions on other discharges to municipal separate storm sewers. The provisions of Chapter 13.18 require that stormwater and associated pollutants be controlled to minimize adverse effects on groundwater and surface water quality. Regulations include the following:

- Eliminating other discharges to the municipal separate storm sewers that do not receive treatment before discharge to waters of the State;
- Controlling the discharge to municipal separate storm drains from spills, dumping, or disposal of materials other than stormwater;

- Reducing pollutants in stormwater discharges to the maximum extent practicable;
- Regulating the amount, pollutants, and timing of stormwater discharges leaving private property that has an on-site stormwater system; and
- Ensuring that the storm drain system is clean and functioning to reduce the amount of stormwater that may enter the sanitary sewer system.

Storm Water Management Program

Ceres is a co-participant along with Cities of Oakdale, Patterson, and Riverbank in a Storm Water Management Program prepared in compliance with SWRCB General Permit for Small Cities No. CAS000004. Ceres is an automatically designated small MS4 operator. MS4 operators are required to develop a plan to undertake Minimum Control Measures, performance standards, work plan, and budget. The six categories of Minimum Control Measures that are included in the program consist of public outreach and education, public participation and involvement, illicit discharge elimination, construction site BMPs over one acre, post-construction BMPs, and municipal activities. The program contains specific objectives for each measure.

The Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ (Industrial General Permit) implements the federally required storm water regulations in California for storm water associated with industrial activities discharging to waters of the United States. The Central Valley RWQCB implements and enforces the Industrial General Permit in the Planning Area.

Waste Discharge Requirements

The Waste Discharge Requirements (WDRs) for the City of Turlock Regional Water Quality Control Facility and the City of Modesto Water Quality Control Facility, Stanislaus County (NPDES No. CA0085316) was adopted on February 19, 2016 and is effective through October 2, 2020. The permit applies to the City of Turlock Regional Water Quality Control Facility and the City of Modesto Water Quality Control Facility, both of which provide sewerage services to portions of the Ceres Planning Area. The permit establishes discharge requirements for effluent from each facility at the North Valley Regional Recycled Water Program Joint Outfall in the Delta-Mendota Canal.

An antidegradation analysis of the impacts and potential impacts of wastewater discharge on water quality is a mandatory element in the NPDES and WDRs permitting processes. The RWQCB requires all wastewater discharges to high quality waters to apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

Irrigated Lands Regulatory Program

If a property would be used for commercial irrigated agricultural, the discharger would be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program (ILRP). The ILRP was initiated in 2003 to prevent agricultural runoff from impairing surface waters, and in 2012, groundwater regulations were added to the program. WDRs, described above, address irrigated agricultural discharges throughout the Central Valley.

Turlock Groundwater Basin Association

The Turlock Groundwater Basin Association (TGBA) was initially formed in 1995 by a Memorandum of Understanding (MOU) to provide a forum for local agencies to work together and to develop an initial Basin-wide Groundwater Management Plan for the Turlock Groundwater Basin (or Subbasin). The initial plan, developed to comply with AB 3030, was adopted by local agencies in 1997. The goals of the TGBA are to provide a mechanism to coordinate the implementation of the Groundwater Management Plan and other groundwater management activities; create an association of the Parties to enhance the ability to obtain funding to carry out the Groundwater Management Plan and related groundwater management projects; and provide information and guidance for the management, preservation, protection, and enhancement of the Subbasin. The City of Ceres is a member of the TGBA.

Turlock Groundwater Basin Groundwater Management Plan

As of 2017, the most recent groundwater management plan for the Turlock Groundwater Basin was prepared in 2008 by the Turlock Groundwater Basin Association (TGBA). The plan provides an overview of the local agencies, land uses, and status of groundwater resources in the Turlock Subbasin, and presents a basin-wide approach to coordinate groundwater management activities. The plan outlines several basin management objectives, groundwater protection measures, and implementation actions to protect water quality and sustain groundwater recharge.

The City of Ceres (along with the City of Turlock and the Turlock Irrigation District and others) is actively involved in the implementation of the SGMA, including the formation of the West Turlock GSA for the groundwater basin area. The City and its partners in the West Turlock GSA have all agreed to a new governance structure and are working on the next requirement of the SGMA, the Groundwater Sustainability Plan.

City of Ceres Floodplain Management and Flood Hazard Identification Regulations Ordinance

The City of Ceres has a Floodplain Management and Flood Hazard Identification Regulations ordinance (Municipal Code Chapter 18.100) that promotes public safety with provisions designed to minimize the need for flood control projects and damage to buildings and utilities due to flooding. The ordinance also ensures that potential buyers and occupiers of areas of special flood hazard are aware of the property's location in the hazardous area and assume responsibility for their occupation thereof. To accomplish these goals, the ordinance does the following:

- Requires a development permit to be obtained before any construction or other development begins within any area of special flood hazard;

- Restricts or prohibits uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
- Requires that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controls the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- Controls filling, grading, dredging, and other development which may increase flood damage; and
- Prevents or regulates the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

Stanislaus County Flood Damage Prevention Ordinance

Stanislaus County has a Flood Damage Prevention ordinance (County Code Chapter 16.50) that promotes public safety with provisions designed to minimize the need for flood control projects and damage to buildings and utilities due to flooding. The County ordinance includes the same provisions as the City's Floodplain Management and Flood Hazard Identification Regulations Ordinance, and applies to the unincorporated portions of the Planning Area.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Violate any water quality standards or waste discharge requirements;**

Criterion 2: **Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);**

Criterion 3: **Substantially alter the existing drainage pattern of the Planning Area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site;Criterion 4: 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;**

Criterion 5: **Otherwise substantially degrade water quality;**

Criterion 6: **Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;**

Criterion 7: **Place within a 100-year flood hazard area structures which would impede or redirect flood flows;**

Criterion 8: **Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;**

Criterion 9: **Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.**

METHODOLOGY AND ASSUMPTIONS

Potential impacts resulting from implementation of the proposed General Plan were evaluated based on relevant information from FEMA, Stanislaus County, and the City of Ceres. Based on a review of relevant hydrology and water quality plans, and maps, this Program EIR presents the potential for impacts to hydrology, water quality, and flooding to occur as a result of implementation of the proposed General Plan. Programmatic impacts are discussed in broad, qualitative terms. This assessment does not satisfy the need for project-level California Environmental Quality Act (CEQA) analysis for individual projects. Individual projects under the proposed General Plan will require a project-level analysis at the time they are proposed based on the details of the projects and the existing conditions at the time such projects are pursued.

SUMMARY OF IMPACTS

Future development under the proposed General Plan could result in impacts to water quality, hydrology, flooding, or other inundation hazards; however, federal, State, and local regulations, as well as policies in the proposed General Plan, would ensure that impacts of the proposed General Plan would be less than significant. Compliance with the City's Storm Water Management Program and Municipal Code Chapter 13.18 – Urban Water Quality Control would ensure water quality standards are not violated and would ensure protection of water quality during construction and operation of future development within the City. In addition, the proposed General Plan goals and policies would further reduce any potential impacts by ensuring compliance with the City's NPDES permit and reduction of stormwater runoff. Potential flooding impacts would be avoided through compliance with the City's Floodplain Management Regulations and the proposed General Plan goals and policies, which restrict or prohibit land uses considered unsafe in a floodplain. Implementation of the proposed General Plan would therefore result in less than significant impacts to hydrology, flooding, and water quality.

IMPACTS

Impact 3.9-1 Development under the proposed General Plan would not violate any federal, state, or local water quality standards or waste discharge requirements. (*Less than Significant*)

The proposed General Plan would have a significant environmental impact if it would violate water quality standards and waste discharge requirements established under the following federal, State, and local regulations:

- Federal Regulations
  - Clean Water Act
  - National Toxics Rule and California Toxics Rule
  - Safe Drinking Water Act
  - National Flood Insurance Act of 1968
  - Flood Disaster Protection Act of 1973
  - Disaster Mitigation Act
- State Regulations
  - Porter-Cologne Water Quality Control Act of 1969
  - Cobey-Alquist Floodplain Management Act
  - Sustainable Groundwater Management Act
  - California Fish and Game Code 1601–1616
  - California Construction Stormwater Permit
  - Construction Dewatering Permit
  - State Multi-Hazard Mitigation Plan Water Quality Control Plan for the Sacramento and San Joaquin River Basins
- Local Regulations
  - City of Ceres Municipal Code Chapter 13.18 – Urban Water Quality Control
  - Storm Water Management Program
  - Turlock Groundwater Basin Groundwater Management Plan

The Proposed Project would allow for additional development within the Planning Area that would increase the area of impervious surfaces and could therefore increase the amount of runoff and associated pollutants during both construction and operation. However, as described in the Regulatory Setting section above, the City's Municipal Code Chapter 13.1, the City's Storm Water Management Program and the California Construction General Permit require every construction activity that disturbs more than 5,000 square feet of ground to prepare a construction SWPPP to protect water quality during and after construction.

Furthermore, the proposed General Plan, which would guide development in the city over the next 20 years, contains goals and policies that seek to maintain and improve water quality, as listed below. The proposed goals and policies would promote the protection of the Planning Area's natural water bodies, prevent water pollution from agricultural runoff and other sources, ensure preparation and implementation of applicable water quality plans, require incorporation of BMPs, and otherwise ensure compliance with the City's NPDES Permit and other related regulations. Overall, the proposed General Plan policies—as well as continued compliance with federal, State, and local water quality regulations—would promote improved water quality in the Planning Area. Therefore, implementation of the Proposed Project and compliance with federal, State and local regulations would ensure that impacts are reduced to a less-than-significant level.

Proposed General Plan Policies that Reduce the Impact

Agricultural and Natural Resources Element

Goal 4.F Protect and enhance the natural qualities of rivers, creeks, and groundwater.

4.F.1 **Tuolumne River.** Cooperate with other municipalities, agencies, institutions, and nonprofit organizations in the conservation of the Tuolumne River for the protection of its water resources, water quality, and open space qualities.

4.F.3 **Contamination Prevention.** Protect surface water and groundwater resources from contamination from point and non-point sources by pursuing strategies to minimize the pollutant and sediment levels entering the hydrological system through stormwater, agricultural, and other urban runoff.

4.F.4 **Impervious Surfaces**. Minimize the amount of impervious surface in the Planning Area in order to reduce stormwater flows that may have a negative impact on the hydrology of the Tuolumne River and other downstream water bodies.

4.F.5 **Permeable Surfaces.** Maximize the amount of permeable surfaces in public spaces to permit the percolation of urban runoff.

4.F.6 **Green Infrastructure.** Require the use of feasible and practical best management practices (BMPs) and low-impact development (LID) strategies to protect receiving waters from the adverse effects of construction activities and urban runoff.

4.F.7 **Hydrologically Friendly Development.** Encourage development that reflects an integrated approach to building design, civil engineering, and landscape architecture that maximizes rainwater harvesting and stormwater retention for landscape irrigation. Ensure that new development avoids causing significant changes in the Planning Area's hydrology and drainage patterns through activities such as grading, removing vegetation, increasing impervious surface cover, and introducing barriers to drainage flows.

4.F.8 **Graded and Disturbed Areas**. Require that new development provides landscaping and re-vegetation of graded or disturbed areas with drought-tolerant native or non-invasive plants.

4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation.

4.F.10 **Stormwater Quality Outreach.** Provide a public outreach program to educate residents and local businesses about the importance of stormwater pollution prevention.

4.F.11 **Stormwater Pollution Prevention.** Ensure that public areas, including streets and recreational areas, are routinely cleaned of litter, debris, and contaminant residue. Coordinate with and support efforts by other organizations or volunteer groups to promote cleanups of parks and public open spaces. Require the City, property owners, or homeowners' associations, as applicable, to sweep permitted parking lots and public and private streets frequently to remove debris and contaminated residue.

Public Facilities and Services Element

Goal 6.E Ensure adequate wastewater collection and treatment and the safe disposal of waste in a timely fashion to support the needs of current and future Ceres residents.

6.E.1 **Wastewater Treatment Facility Capacity.** Ensure wastewater treatment facility capacity is available to serve planned urban development within Ceres.

6.E.2 **Wastewater System Demand Reduction.** Promote reduced wastewater system demand through efficient water use by:

- Requiring water-conserving design and equipment in new construction;
- Providing information about water-conserving devices to property owners and residents; and
- Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible.

6.E.3 **On-Site Wastewater Treatment and Disposal.** Prohibit new on-site wastewater treatment and disposal facilities within the City's service area, except where such systems are deemed appropriate and will not pose health risks or risks to groundwater, and where soil conditions, percolation qualities, and topography would support the use of such facilities.

6.E.5 **Financing Wastewater System Improvements.** Finance repairs to existing and new wastewater collection, treatment, and disposal systems and facilities using transparent and fair strategies, such as development impact fees and monthly service charges.

Goal 6.F Collect and dispose of stormwater in a manner that minimizes inconvenience to the public, reduces burden on existing stormwater facilities, encourages groundwater recharge, minimizes potential water-related damage, and enhances the environment.

6.F.1 **Storm Drainage Capacity.** Ensure that increased storm drainage system capacity is sufficient to serve the existing Ceres community and planned urban development within the Planning Area.

6.F.2 **Reducing Stormwater Runoff.** Encourage project designs that minimize drainage concentrations, minimize impervious coverage, utilize pervious paving materials, utilize low impact development (LID) strategies, and utilize Best Management Practices (BMPs) to reduce stormwater runoff.

6.F.3 **Low Impact Development.** Promote the use of low impact development (LID) strategies in new development and redevelopment projects, including but not limited to the use of canopy trees and shrubs, vegetated swales, and permeable paving.

6.F.4 **New Development Stormwater Mitigation.** Require new development to mitigate increases in stormwater peak flows and/or volume. Mitigation measures, such as low impact development (LID) strategies, should take into consideration impacts on adjoining lands in the city and immediately adjacent to the city in unincorporated Stanislaus County.

6.F.5 **Drainage System Design.** Design all drainage systems to be in accordance with the accepted principles of civil engineering, adopted Storm Drainage Master Plan, and adopted storm drainage design standards and specifications.

6.F.6 **Surface Drainage Disposal.** Require that new development have surface drainage disposal accommodated in one of the following ways:

- Positive drainage. Positive drainage to a river, stream, creek, or other natural water course;
- Irrigation facility. Drainage into an irrigation district facility, either by gravity or pumping, pursuant to the City of Ceres – Turlock Irrigation District agreement;
- Drainage ponds. Ponds, either in individual lots within a subdivision or in the case of larger developments, within a drainage basin;
- Drainage unit. Use of French drains within depressed areas of the street right-of-way for those subdivisions or portions of subdivisions of such size that positive drainage, irrigation into a facility, or drainage ponds is not feasible, as determined by the City Engineer; or
- On-site drainage. Drainage retained on-site within the development. Commercial development must accommodate drainage on-site unless positive drainage or irrigation facility methods described above are available and the development participates in a system to address on-site drainage as approved by the City Engineer. All on-site industrial drainage must remain on-site and require full paving improvements. Encourage commercial and industrial development to integrate on-site storm drainage facilities with landscaping.

6.F.7 **Grading.** Require appropriate mitigation, such as temporary mulch or revegetation, for grading activities during the rainy season to avoid sedimentation of storm drainage facilities. See Municipal Code Chapter 13.18.120.

6.F.8 **Surface Water Runoff.** Require projects that have significant impacts on the quality of surface water runoff to incorporate mitigation measures as described in Municipal Code Chapter 13.18.120.

6.F.9 **Pollutant Discharge Requirements.** Ensure future drainage system requirements comply with applicable State and federal pollutant discharge requirements. *See also the Water Quality section in Chapter 4: Agricultural and Natural Resources Element for more information about reducing the amount of pollutants in stormwater.*

6.F.10 **Storm Drainage System Operation and Maintenance.** Minimize operational complexities and maintenance requirements of the storm drainage system.

6.F.11 **Stormwater Detention Facilities.** Allow stormwater detention facilities to mitigate drainage impacts and reduce storm drainage system costs. To the extent practical, design stormwater detention facilities for multiple purposes, including recreational and/or stormwater quality improvement.

6.F.13 **Meeting Federal Stormwater Quality Requirements.** When necessary to meet federal stormwater quality requirements, establish a storm drain utility to address these requirements on a citywide basis.

Mitigation Measures

None required.

Impact 3.9-2 Development under the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted). (*Less than Significant*)

Water supplied by the City of Ceres and the City of Modesto is derived exclusively from the Turlock Groundwater Subbasin of the San Joaquin Valley Groundwater Basin through wells operated by each respective city. The Proposed Project would allow for additional development within the Planning Area that could increase demand for water. However, according to City records, annual groundwater use by the City has averaged 2,980 million gallons per year (mg/year) since 2001. During that period, annual groundwater levels monitored by the City have averaged 64 feet of depth, with a depth of 65 feet in 2001, dropping to 72 feet in 2008, and rebounding to 62 feet in 2015, suggesting that this level of groundwater pumpage is sustainable.

For the Proposed Project buildout demand of 3,910 mg/year, as discussed in Section 3.14: Utilities, average groundwater use is projected to be 2,085 mg/year, with the remaining 1,825

mg/year met from surface water. This level of groundwater pumpage would be less than the historical average of 2,980 mg/year. Ceres has future plans to expand planned surface water capacity beyond 2,085 mg/year, which would further reduce groundwater use. Additionally, the proposed General Plan policies listed below, along with water conservation policies discussed in Section 3.14: Utilities of this EIR, would help to conserve groundwater in the Planning Area.

The proposed General Plan policies listed below would also help to preserve permeable surfaces in the Planning Area, therefore supporting continued groundwater recharge in the Planning Area. Furthermore, the City's Urban Water Quality Control Ordinance, described in the Regulatory Section above, protects groundwater from potential sources of contamination resulting from stormwater contamination, thus ensuring that usable groundwater supply would not be depleted through contamination. The City of Ceres is actively involved in implementation of the SGMA for the Turlock Subbasin. When complete, the Groundwater Sustainability Plan for the subbasin will identify goals in addressing groundwater management in the Turlock Subbasin, describe implementation of programs to reach these goals, and present communication strategies with partnering agencies and stakeholders to manage groundwater withdrawal, prevent lowering of the local groundwater table, and meet water demand. Overall, impacts on groundwater associated with the Proposed Project would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goal 6.F and policy 4.F.5, as listed under Impact 3.9-1 above, as well as the following policies.

Agricultural and Natural Resources Element

4.F.2 **Groundwater Resources.** Protect groundwater resources from overdraft by promoting conservation and groundwater recharge efforts.

Health and Safety Element

5.F.4 **Water Efficiency in Public Uses.** Increase the efficiency of water usage in public places, such as irrigation in public parks.

5.F.5 **Drought Tolerant Landscaping.** Utilize drought-tolerant landscaping in City parks and streetscapes; and promote the use of drought-tolerant plantings on private property.

5.F.6 **Permeable Surfaces.** Promote the use of permeable surfaces for hardscape. Minimize the area of impervious surfaces, such as driveways, streets, and parking lots so that land is available for groundwater recharge and to absorb stormwater, reduce runoff, and prevent flooding. Utilize permeable surfaces in public spaces wherever feasible.

5.F.8 **Non-Potable Water Sources.** Permit and support the use of non-potable water sources as appropriate, including residential graywater, collected rainwater, and recycled water for landscape irrigation and commercial and industrial processes. Support efforts to develop a system for the treatment and delivery of recycled water.

5.H.8 **Floodplain Management.** Recognize floodplains as a potential public resource to be managed and maintained for the public's benefit and, where possible, view flood

waters as a resource to be used for waterfowl habitat, aquifer recharge, fishery enhancement, agricultural water supply, and other suitable uses.

Public Facilities and Services Element

6.D.1 **Adequate Water Supply for New Development.** Approve new development that relies on a public water system only where an adequate water supply and conveyance system already exists or will be provided.

6.D.2 **Efficient Water Use.** Promote efficient water use and reduced water demand by:

- Requiring water-conserving design and equipment in new construction, encouraging water-conserving landscaping and other conservation measures, and encouraging retrofitting existing development with water-conserving devices;
- Developing public education programs targeted to residents of all ages;
- Distributing outdoor lawn watering guidelines;
- Continuing metering and conservation efforts and assessing the effectiveness of these programs;
- Promoting water audit and leak detection programs;
- Enforcing water conservation programs, including the City's Water Efficient Landscape Ordinance; and
- Limiting a percentage of hardscape in favor of landscaping in front yard areas of residential lots.

6.D.3 **Reclaimed Wastewater.** Investigate and promote, to the extent feasible, the use of reclaimed wastewater to offset the demand for new water supplies. Such programs may include: dual water systems for potable and non-potable water; reuse of grey water in homes or businesses for irrigation; and reuse of sewage effluent for irrigation of crops, golf courses, or city irrigation.

6.D.4 **Aquifer and Wellhead Protection.** Promote aquifer and wellhead protection programs to limit infiltration of pollutants that might contaminate the groundwater supply.

6.D.5 **Turlock Groundwater Subbasin.** Continue to participate in the West Turlock Subbasin Groundwater Sustainability Agency and other efforts to preserve existing groundwater quality and to ensure future supplies of the Turlock Groundwater Subbasin of the San Joaquin Valley Groundwater Basin. Ensure groundwater management policies are compliant with the State Sustainable Groundwater Management Act.

6.F.12 **Stormwater Reuse.** Use stormwater of adequate quality to replenish the local groundwater basin, restore wetlands and riparian habitat, and irrigate agricultural lands, or as open space or recreational enhancements.

Mitigation Measures

None required.

Impact 3.9-3 Development under the Proposed Project would not substantially alter the existing drainage pattern of the Planning Area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site. (*Less than Significant*)

Implementation of the Proposed Project would not involve the direct alteration of existing streams, rivers, or other drainage patterns. However, future development/redevelopment allowed under the Proposed Project could impact the existing drainage system, as increases in impervious surfaces, such as roofs, patios, driveways, and parking areas could lead to increased stormwater flows. The Proposed Project would allow for additional development that could increase the amount of impervious surfaces within the Planning Area and could therefore increase runoff from these sites into the local storm drains in the Planning Area. An increase in runoff volumes could result in hydromodification effects (changes in runoff patterns resulting from development)—such as erosion, siltation, and flooding—on the hydrological systems within the Planning Area, which would occur when impervious surfaces increase rainfall runoff above the natural rainfall rate that would otherwise occur.

The City's Municipal Code Chapter 13.18, the City's Storm Water Management Program, and the California Construction General Permit requires every construction activity that disturbs more than 5,000 square feet of ground to prepare a construction SWPPP to protect the drainage system during and after construction by minimizing erosion during construction, stabilizing construction areas, controlling sediment, controlling pollutants from construction materials, and addressing post construction runoff volume.

Furthermore, the proposed General Plan contains goals and policies pertaining to protecting the drainage system, as listed below. The proposed goals and policies prevent excessive runoff by limiting the amount of impervious surfaces added by new development and requiring on-site management of runoff, ensure preparation and implementation of applicable water quality plans, require commercial development to accommodate drainage on-site unless positive drainage or irrigation facility methods are available, require incorporation of BMPs during construction and promote use of LID, and otherwise ensure compliance with the City's NPDES Permit and other related regulations. By reducing runoff and ground disturbance, these policies minimize erosion, siltation, and flooding resulting from alterations to the drainage system. The City also complies with the requirements of the National Flood Insurance Program, and requires that new development design storm drainage systems to achieve the required level of flood protection, including on-site and off-site. These policies and regulations reduce runoff and protect existing drainage patterns to minimize erosion, siltation, and flooding so that impacts associated with the proposed General Plan would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals 4.F and 6.F and policies 4.F.3, 4.F.4, 4.F.5, 4.F.6, 4.F.7, 4.F.8, 4.F.9, 4.F.11, 6.F.2, 6.F.3, 6.F.4, 6.F.5, 6.F.6, 6.F.7, 6.F.8, 6.F.9, 6.F.10, 6.F.11, as listed under Impact 3.9-1; and Policy 5.F.6, as listed under Impact 3.9-2 above.

Mitigation Measures

None required.

Impact 3.9-4 Development under the Proposed 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*)

Future development/redevelopment allowed under the Proposed Project could impact the existing drainage system. Increases in impervious surfaces, such as roofs, patios, driveways, and parking areas would lead to increased stormwater flow.

As described under Impact 3.9-1, future development under the Proposed Project would be required to comply with applicable local, state, and federal ordinances, regulations, and laws. Additionally, any construction activity within the Planning Area that has the potential to negatively affect water quality must prepare a construction SWPPP. Projects that would result in the disturbance of 5,000 square feet or more of would comply with the California Construction General Permit, which prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges.

Furthermore, the proposed General Plan contains goals and policies pertaining to stormwater management, as listed below. The proposed goals and policies protect existing drainage patterns; ensure preparation and implementation of applicable water quality plans; require the use of BMPs and LID strategies to prevent polluted runoff from construction activities; require new development to accommodate surface drainage, including a requirement for commercial development to accommodate drainage on-site; and otherwise ensure compliance with the City's NPDES Permit and other related regulations. Overall, the proposed General Plan's goals and policies would prevent stormwater from exceeding capacity in the Planning Area, promote continued compliance with federal, State, and local water quality regulations, and reduce polluted runoff to the maximum extent practicable.

See the discussion under Impact 3.14-3 in Section 3.14: Utilities for an analysis of the stormwater drainage system's capacity to handle greater stormwater flows due to new development resulting from the proposed General Plan. Compliance with the City's current regulations and the proposed General Plan policies listed below would ensure that the runoff as a result of future development under the proposed General Plan would not exceed the capacity of existing or planned storm drain systems or generate substantial pollutant runoff. Therefore, impacts would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goal 6.F and policies 4.F.3, 4.F.4, 4.F.5, 4.F.6, 4.F.7, 4.F.9, 4.F.10, 4.F.11, 6.F.1, 6.F.2, 6.F.3, 6.F.4, 6.F.5, 6.F.6, 6.F.7, 6.F.8, 6.F.9, 6.F.10, 6.F.11, as listed under Impact 3.9-1; and Policy 5.F.6, as listed under Impact 3.9-2 above.

Mitigation Measures

None required.

Impact 3.9-5 Development under the Proposed Project would not substantially degrade water quality. (*Less than Significant*)

As described under Impact 3.9-1, the Proposed Project would allow for new development that could potentially degrade water quality. However, development would be subject to the RWQCB requirements and City of Ceres Municipal Code, as described in Impact 3.9-1. Furthermore, the goals and policies of the proposed General Plan would promote the protection of the Planning Area's natural water bodies, prevent water pollution from agricultural runoff and other sources, ensure preparation and implementation of applicable water quality plans, require incorporation of BMPs, and otherwise ensure compliance with the City's NPDES Permit and other related regulations. Overall, the proposed General Plan's goals and policies would promote improved water quality in the Planning Area and continued compliance with federal, State, and local water quality regulations, and would ensure that water quality is protected to the maximum extent practicable. Therefore, the proposed General Plan would not substantially degrade water quality and impacts would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goals and policies listed under Impact 3.9-1 above.

Mitigation Measures

None required.

Impact 3.9-6 Development under the Proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. (*Less than Significant*)

The Proposed Project would designate Very Low Density Residential land uses in the Planning Area's 100-year flood hazard area in a small area along the Tuolumne River, as identified in Figure 3.9-3: Flood Zones. This area currently contains either vacant parcels or lower-density residential, commercial, or industrial land uses. The Very Low Density Residential land use designation could allow for single-family housing on vacant land and redevelopment of existing residences. However, the City of Ceres and Stanislaus County both require a special use permit for any development proposed in areas of special flood hazards, as defined as the 100-year flood hazard area (Ceres Municipal Code Chapter 18.100 and Stanislaus County Code Chapter 16.50). The ordinances also restrict or prohibit land uses considered unsafe in a floodplain and establish

the required elevation of the lowest floor of residential uses relative to the base flood elevation for each type of flood zone.

Furthermore, the proposed General Plan policies listed below would require evaluation of potential flood hazards prior to site plan approval, require the City to periodically review FEMA maps of areas subject to flooding, and prevent development along the Tuolumne River. Therefore, the proposed General Plan would result in less than significant impacts related to placing housing within a 100-year flood hazard area.

Proposed General Plan Policies that Reduce the Impact

Agricultural and Natural Resources Element

4.C.4 **Riparian Setback.** Protect the integrity of habitats, hydrology, and soils along the river by prohibiting development within a distance of at least 50 feet as measured from the limit of riparian vegetation or as measured from the top of the channel bank, whichever is greater. Smaller buffers may be allowed only where it can be demonstrated that a 50-foot buffer is not possible due to site-specific constraints or if the development is for public, passive park or passive recreational uses, and the proposed narrower buffer would adequately protect the biological, hydrologic, and geologic integrity of the riparian corridor.

Health and Safety Element

5.H.1 **Floodplain Zoning.** Implement floodplain zoning and undertake other actions required to comply with federal and State floodplain requirements.

5.H.3 **Flood Hazard Evaluation.** In areas identified as flood zones by the Federal Emergency Management Agency (FEMA), require evaluation of potential flood hazards prior to site plan approval. Require that new development in flood zones submit accurate topographic and flow characteristics information, including depiction of the 100-year floodplain boundaries under fully-developed, unmitigated runoff conditions. The evaluation should also recommend any flood hazard mitigation measures as necessary to prevent damage from a 100-year flood event.

5.H.6 **Flood Hazard Information.** Ensure that the City's information on flood hazards is up-to-date with the latest available hydrologic and hydraulic engineering data from the Federal Emergency Management Agency and other agencies and organizations.

Mitigation Measures

None required.

Impact 3.9-7 Development under the Proposed Project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows. (*Less than Significant*)

The Proposed Project would designate commercial, residential, industrial, and agricultural land uses within the Planning Area in the 100-year flood hazard area, a small area along the Tuolumne River identified in Figure 3.9-3: Flood Zones. However, the City of Ceres and Stanislaus County both require a special use permit for any development proposed in areas of special flood hazards, as defined as the 100-year flood hazard area (Ceres Municipal Code Chapter 18.100 and Stanislaus County Code Chapter 16.50). The ordinances also restrict or prohibit land uses considered unsafe in a floodplain and require that all new construction is carried out so that adequate drainage paths around structures on slopes guide flood waters around and away from proposed structures, and that proposed grading and drainage improvements are analyzed to ensure that drainage is not diverted from its natural drainage basin to another basin that was not designed to take that additional flow. Furthermore, the proposed General Plan policies listed under Impact 3.9-6 would require evaluation of potential flood hazards prior to site plan approval, require the City to periodically review FEMA maps of areas subject to flooding, and prevent development along the Tuolumne River. In addition, Policy 5.H.4 would prevent critical public facilities from locating within the 100-year floodplain. Therefore, compliance with regulations regarding building within flood hazard areas, as well as the proposed General Plan policies, ensure that impacts would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies listed under Impact 3.9-6 above, as well as the following policy.

Health and Safety Element

5.H.4 **Critical Facilities.** Avoid siting critical facilities within the floodplain. If a critical facility must be located in a floodplain, ensure that it is sited, designed, maintained, and protected such that it can continue to function and provide services in case of a flood event. Critical facilities include, but are not limited to, water and wastewater facilities, energy stations, hospitals, and public safety facilities.

Mitigation Measures

None required.

Impact 3.9-8 Development under the Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. (*Less than Significant*)

As described under Impacts 3.9-6 and 3.9-7 above, implementation of the Proposed Project is not anticipated to result in any significant impacts in terms of placing structures within a 100-year flood hazard area. As shown in Figure 3.9-4: Dam Inundation Areas, the Don Pedro, New Exchequer, San Luis, and New Melones dam inundation areas all overlap some portion of the Planning Area. The New Exchequer and New Melones dam inundation areas only overlap portions of the Tuolumne River, where proposed General Plan policy 4.C.4 would prevent

development. The San Luis Dam inundation area overlaps land in the southwestern portion of the Planning Area that would be designated by the Proposed Project for agriculture, while the Don Pedro Dam inundation area overlaps portions of the Planning Area near the Tuolumne River that would be designated for commercial, residential, industrial, and agricultural land uses, including Low Density Residential and Very Low Density Residential.

Dam failure is considered a low-probability event, caused most often by age, poor design, or structural damage resulting from earthquake or flood. With continued evaluation of dam stability and continued compliance with State regulations, impacts associated with flooding due to dam failure are not anticipated. Additionally, compliance with City regulations pertaining to development within flood hazard areas would reduce potential impacts related to development. The proposed General Plan policies listed below would plan for flooding hazards, require flood hazard mitigation, and prevent critical structures from being sited in floodplains. Therefore, impacts to the risk of loss, injury, or death due to flooding, including as a result of dam failure, would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies listed under Impact 3.9-6 above and policy 5.H.4, as listed under Impact 3.9-7 above, as well as the following policies.

Health and Safety Element

5.F.1 **Planning for Hazards.** Incorporate updated information about future climate change hazards, particularly those related to extreme weather such as drought, storms, heat waves, and flooding, into the City's hazard mitigation and emergency planning processes.

Goal 5.H Protect lives and property from hazards associated with development in floodplains and manage floodplains for their natural resource values.

5.H.2 **Flood Insurance.** Continue to participate in the National Flood Insurance Program and the Community Rating System to ensure that the City is incentivized to reduce the risk of damage from flooding and improve flood preparedness.

5.H.5 **Flood-Proofing.** Require flood-proofing of structures in areas subject to flooding.

5.H.7 **Inter-Agency Cooperation.** Continue to work closely with the Federal Emergency Management Agency, U.S. Army Corps of Engineers, and Reclamation Board, and Stanislaus County in defining and identifying solutions for existing and potential flood problem areas.

Mitigation Measures

None required.

Impact 3.9-9 Development under the Proposed Project would not result in inundation by seiche, tsunami, or mudflow. (*Less than Significant*)

The Planning Area is located sufficiently inland to be out of what would be considered a potential hazard area for seiches and tsunamis. Furthermore, there are no enclosed bodies of water or reservoirs of significant size in the Planning Area where a seiche could occur.

Mudflow, also known as a landslide or mudslide, is a flow of dirt and debris that occurs after intense rainfall or earthquakes. The speed of the mudflow is dependent on the amount of precipitation, steepness of slope, and vibration of the ground. As the Planning Area is relatively flat, it has almost no potential for landslides, with the exception of steep banks along the Tuolumne River. Potential impacts of the proposed General Plan related to mudflow are reduced by California Building Code design provisions, geotechnical investigation requirements, modern construction design, and slope stabilization techniques, as discussed under Impacts 3.6-1 and 3.6-3 in Section 3.6: Geology, Soils, and Seismicity.

Compliance with existing regulations pertaining to flooding and geologic hazards, along with proposed General Plan policy 4.C.4, which prohibits development on the Tuolumne River's slopes, would ensure the impacts associated with mudflow are less than significant.

Proposed General Plan Policies that Reduce the Impact

Policy 4.C.4, as listed under Impact 3.9-6 above.

Mitigation Measures

None required.

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3.10 Land Use, Population, and Housing

This section assesses potential environmental impacts from future development under the Proposed Plan, as related to land use, population, and housing, including impacts associated with existing land use plans and regulations, population growth, and displacement. This section describes existing land uses, demographics, and housing in the Planning Area, as well as relevant federal, State, and local regulations and programs.

Responses to the NOP regarding topics addressed in this section included the following:

- The Stanislaus Local Agency Formation Commission (LAFCO) noted that the Proposed Project does not include the removal or addition of territory from or to the City of Ceres Sphere of Influence (SOI), but requested that any potential or future SOI modifications be assessed in the EIR. This EIR examines potential environmental impacts considering all proposed land use designations in the Proposed Project, including those outside of the City's SOI. Impacts related to proposed land use designations are discussed throughout Chapter 3 of this EIR.
- A member of the public commented on the importance of responsible growth in the Planning Area. This section of the EIR addresses potential environmental impacts related to population growth from implementation of the Proposed Project.

Environmental Setting

PHYSICAL SETTING

Existing Land Use

Ceres has a relatively compact urban form, with large areas of agricultural land surrounding the city to the east, south, and north. Due to a gridded pattern of main thoroughfares, the city is generally composed of large square areas of development a square mile or 640 acres in size that are lined by transportation arterials running north/south or east/west, such as Hatch Road, Mitchell Road, Central Avenue, Service Road, Morgan Road and Whitmore Avenue.

As of 2015, the most common uses of land in the Planning Area are residential, including agricultural/rural residential uses. Approximately 39 percent of land within the city and 46 percent of land in the Planning Area as a whole is used residentially. Residential uses are mixed with other uses Downtown and in some neighborhoods along State Route (SR 99), while there are larger areas of exclusively single-family residential uses in newer neighborhoods farther from Downtown in the north, northeast, and southwest areas of the city. Duplex, townhome, and

multi-family residential uses are located Downtown, along the east and west sides of SR 99, and along the southern part of Mitchell Road. Public facilities and parks can be found in many of the residential neighborhoods across the city.

Agricultural uses make up the second-most common category of land uses in the Planning Area. Approximately 22 percent of land in the Planning Area is used for agriculture, with the majority of this land located outside of city limits near the eastern, western, and southern boundaries of the Planning Area. Only 6 percent of land within the incorporated city is used for agriculture.

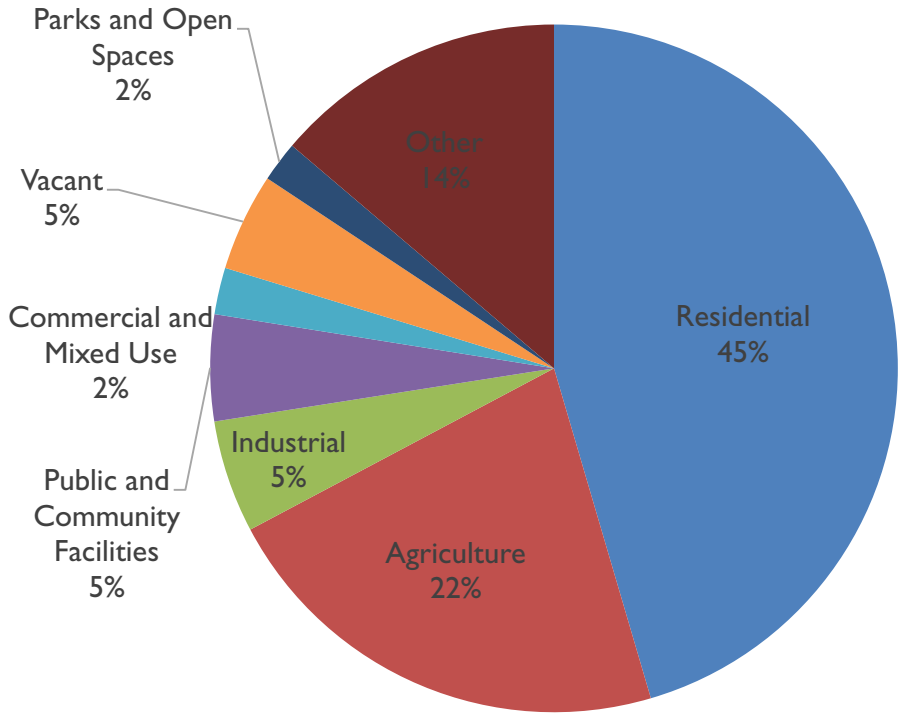
Industrial uses make up nearly 9 percent of land in the city. Most of the city's industrial uses are clustered in a triangle between Morgan Road, Whitmore Avenue, and SR 99, and along Service Road between Crows Landing Road in the west and Morgan Road in the east.

The city's commercial and mixed uses, accounting for approximately 5 percent of land in the city, are found throughout the city with higher concentrations Downtown, along Mitchell Road, and just east of SR 99 on Hatch Road.

About 7 percent of land within the city is vacant. In addition, about 18 percent of land within the city limits is utilized for streets and other transportation rights-of-way.

Table 3.10-1: Existing Land Uses in Planning Area (2015) shows the types of existing land use in the Planning Area, including within the City of Ceres and unincorporated areas, and Figure 3.10-1: Distribution of Existing Land Uses in Planning Area illustrates the proportion of each type of existing land use in the Planning Area, excluding rights-of-way. Figure 3.10-2: Existing Land Use in Planning Area shows the overall pattern of existing land use in the Planning Area.

Figure 3.10-1: Distribution of Existing Land Uses in Planning Area



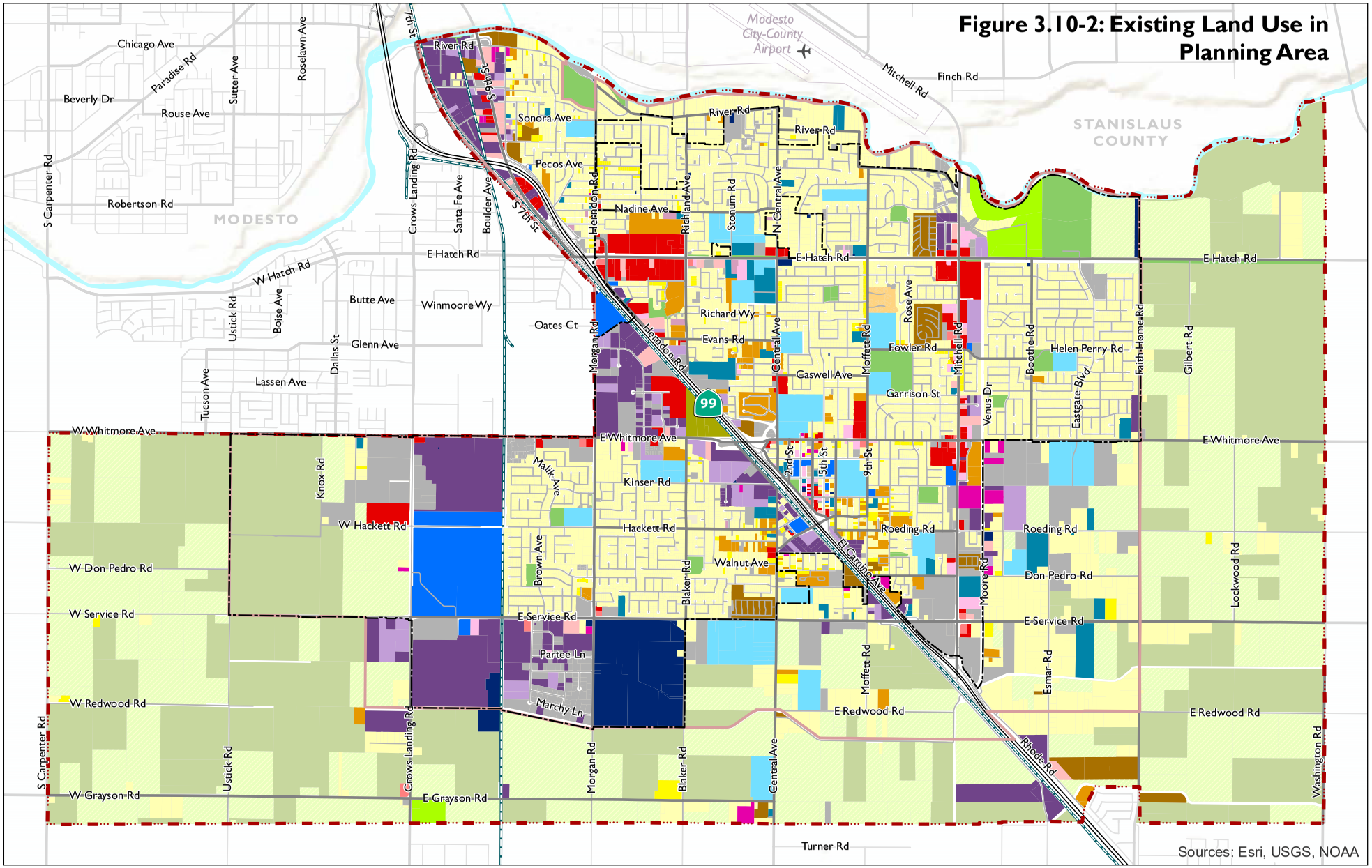
Source: City of Ceres GIS Data; Stanislaus County Assessor's Office, 2015; Dyett & Bhatia, 2015.

Table 3.10-1: Existing Land Uses in Planning Area (2015)

	City of Ceres		*Unincorporated County*		*Total Planning Area*	
Existing Use of Land Category	*Acres*	*Percentage*	*Acres*	*Percentage*	*Acres*	*Percentage*
Residential	*2,340*	*39.1%*	*4,190*	*50.1%*	*6,530*	*45.5%*
Ag residential/Rural Residential	210	3.5%	2,933	35.0%	3,143	21.9%
Single Family Residential	1842	30.7%	1,081	12.9%	2,923	20.4%
Duplex/Two Family Residential	39	0.7%	44	0.5%	83	0.6%
Townhomes	14	0.2%	0	0.0%	14	0.1%
Multi-Family Residential	142	2.4%	41	0.5%	182	1.3%
Mobile Homes	79	1.3%	67	0.8%	147	1.0%
Mixed Use Residential	14	0.2%	24	0.3%	38	0.3%
Agriculture	*354*	*5.9%*	*2,772*	*33.1%*	*3,126*	*21.8%*
Agriculture	354	5.9%	2772	33.1%	3,126	21.8%
Industrial	*533*	*8.9%*	*227*	*2.7%*	*760*	*5.3%*
Light Industrial	99	1.7%	55	0.7%	154	1.1%
General Industrial	434	7.2%	172	2.1%	606	4.2%
Public and Community Facilities	*495*	*8.3%*	*228*	*2.7%*	*723*	*5.0%*
Religious Facilities/Institutional	87	1.4%	56	0.7%	143	1.0%
Educational Facility	203	3.4%	155	1.9%	358	2.5%
Hospital/Nursing Facility	6	0.1%	2	0.0%	7	0.1%
Public Facility	199	3.3%	16	0.2%	214	1.5%
Commercial and Mixed Use	*278*	*4.6%*	*38*	*0.5%*	*316*	*2.2%*
Auto Commercial	35	0.6%	24	0.3%	59	0.4%
Service Station	11	0.2%	2	0.0%	14	0.1%
General/Retail Commercial	192	3.2%	12	0.1%	204	1.4%
Office	39	0.7%	0	0.0%	39	0.3%
Vacant	*441*	*7.4%*	*217*	*2.6%*	*658*	*4.6%*
Vacant	441	7.4%	217	2.6%	658	4.6%
Parks and Open Spaces	*222*	*3.7%*	*49*	*0.6%*	*271*	*1.9%*
Parks/Open Space/Greenways	156	2.6%	34	0.4%	190	1.3%
Golf Course	65	1.1%	15	0.2%	81	0.6%
Other	*1,328*	*22.2%*	*646*	*7.7%*	*1,974*	*13.8%*
Cemetery	22	0.4%	0	0.0%	22	0.2%
Public Parking	1	0.0%	0	0.0%	1	0.0%
Utilities	205	3.4%	13	0.2%	218	1.5%
Transportation/ROW/ Other	1,100	18.4%	633	7.6%	1,734	12.1%
Total	**5,989**	**100.0%**	**8,368**	**100.0%**	**14,357**	**100.0%**

Source: City of Ceres, 2015; Stanislaus County Assessor's Office, 2015; Dyett & Bhatia, 2015.

Figure 3.10-2: Existing Land Use in Planning Area



Sources: Esri, USGS, NOAA

- Agriculture
- Ag Residential/Rural Residential
- Single Family Residential
- Duplex/Two Family Residential
- Townhomes
- Multi Family Residential
- Mobile Homes
- Mixed Use Residential
- Auto Commercial
- Service Station
- General/Retail Commercial
- Office
- Light Industrial
- General Industrial
- Public Facility
- Religious Facilities/Institutional
- Educational Facility
- Hospital/Nursing Facility
- Parks/Open Space/Greenways
- Golf Course
- Cemetery
- Public Parking
- Utilities
- Vacant
- City of Ceres
- Sphere of Influence
- Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Modesto City-County Airport/Harry Sham Field

The Modesto City-County Airport is located in the City of Modesto, just north of the Planning Area across the Tuolumne River. It is owned by the City of Modesto and is primarily used for general aviation. The airport includes two parallel runways: one is approximately 6,000 feet long and 150 feet wide which is designated as the air carrier runway, and the other is approximately 3,500 feet long and 100 wide (Stanislaus County ALUC, 2016). The Airport Land Use Compatibility Plan is described further in the Regulatory Settings below.

Population and Housing

Past and Current Trends

The population of Ceres has increased by about 1,000 percent between 1960 and 2015, increasing from approximately 4,400 residents to nearly 46,900 in 2015. In comparison, the population of Stanislaus County increased by about 250 percent, growing from approximately 158,000 in 1960 to 530,000 in 2015 (CA Department of Finance, 1947-1969).

Table 3.10-2: Population and Housing Trends: City of Ceres & Stanislaus County, 2005-2015, shows the population and housing trends in the City of Ceres and Stanislaus County between 2005 and 2015. Between 2005 and 2015, Ceres experienced an average annual growth rate of 1.8 percent, increasing from approximately 39,600 to 46,900 residents. The rate of population growth has been slower in more recent years: between 2010 and 2015, Ceres experienced an average annual growth rate of 0.6 percent, increasing from approximately 45,400 to 46,900 residents. In comparison, between 2005 and 2015, Stanislaus County experienced an average annual growth rate of 0.8 percent, increasing from approximately 494,000 to 535,000 residents.

The number of housing units in Ceres between 2005 and 2015 has increased at an average annual growth rate of 1.5 percent, increasing from approximately 12,000 to 13,800 housing units. Similar to the rate of population growth, the average growth rate of housing units between 2010 and 2015 slowed to 0.1 percent. In comparison, between 2005 and 2015, Stanislaus County experienced an average annual growth rate of 0.8 percent, increasing from approximately 168,000 to 180,000 housing units. Overall, the population of Ceres is growing at a faster rate than the number of new housing units, meaning that the average household size is increasing.

According to California Department of Finance (DOF) estimates, the Ceres population in 2015 was 46,888 (DOF, 2017). In 2015, there were about 11,200 single-family residential and 2,600 multi-family residential housing units in the city of Ceres, for a total of about 13,800 housing units. In the Planning Area outside of city limits, there were about 2,000 single-family residential and 400 multi-family residential units, according to 2015 data from the Stanislaus County Assessor's Office. Thus, in the whole Planning Area, there were about 13,100 single-family residential units and about 3,000 multi-family residential units, for a grand total of about 16,200 housing units in 2015.

Table 3.10-2: Population and Housing Trends: City of Ceres & Stanislaus County, 2005-2015

	2005	*2010*	*2015*
City of Ceres			
Population	39,606	45,417	46,888
Housing Units	11,989	13,673	13,764
Single Family (Attached and Detached)	9,582	11,067	11,152
Multifamily	2,407	2,606	2,612
Vacancy Rate	5.3%	7.2%	7.3%
Persons per Household	3.47	3.55	3.65
Average Annual Population Growth Rate (2005-2015)	N/A	N/A	1.8%
Average Annual Housing Growth Rate (2005-2015)	N/A	N/A	1.5%
Stanislaus County			
Population	494,144	514,453	535,125
Housing Units	167,776	179,503	180,418
Single Family (Attached and Detached)	131,742	141,436	142,092
Multifamily	36,034	38,067	38,326
Vacancy Rate	5.89%	8.0%	7.3%
Persons per Household	3.09	3.08	3.16
Average Annual Population Growth Rate (2005-2015)	N/A	N/A	0.8%
Average Annual Housing Growth Rate (2005-2015)	N/A	N/A	0.8%

Source: DOF, 2012; DOF, 2017.

Approximately 81 percent of the housing units in Ceres were single-family in 2015, including attached and detached units. The vacancy rate in Ceres was approximately 7.3 percent in 2015, an increase from 5.3 percent in 2005. There were approximately 3.7 persons per household, compared to 3.2 on average in Stanislaus County.

Almost half of all ownership households with a mortgage in Ceres pay more than 30 percent of the household income towards housing costs, and more than half of renter households pay more than 30 percent (ACS, 2015). Table 3.10-3: Housing Cost Overpayment (2015), shows the number and percentage of households in Ceres with a housing cost burden, as defined as those households paying more than 30 percent of income on housing.

Table 3.10-3: Housing Cost Overpayment (2015)[1]

Housing Unit[2]	*Total*
Housing Units with a Mortgage	*5,657*
Overpaying Owner Household	2,604
Percentage of Overpaying Owners	46%
Housing Units without a Mortgage	*1,933*
Overpaying Owner Household	281
Percentage of Overpaying Owners	15%
Rented Units	*5,089*
Overpaying Renter Households	3,049
Percentage of Overpaying Renter Households	60%

Notes:
1. Households paying in excess of 30% of income towards housing cost.
2. Numbers may not sum due to units that were not computed in the American Community Survey.

Source: 2011-2015, American Community Survey 5-Year Estimates.

Projections

As shown in Table 3.10-4: State, Regional, and Local Projections of Population and Housing Units (2035), the projected population in Ceres in 2035 ranges between 60,543 and 67,671, depending on the data source. The projected average annual population growth rate ranges between 1.38 percent and 1.83 percent. In comparison, the projected average annual growth rate in the Stanislaus County population is similar, ranging between 1.23 percent and 1.83 percent. According to the Stanislaus Council of Governments (StanCOG), the number of housing units will increase by 4,237 units from 14,256 to 18,493 by 2035, accounting for an average annual growth rate of 1.7 percent.

Table 3.10-4: State, Regional, and Local Projections of Population and Housing Units (2035)

		2015		*2035*	
	Source	*Ceres*	*County*	*Ceres*	*County*
Population	StanCOG	48,029	540,794	61,290	674,019
	Caltrans	49,520[1]	557,587	67,671[1]	761,958
	DOF	46,888	538,689	60,543[1]	681,703
Housing Units	StanCOG	14,256	184,013	18,493	232,246

Notes:
1. Estimated based on Ceres accounting for 9 percent of the County population.

Sources: DOF, 2017; Caltrans Stanislaus County Economic Forecast, 2013; University of the Pacific Eberhardt School of Business Center for Business & Policy Research Stanislaus County Forecast Summary, 2016; Dyett & Bhatia, 2017.

As shown in Table 3.10-5: Job Projections (2035), the projected number of jobs in Ceres in 2035 ranges between 11,369 and 15,687, depending on the data source. The projected average annual job growth rate between 2015 and 2035 ranges between 1.1 and 2.0 percent.

Table 3.10-5: Jobs Projections (2035)

Source	*2015*	*2035*
California Employment Development Department	8,666	12,174
Caltrans	9,372	11,369
Woods & Poole	12,012	15,687
StanCOG	11,303	14,157

Sources: Economic & Planning Systems, Inc, 2016, which includes data from the following sources: CA Employment Development Department 2012-2022 Industry Employment Projections, 2015; Caltrans Forecast Data, 2015; StanCOG 2040 Demographic Forecast, 2016; Woods & Poole Employment Projections, 2016.

REGULATORY SETTING

Federal Regulations

There are no relevant federal laws, policies, plans, or programs that apply to the Proposed Project in relation to this issue area.

State Regulations

California Relocation Law, Public Resources Code Section 7260 et seq.

The California Relocation Law requires the fair and equitable treatment of persons displaced as a direct result of programs or projects undertaken by a public entity. The law requires agencies to prepare a relocation plan, provide relocation payments, and identify substitute housing opportunities for any resident that is to be displaced by a public project.

Government Code Sections 65919 to 65919.11

Government Code Sections 65919 to 65919.11 summarize procedures related to interagency referrals for different types of lead agency actions, including general plan updates. Among other referrals, this part of the Government Code provides a procedure and protocols for requesting counties keep cities informed regarding land use actions within the unincorporated portions of spheres of influences and planning areas.

State Planning Law

State law [California Government Code Section 65300 et seq.] requires each California municipality to prepare a general plan. A general plan is defined as "a comprehensive, long-term general plan for the physical development of the county or city, and any land outside its boundaries which in the planning agency's judgment bears relation to its planning." State requirements call for general plans that "comprise an integrated, internally consistent and compatible statement of policies for the adopting agency." While allowing considerable flexibility, State planning laws do establish some requirements for the issues that general plans must address. The California Government Code establishes both the required content of general plans and rules

for their adoption and subsequent amendment. Together, State law and judicial decisions establish three overall guidelines for general plans:

- **The General Plan Must Be Comprehensive.** This requirement has two aspects. First, the general plan must be geographically comprehensive. That is, it must apply throughout the entire incorporated area and it should include other areas that the city determines are relevant to its planning. Second, the general plan must address the full range of issues that affect the city's physical development.
- **The General Plan Must Be Internally Consistent.** This requirement means that the general plan must fully integrate its separate parts and relate them to each other without conflict. "Horizontal" consistency applies both to figures and diagrams as well as general plan text. It applies to data and analysis as well as policies. All adopted portions of the general plan, whether required by State law or not, have equal legal weight. None may supersede another, so the general plan must resolve conflicts among the provisions of each element.
- **The General Plan Must Be Long-Range.** Because anticipated development will affect the city and the people who live or work there for years to come, State law requires every general plan to take a long-term perspective.

Department of Housing and Community Development

The State Department of Housing and Community Development (HCD) is responsible for determining the regional housing need for all jurisdictions in California and ensuring the availability of affordable housing for all income groups.

Stanislaus Local Agency Formation Commission (LAFCO)

Under State law (Government Code Section 56000 et seq., known as the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000), each county must have a LAFCO. The LAFCO is responsible for creating orderly local government boundaries, with the goals of preserving open space lands and discouraging urban sprawl. The Stanislaus LAFCO is the commission responsible for the Planning Area. While the Stanislaus LAFCO has no direct land use power, it is empowered to review, approve, or deny boundary changes, city annexations, consolidations, special district formations, incorporations for cities and special districts, and to establish SOIs. The SOI for a jurisdiction is a plan for a future boundary and service area. State Government Code Sections 56425 and 56430 require a Municipal Service Review (MSR) to be prepared when the LAFCO updates a SOI. The MSR must consider growth and population projections for the affected area; present and planned presence of public facilities and adequacy of public infrastructure in place to serve the new growth; financial ability of relevant agencies to provide services; accountability of community service needs, including governmental structure and operational efficiencies; and any other matter related to effective and efficient service delivery, as required by LAFCO policy. The most recent MSR for Ceres was prepared in 2012.

General Plan Consistency with Airport Land Use Compatibility Plans

Public Utilities Code Section 21675 requires each airport land use commission to formulate an airport land use compatibility plan. California Government Code Section 65302.3 further requires that general plans be consistent with airport land use compatibility plans. In addition, general plans and applicable specific plans must be amended to reflect amendments to the airport land use compatibility plan. The Stanislaus County Airport Land Use Compatibility Plan is discussed further below.

Sustainable Communities and Climate Protection Act of 2008 (Chapter 728, Statutes of 2008)

The Sustainable Communities and Climate Protection Act of 2008, otherwise known as Senate Bill (SB) 375, requires the integration of land use, housing, and transportation planning to achieve regional greenhouse gas (GHG) emission reductions, adopted by the California Air Resources Board. SB 375 requires Metropolitan Planning Organizations (MPOs) to develop a Sustainable Communities Strategy (SCS)—a new element of the regional transportation plan (RTP)—to plan for achieving these GHG reduction targets. The SCS must demonstrate the attainment of the regional GHG emissions reduction targets while accommodating the full projected population of the region.

Local Regulations

Stanislaus County Council of Governments (StanCOG)

StanCOG serves both as the council of governments and the MPO for Stanislaus County; thus, it is responsible for both the regional housing strategy and the RTP/SCS.

Government Code Section 65584 requires designated regional agencies or councils of government to prepare regional housing needs plans. StanCOG is the regional agency that develops the regional housing strategy for Stanislaus County and its incorporated cities. The Regional Housing Needs Allocation (RHNA) determines potential locations for future housing stock based on projected population growth, employment trends, and development suitability. The RHNA also designates the number of housing units that that should be accommodated by local governments at different affordability levels to ensure that all jurisdictions provide a fair share toward the region's affordable housing need.

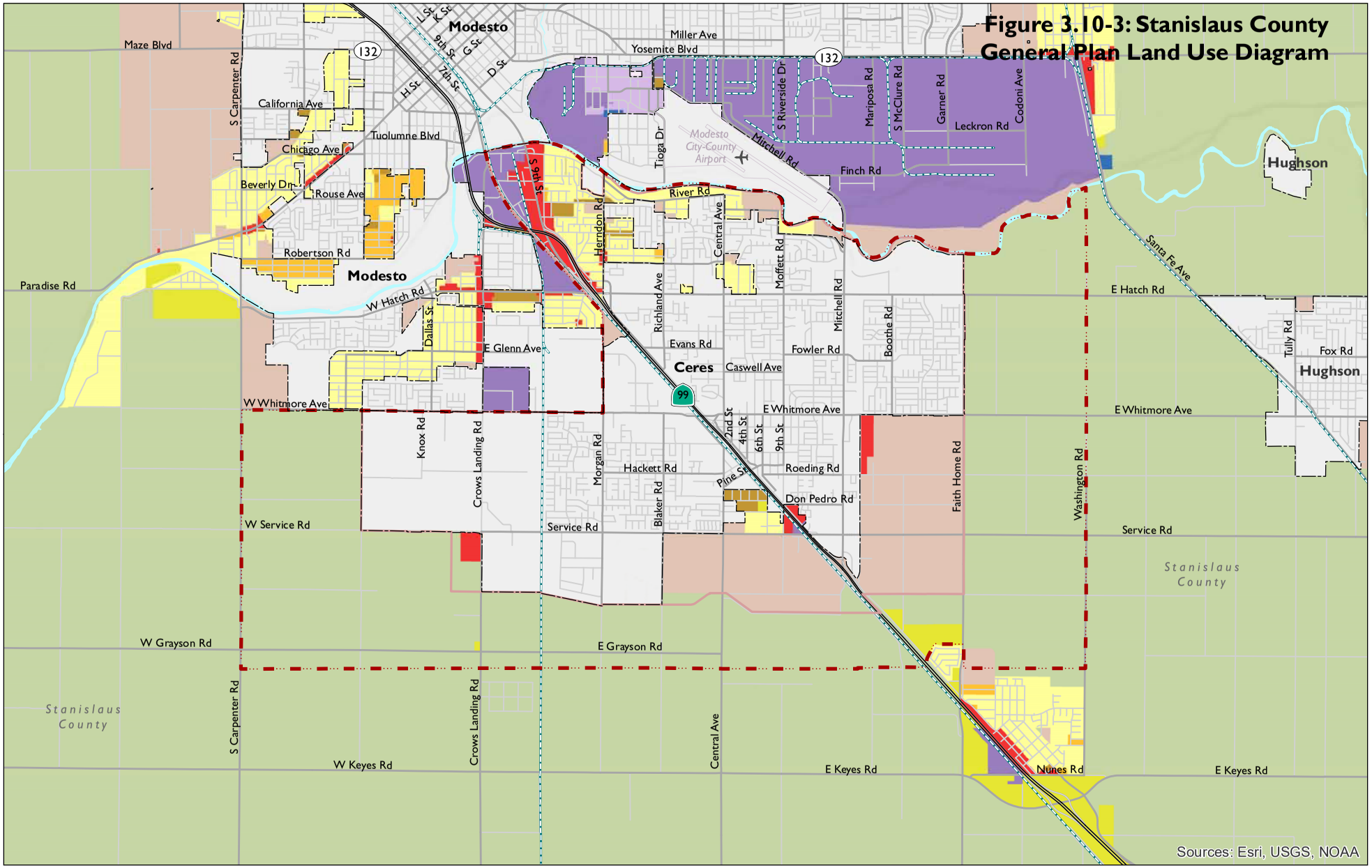
As the MPO for the area, StanCOG is responsible for developing the RTP/SCS, the long-term plan for the region's transportation system. The RTP/SCS includes a list of specific projects and is a prerequisite for receiving State and federal transportation funding. Per SB 375, the RTP/SCS must demonstrate projected attainment of regional GHG reduction targets. StanCOG's first RTP/SCS prepared pursuant to SB 375 was adopted in 2014. It is based on a more compact urban form with infill development and a greater mixture of housing types, as well as transportation investments that are less focused on roadway expansion and more focused on transit services and complete streets that provide safe walking and biking options.

Stanislaus County General Plan

Adopted in 2015, the Stanislaus County General Plan guides physical development in the unincorporated areas of the county. The goals of the County General Plan Land Use Element are to:

1. Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic, and social concerns of the residents of Stanislaus County.
2. Ensure compatibility between land uses.
3. Foster stable economic growth through appropriate land use policies.
4. Ensure that an effective level of public service is provided in unincorporated areas.
5. Complement the general plans of cities within the County.
6. Promote and protect healthy living environments.
7. Provide for direct citizen participation in land use decisions involving the expansion of residential uses into agricultural and open space areas in order to encourage compact urban form and to preserve agricultural land.

Figure 3.10-3: Stanislaus County General Plan Land Use Diagram shows the Stanislaus County land use designations within two miles of the Planning Area boundaries. Within the Planning Area, the County land use map includes Low Density Residential, Medium Density Residential, and Medium/High Density Residential adjacent to Ceres city limits to the northwest and southeast. In addition, the County designates land for Commercial along 9th Street and in small areas adjacent to city limits in the southeast and southwest. Most of the land within the Ceres SOI to the southeast of the Ceres city limits is designated Urban Transition. The Urban Transition designation is used to ensure that land remains in agricultural usage until urban development consistent with a city's general plan designation is approved. Generally, urban development will only occur upon annexation to a city, but such development may be appropriate prior to annexation provided the development is not inconsistent with the land use designation of the general plan of the affected city. All of the land outside of the SOI is designated Agriculture, except for a small area in the southeast corner of the Planning Area, which is designated Planned Development.



General Plan Land Use

- LDR, Residential - Low Density
- MDR, Residential - Medium Density
- MHD, Residential - Medium/High Density
- COM, Commercial
- AG, Agriculture
- IND, Industrial
- IT, Industrial Transition
- PI, Planned Industrial
- PD, Planned Development
- UT, Urban Transition
- City
- Highway
- Major Roads
- Local Roads
- Railroads
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.125 0.25 0.5 MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Stanislaus County Airport Land Use Compatibility Plan

Public Utilities Code Section 21675 requires each airport land use commission (ALUC) to formulate an airport land use compatibility plan (ALUCP). ALUCPs are intended to promote compatibility between airports and the land uses that surround them by addressing noise, overflight, safety, and airspace protection concerns. Each ALUCP prevents exposure to excessive noise and safety hazard within an airport influence area. California Government Code Section 65302.3 further requires that general plans be consistent with an adopted ALUCP. The Stanislaus County ALUCP was adopted in October 2016 to promote compatibility between three airports in Stanislaus County: the Modesto City-County Airport, the Oakdale Municipal Airport, and the former Crows Landing Air Facility, and the surrounding land uses around each.

The Stanislaus County ALUCP provides compatibility criteria for any development taking place within the Modesto City-County Airport influence area (AIA). These criteria specify allowable densities and intensities within the airport's various safety zones, prohibited or otherwise limited land uses, means for evaluating noise compatibility, and measures for airspace protection. A portion of the city and Planning Area are covered by the Modesto City-County Airport AIA and safety zones, as shown in Figure 3.7-2: Airport Influence Area and Safety Zones. For further discussion related to airport hazards, see Section 3.7: Hazards and Hazardous Materials.

City of Ceres General Plan 2015 Housing Element

Article 10.6 of the California Government Code outlines the State's Housing Element requirements. A housing element must analyze existing and projected housing needs, examine special housing needs within the population, evaluate the effectiveness of current goals and policies, identify governmental and other constraints, determine compliance with other housing laws, and identify opportunities to incorporate energy conservation into the housing stock. The element must also establish goals, policies and programs to maintain, enhance, and develop housing.

The City of Ceres's RHNA (as explained above under Stanislaus County Council of Governments) for the planning period (2014 through 2023) projected a need for the construction of an additional 2,571 housing units, allocated as follows: 311 extremely low-income units, 311 very low-income units, 399 low-income units, 446 moderate-income units, and 1,104 above moderate-income units. The City of Ceres issued 52 building permits for housing in 2014. The quantified objectives for the construction, rehabilitation, or conservation of units from the 2014-2023 Housing Element are shown in Table 3.10-6: Projected Housing Units to Meet the City of Ceres Regional Housing Needs Allocation (2014-2023).

Table 3.10-6: Projected Housing Units to Meet the City of Ceres Regional Housing Needs Allocation (2014-2023)

Objective Category/Program	*Extremely Low*	*Very Low*	*Low Moderate*	*Moderate*	*Above Moderate*	*Total*
Fair Share Allocation						
HCD[1] Housing Needs Determination	311	311	399	446	1,104	2,571
Permit Development Activity (as of March 2015)	0	0	0	52	0	52
Remaining Need (2014-2023)	**311**	**311**	**399**	**394**	**1,104**	**2,519**
Quantified Objectives January 2014-2023						
New Construction	306	306	394	394	1,104	2,504
Conservation/Preservation of At-Risk Units	7	22	7	N/A	N/A	36
Rehabilitation	5	5	5	N/A	N/A	15
Total	**318**	**333**	**406**	**394**	**1,104**	**2,555**

Notes:
1. Housing and Community Development

Source: City of Ceres 2016 Housing Element (2014-2023).

City of Ceres Specific Plans

Ceres Downtown Specific Plan

Adopted in 2011, the Ceres Downtown Specific Plan covers 121 acres and builds on existing investments made Downtown, including the development of a Community Center in 2009, a fire station in 2003, and the Turlock Irrigation District offices in 2009. In addition, the Downtown Plan is inspired by the existing retail businesses, historical resources, residential neighborhoods, and parks in the area. The plan outlines the following vision for Downtown:

> "Downtown will once again become the vibrant heart of the City of Ceres, as this area was during Ceres' beginning…Downtown will be the go-to location for local residents wishing to take in a movie, entertain visitors, host an event or socialize with their neighbors."

Policies and strategies to achieve this vision include attracting new development Downtown; enhancing the unique character of each of the north/south streets; improving the streetscapes and multi-modal transportation infrastructure and providing connections between new and existing green spaces. The City's Redevelopment Agency was expected to provide public funding to implement the Downtown Specific Plan; however, all redevelopment agencies were dissolved by State legislation in 2012.[1] Thus, as of August 2017, the implementation of the Specific Plan has

[1] The California State Legislature approved the dissolution of Redevelopment Agencies as part of the 2011 Budget Act. Redevelopment Agencies were officially dissolved as of February 1, 2012.

been limited, although funds have been allocated for roadway improvements to a portion of 4th Street with an anticipated completion date by the end 2017.

Eastgate Planned Community Master Plan

The Master Plan for the Eastgate Community was adopted in 2000 and revised in 2004 based on the City's acquisition of adjacent parkland. The plan included annexation of 377 acres in the Ceres's Phase 1 Urban Growth Area, and the area is almost completely developed. The Eastgate Master Plan intended to create a "unique and innovative community design" around an existing elementary school. As of December 2017, the Eastgate Master Plan is almost completely built out.

Mitchell Road Corridor Specific Plan

The Mitchell Road Corridor Specific Plan covers approximately 450 acres along two and a half miles of Mitchell Road. The plan is intended to guide development to produce an urban corridor that integrates industrial, commercial, and residential uses. The plan emphasizes large-scale commercial development in the southern portion of the specific plan area near SR 99; a mix of local-serving uses in the central portion; and a mix of recreational, residential, and other uses in the area north of Hatch Road near the Tuolumne River. Accompanying the plan are design guidelines that cover site planning, architecture, circulation, open space, and other aspects of physical planning and design.

West Landing Specific Plan

The West Landing Specific Plan encompasses about 960 acres of land. Although the land was annexed in 2012, most of the West Landing Specific Plan area has not yet been developed, with the exception of the Stanislaus County-related buildings, including the Public Safety Center, County Sheriff/Detention Center (Jail), Community Services Agency, Animal Shelter, and Agricultural Center. The vision for West Landing includes two elementary schools, a mixed-use and compact development pattern, and a diversity of housing choices. The West Landing Specific Plan would permit the development of up to about 1,992 single family homes; 1,667 multi-family homes; 171 acres of new commercial, office, and business park uses; 47 acres of parks; and 16 acres for two elementary schools.

Whitmore Ranch Specific Plan (WRSP)

Development of the Draft Whitmore Ranch Specific Plan (WRSP) was initiated in 2016. The plan covers approximately 100 acres located south of Whitmore Avenue and east of Moore Road. Sixty acres of the Draft WRSP is planned for future residential development, and approximately 40 acres includes two developed school sites: La Rosa Elementary School and Cesar Chavez Junior High School. As of October 2017, the Draft WRSP is undergoing environmental review and has not yet been adopted or circulated for public review and comment.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Physically divide an established community;**

Criterion 2: **Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;**

Criterion 3: **Conflict with any applicable habitat conservation plan or natural community conservation plan.**

Criterion 4: **Induce substantial 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);**

Criterion 5: **Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere;**

METHODOLOGY AND ASSUMPTIONS

This EIR analysis considers current and proposed General Plan policies and goals; existing and proposed land use, housing, and economic conditions within Ceres; and applicable regulations and guidelines.

The impact analysis considered the buildout of the Proposed Project, as explained in Chapter 2 Project Description. The proposed General Plan has a year 2035 horizon; however, the proposed General Plan does not specify or anticipate when complete buildout will occur, as long-range demographic and economic trends cannot be precisely predicted. The designation within the proposed General Plan of a site for a certain use does not necessarily mean that the site will be developed or redeveloped with that use during the planning period, as most development will depend on property owner initiative.

SUMMARY OF IMPACTS

Implementation of the Proposed Project would not physically divide any established community. Although SR 99, the Union Pacific Railroad, and expressways currently divide communities within the city, implementation of the Proposed Project would not introduce new divisions. Rather, policies in the proposed General Plan would help improve connectivity within and between existing and proposed neighborhoods.

If adopted, the proposed General Plan would be the guiding document for land use in Ceres. Adopted plans, regulations, and other implementing tools would be amended to conform to the proposed General Plan and thus address any potential inconsistencies. PG&E has prepared a multi-species Habitat Conservation Plan (HCP) that includes portions of the Planning Area. Policies in the proposed General Plan require the City to cooperate with PG&E in implementing the HCP.

The 20-year buildout of the Proposed Project would accommodate an increase in housing units and jobs. Although the proposed General Plan encourages infill and well-connected communities, and limits "leap frog" and unplanned development, the Proposed Project aims to increase development opportunities in the Planning Area. Therefore, the Proposed Project would have a significant impact related to inducing growth.

The proposed General Plan would not directly displace any housing units, businesses, or people. In addition, policies in the proposed General Plan ensure a range of housing to meet the various needs of Ceres residents.

IMPACTS

Impact 3.10-1 Implementation of the Proposed Project would not physically divide an established community. (*Less than Significant*)

SR 99 and the Union Pacific Railroad currently run from the northwest to the southeast of the Planning Area, bisecting the city and physically dividing the community. In addition, there are three expressways that run through the city. Expressways are limited access, moderate- to high-speed roadway facilities that typically have four to six lanes and generally only intersect with primary collectors, arterials, and expressways. Designated expressways in Ceres include:

- Hatch Road from Faith Home Road to Carpenter Road;
- Service Road from Faith Home Road to Carpenter Road; and
- Faith Home Road from Garner/Claus Road to SR 99.

Expressways are several lanes wide and designed to accommodate relatively fast travel speeds and large amounts of truck and automobile traffic. Although the expressways do not have the same impact as SR 99 and the railroad tracks in dividing the community, they can pose barriers to connectivity and separate different neighborhoods in the city.

The Proposed Project does not propose any new type of linear project likely to have the effect of physically dividing an established community or any project that would exacerbate the existing division. While the Proposed Project does include improvements to existing roadways and similar

infrastructure, these improvements would not introduce new physical divisions that would disrupt an established community. See Chapter 3.13: Transportation for further discussion of roadway improvements.

Rather, the Proposed Project includes land use policies to prevent "leapfrog development" and gated communities, and to encourage well-connected neighborhoods and new development that is integrated with existing communities. In addition, the Proposed Project includes transportation-related policies to improve pedestrian and bicycle connectivity throughout the city.

Therefore, the impact of dividing an established community from implementation of the Proposed Project is less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.3 **Compact Footprint.** Promote compact development patterns, mixed land uses, and higher-development intensities and limit "leap frog" development to conserve agricultural land, reduce vehicle trips, and improve air quality.

2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. *See Chapter 3: Transportation and Circulation Element for more information and related goals and policies*.

2.D.3 **Sensitivity to Context.** Encourage design in new development that enhances and blends with the established fabric of the natural, social, and built environment, while allowing for innovative and unique architectural styles and projects that meet the community's needs. *See in Section 2.4 Urban Design of this chapter for urban design guidelines*.

Goal 2.E Balance the function of streets as part of the circulation network with their role as public spaces, elements in the city's landscape, and potential commercial corridors.

2.F.6 **Integrated Neighborhoods.** Require new residential developments to be physically and socially integrated with the existing community.

2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation.

2.L.9 **Commercial and Office Design.** Ensure development in the Community Commercial and Office land use designations balances the goals of providing convenient services and retail options with adding attractive, quality design that contributes to the Ceres community. Encourage the following characteristics in development in the Community Commercial and Office land use designations:

- Access to adjacent commercial and office properties, where appropriate, to limit vehicle congestion on primary access roads and improve pedestrian accessibility;
- Convenient pedestrian connections from adjoining neighborhoods to improve pedestrian accessibility;
- Internal circulation aligned with existing public rights of way in adjacent neighborhoods to continue existing street grid and provide opportunities for improved accessibility, where appropriate;
- Parking located to the side or rear of buildings, except along expressways where parking can be located in the front of buildings to reduce impact of truck traffic on use of and access to buildings;
- Landscaping, site design, or screening to reduce impact of truck traffic on use of and access to buildings, where appropriate;
- A continuous, safe, and convenient walkway from the public right of way to building entrances;
- Building entrances oriented to the walkway;
- Outdoor parking areas divided into smaller units for more human-scaled landscapes through new internal streets or landscaping with shaded walkways, to reflect a more traditional street grid and to facilitate safe and convenient pedestrian movement;
- Shaded walkways and gathering spaces that help strengthen community character and identity and facilitate safe and pleasant pedestrian access between uses and the parking areas;
- Adaptive reuse of buildings and design of new buildings to allow for future reuse;
- Large buildings "broken up" by variations in building form and architectural design; and
- Articulation in the walls, including insets, canopies, wing walls, and trellises.

Transportation and Circulation Element

3.B.4 **Sidewalk Network.** Require sidewalks for all new developments along major corridors.

3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible.

3.C.3 **Sidewalks.** Require sidewalks for all new streets in residential developments.

3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services.

3.E.7 **Transit Coverage.** Ensure that new and existing transit routes strive to serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan.

3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.

Agricultural and Natural Resources Element

4.A.9 **Agricultural Connections.** Maintain connections between agricultural lands and supporting uses and avoid the isolation of agricultural uses among non-agricultural uses in order to support the long-term viability of agricultural operations.

Health and Safety Element

5.B.1 **Safe and Convenient Multi-Modal Options.** Encourage development patterns, urban design, and streetscapes that allow people to safely and conveniently reach destinations by walking, bicycling, or using transit. See Chapter: 2 Land Use and Community Design Element and Chapter 3: Transportation and Circulation Element for more information and related goals and policies.

5.B.2 **Safe Routes to Schools.** Improve the conditions for youth walking and bicycling in the areas surrounding schools by working with the Ceres Unified School District, other local agencies, and nonprofit organizations to implement the Safe Routes to School program.

Public Facilities and Services Element

6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools.

Implementation Actions

2.16 Promote the use of grid and modified grid street patterns in new residential, commercial, or mixed-use developments that propose to construct new streets. Modified grids may include combinations of grid and curvilinear streets.

2.17 Discourage block lengths in residential and mixed-use neighborhoods greater than 600 feet.

2.18 Discourage cul-de-sacs that have no pedestrian and bicycle connections.

2.19 Provide a pedestrian-scaled environment with streets and sidewalks sized and designed to promote outdoor use and walking.

2.20 Provide sidewalks along all streets, public and private, except along alleys.

2.21 Strongly discourage gated communities, where such new residential developments can be integrated with the existing residential developments.

3.12 Work with the Ceres Unified School District to plan, design, and construct infrastructure-related projects that will improve the ability of students to walk and bicycle to school.

Mitigation Measures

None required.

Impact 3.10-2 Implementation of the Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect (*Less than Significant*)

Since the Proposed Project updates policies and land use designations for future development and would replace the 1997 General Plan, it may naturally be inconsistent with existing planning regulations, such as density/intensity standards and allowed uses, that were designed to implement the 1997 Ceres General Plan. These existing regulations would be updated to be consistent with and/or effectively implement the proposed General Plan if it were adopted. Amendments to the General Plan may also be needed from time to time to conform to State or federal laws passed since adoption of the General Plan, and to eliminate or modify policies that may become obsolete or unrealistic due to changed conditions. Additionally, the City's Zoning Ordinance would be revised to implement the proposed General Plan, and it would translate the proposed General Plan policies into specific use regulations, development standards, and performance criteria to govern development on individual properties. The Zoning Ordinance will ultimately prescribe standards, rules, and procedures for development and the Zoning Map will provide more detail than the proposed General Plan Land Use Diagram.

In addition to its General Plan, the City of Ceres maintains specific plans for some areas within the city, as described in the Regulatory Setting section above. By State law, specific plans must be consistent with the General Plan. The proposed General Plan Land Use Diagram includes changes to land use designations within the boundaries of specific plans to achieve the Vision and Guiding Principles of the proposed General Plan. In particular, the existing Mitchell Road Corridor Specific Plan would need to be updated to reflect land use and development regulations established in the proposed General Plan along the SR 99/Mitchell Road interchange.

The Community Development Department has primary responsibility for administering the laws, regulations and requirements that pertain to the physical development of the city. Specific duties relating to implementation of the Proposed Project would include preparing zoning and

subdivision ordinance amendments, reviewing development applications, conducting investigations, and making reports and recommendations on planning and land use, zoning, subdivisions, development plans, and environmental regulations.

The proposed General Plan would also be consistent with regional and local plans, including the Modesto City-County Airport ALUCP and the Stanislaus County General Plan. The proposed General Plan ensures that land uses within the designated airport compatibility zones are consistent with the standards of the applicable ALUCP. In terms of the Stanislaus County General Plan, the County has jurisdiction over unincorporated land, including that which lies inside the Planning Area. The Stanislaus County 2015 General Plan and County regulations apply in these unincorporated areas within the Planning Area (see Figure 3.10-3: Stanislaus County General Plan Land Use Diagram). Some of the City's proposed land use designations are consistent with those of the County, including parcels along the eastern and western portions of the Planning Area that are designated as Agriculture. Other land use designations in the Proposed Project differ from the County General Plan, including those in the southeast portion of the Planning Area. Until such time as growth in unincorporated areas is pursued, these areas will be governed by the Stanislaus County General Plan. Goal Five of the Stanislaus County General Plan Land Use Element is to "complement the general plans of cities within the County." Implementation measures under this goal include the referral of discretionary development proposals within a city's SOI to that city to ensure consistency with the city's development standards; referral of discretionary development proposals within one mile of a city's SOI boundary to the city; and consideration for applying the city's development standards to discretionary projects located within a mile of the city's SOI boundary. Upon annexation of any unincorporated land into the City of Ceres, the City's General Plan would govern. Therefore, the Proposed Project and the Stanislaus County General Plan are not effectively in conflict.

The impact of conflicting with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environment effect from implementation of the Proposed Project is less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.2 **Prioritize Growth in SOI.** Prioritize growth within the Ceres Sphere of Influence. Permit development outside of the Sphere of Influence only when there is a demonstrated need for additional land and there is less than a five-year supply of appropriately-designated land within the existing Sphere of Influence, in accordance with Stanislaus Local Agency Formation Commission (LAFCO).

2.J.1 **Compatibility.** Require compatibility between urban development and airport facilities to ensure the availability of local air transportation services and a quality living environment.

2.J.2 **Airport Safety Zones.** Allow new development within Airport Safety Zones (Figure 5-8: Hazardous Sites in Chapter 5: Health and Safety Element) according to the standards in the most recent Stanislaus County Airport Land Use Compatibility Plan.

At the discretion of the Ceres Director of Community Development, an applicant for a permit or other entitlement may be required to submit survey information sufficient to document the location of a property or development site in relation to the various Airport Safety Zones as adopted by Stanislaus County Airport Land Use Commission.

2.J.3 **Partnerships.** Work closely with appropriate agencies, including the Stanislaus County Airport Land Use Commission, to ensure compatibility of land uses with airport facilities and operations. To this end, encourage the Stanislaus County Airport Land Use Commission to update the Airport Land Use Compatibility Plan consistent with the requirements of State law, including using the California Division of Aeronautic Airport Planning Handbook as a guideline.

2.J.4 **Building Heights.** Limit building heights for airspace protection in accordance with Federal Aviation Regulations Part 77.

2.J.5 **Overflight Easements.** Require Avigation Easement Dedication, Recorded Deed Notice, and Real Estate Disclosure as required by the Stanislaus County Airport Land Use Compatibility Plan.

Transportation and Circulation Element

3.A.8 **RTP/SCS Participation.** Continue to participate in the development and implementation of the countywide Regional Transportation Plan and Sustainable Community Strategy, including improvements to the State Highway system.

Agricultural and Natural Resources Element

4.A.4 **County Referral.** Continue to work with Stanislaus County to review discretionary development proposals in the unincorporated portions of the Planning Area to ensure that all approved projects are compatible with the City's General Plan policies regarding agricultural preservation, as well as other General Plan policies and City development standards.

4.A.6 **Right to Farm.** Continue to support the County's Right-to-Farm ordinance.

4.A.7 **Farmland Mitigation.** Minimize the loss of agricultural lands by developing a Plan for Agricultural Preservation upon application for a SOI expansion or annexation that includes agricultural land, consistent with the Stanislaus LAFCO Agricultural Preservation Policy.

4.D.3 **Significant Biological Resources.** Support and cooperate with the efforts of other local, State, and federal agencies and private entities engaged in the preservation and protection of significant biological resources from incompatible land uses and development, including efforts involving a Habitat Conservation Plan or other plan for habitat management or restoration. Significant biological resources include endangered, threatened, or rare species and their habitats, wetland habitats, wildlife migration corridors, and locally-important species/communities.

4.F.1 **Tuolumne River.** Cooperate with other municipalities, agencies, institutions, and nonprofit organizations in the conservation of the Tuolumne River for the protection of its water resources, water quality, and open space qualities.

Health and Safety Element

5.J.2 **Airport Land Use Compatibility Plan.** Ensure that new development within the Modesto City-County Airport Influence Area complies with the policies of the Stanislaus County Airport Land Use Compatibility Plan by coordinating the review of development proposals within the Airport Influence Area with the Stanislaus County ALUC.

5.L.8 **Airport Noise Compatibility.** Ensure that new development complies with the Modesto City-County Airport Land Use Compatibility Plan policies regarding noise.

5.L.13 **Airport Compatibility**. For projects within the Modesto City-County Airport Influence Area, utilize the noise standards contained in the Stanislaus County Airport Land Use Compatibility Plan, as well as the noise standards contained in this element.

Implementation Actions

2.1 Update the Zoning Ordinance and Zoning Map to implement the goals and policies of this General Plan, including:

- New or changed land use designations and development standards;
- To allow accessory dwelling units in all residential zones, in order to add to the City's affordable housing stock and provide housing opportunities for extended families, senior citizens, special needs, and other household types;
- To allow highway-oriented commercial signage;
- To right-size the required number of parking spaces in Downtown Ceres to encourage a vibrant, walkable environment and to allow for parking management strategies, such as shared parking and parking pricing, to ensure efficient use of parking spaces;
- To specify bicycle parking requirements for new developments and site renovations;
- To reevaluate the adequacy and appropriateness of parking requirements and consider provisions to allow for shared parking and reduced parking requirements considered;
- To specify electric vehicle parking requirements for new developments and site renovations;
- To ensure implementation of the provisions of the County's Right-to-Farm Ordinance; and
- To allow community gardens as a permitted use in appropriate districts.

Mitigation Measures

None required.

Impact 3.10-3 Implementation of the Proposed Project would not conflict with any applicable habitat conservation plan or natural community conservation plan (*Less than Significant*)

The Proposed Project includes policies to protect the habitats of special-status species and to cooperate with the efforts of private entities, such as PG&E, that are engaged in preservation and protection of biological resources. There are no Natural Community Conservation Plans at the county level that include land within the Planning Area. Therefore, the impact from implementation of the Proposed Project on any applicable habitat conservation plan or natural community conservation plan is less than significant with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Policy 4.D.3, as listed under Impact 3.10-2 above, as well as the following policy.

4.D.1 **Special-Status Species.** Support the preservation of habitats of rare, threatened, endangered, and other special-status species. Require development in areas known to have value for wildlife to be carefully planned and, where possible, sited to maintain reasonable wildlife value of the habitat.

Mitigation Measures

None required.

Impact 3.10-4 Implementation of the Proposed Project could induce substantial 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). (*Significant and Unavoidable*)

The Proposed Project plans for population growth associated with future development of residential land uses and through future development of commercial, retail, office, and industrial uses throughout the Planning Area. Table 3.10-7: Existing and Potential Growth shows the potential new and overall development by 2035 in the Planning Area based on existing conditions, the development capacity of potential opportunity sites, the proposed General Plan land use designations, and assumptions of which opportunity sites may develop during the planning period. See Chapter 2: Project Description for more information on the Proposed Project buildout. The Proposed Project has the capacity to accommodate more residential and non-residential development than what is estimated and shown in Table 3.10-7: Existing and Potential Growth, because the buildout methodology makes assumptions regarding reasonably foreseeable growth through 2035. In other words, it is *not* assumed that every available parcel in the Planning Area will develop or redevelop at its maximum allowable density or intensity by 2035.

Table 3.10-7: Existing and Potential Growth also shows the potential new and overall development by 2035 within the city limits as of 2015. Notably, the Ceres city limits may change over the planning horizon as land is annexed to the City. Whether or not the city limits change before 2035, the analysis of the potential impact of the Proposed Project includes all land within the Planning Area, regardless of current incorporation status.

Table 3.10-7: Existing and Potential Growth

	Existing (2015)		*New*		*Total (2035)*	
	Ceres City Limits (2015)[1]	*Full Planning Area*	*Ceres City Limits (2015)*	*Full Planning Area*	*Ceres City Limits (2015)*	*Full Planning Area*
Population[2]	47,000	55,000	12,000	24,000	59,000	79,000
Housing Units[3]	13,800	16,200	3,700	7,200	17,500	23,400
Jobs[3]	8,700	10,000	13,400	20,800	22,100	30,800
Non-Residential Development[4]	8,500,000	12,100,000	8,800,000	13,900,000	17,300,000	26,000,000

Notes:

1. Refers to the Ceres city limits as of 2015. The city limits may change over the planning horizon.
2. Numbers rounded to the nearest thousand.
3. Numbers rounded to the nearest hundred.
4. Numbers rounded to the nearest hundred thousand.

Source: CA Department of Finance, 2015; Dyett & Bhatia, 2017; Economic & Planning Systems, Inc, 2016, which includes data from the Employment Development Department, 2015.

Buildout projections for the Proposed Project estimate a total of approximately 23,400 housing units, 79,000 people, 30,800 jobs, and 26,000,000 square feet of non-residential development within the Planning Area by 2035. As shown in Table 3.10-7: Existing and Potential Growth, this corresponds to an average annual population growth rate between 2015 and 2035 of 1.28 percent for the City of Ceres and 2.18 percent for the Planning Area on the whole.

In comparison, StanCOG, the California Department of Transportation (Caltrans), and the State Department of Finance (DOF) have prepared projections for growth in population and housing units between 2015 and 2035. As shown in Table 3.10-4: State, Regional, and Local Projections of Population and Housing Units (2035), the projected population in Ceres in 2035 ranges between 60,543 and 67,671, depending on the data source. The projected average annual population growth rate between 2015 and 2035 ranges between 1.38 percent and 1.83 percent. The Proposed Project's estimated buildout population for the Planning Area is greater than the projected population growth according to these sources. However, the methodology and purpose of the land use-based estimated buildout is different from the methodology and purpose of the StanCOG, Caltrans, and DOF projections, which are based on market and demographic data. The Proposed Project buildout provides an estimate of the amount of residential and nonresidential development that the proposed General Plan could accommodate (for analysis purposes in the proposed General Plan and this EIR), but it does not forecast the actual amount of development that will occur.

The average annual growth rate can also be compared to the historical growth rate, as explained in the Environmental Settings above. The number of housing units in Ceres between 2005 and 2015 increased at an average annual rate of 1.5 percent. In comparison, the Proposed Project could accommodate a higher rate of annual growth.

Secondary effects of the Proposed Project may induce more growth. The Proposed Project aims to increase the number of jobs in the Planning Area by capitalizing on Ceres' access to SR 99 and plans for Altamont Corridor Express (ACE) Train stop. The Proposed Project designates sites in a variety of infill and new growth locations to attract new commercial, office, and industrial uses, which in turn will provide jobs. One new growth area that is planned for commercial development in the proposed General Plan is the area designated Regional Commercial around the Service/Mitchell Road Interchange with SR 99.

Based on the buildout estimate shown in Table 3.10-7, the Proposed Project could accommodate a total of approximately 23,400 jobs in the Planning Area by 2035. This estimate is based on the development capacity of land designated in the Proposed Project for commercial, industrial, and office uses. In comparison, the sources in Table 3.10-5: Jobs Projections (2035) forecast a total of approximately 11,400 to 15,700 jobs in the City of Ceres by 2035. The intent of the Proposed Project is to increase the number and diversity of locally available jobs that could be filled by the local employment pool, including the underemployed and unemployed and those commuting to jobs outside of the city. If the Proposed Project is successful in increasing the number of jobs in Ceres over the planning horizon, implementation of the Proposed Project may contribute to secondary growth-inducing impacts. An increase in jobs may attract new residents that are not accounted for in existing buildout estimates or population projections.

Based on the estimated buildout of the Proposed Project, the jobs-to-housing balance in the Planning Area in 2035 will shift from 0.63 in 2015 to 1.32 in 2035, as shown in Table 3.10-8: Jobs-to-Housing Unit Ratio (2015 & 2035). Because most households have more than one wage earner, a desirable jobs-to-housing ratio is often defined as a ratio greater than 1.0 but less than 2.0. Ratios below 1.0 suggest that residents are required to commute to jobs outside of their area of residence, and ratios greater than 2.0 suggest that employers are not able to house their workers within the jurisdictions, requiring workers to commute into the area. Theoretically, a balanced jobs-to-housing ratio would reduce the need for people to commute in or out of town for work. Therefore, the estimated jobs-to-housing ratio in Ceres in 2035 would not be expected to induce new residential growth. In reality, the match of education, skills, and interests is not always accommodated within the boundaries of one community, and regional interdependencies almost always result in at least some inter-city commuting. The City cannot dictate the residential location of future employees in the Planning Area.

Policies in the proposed General Plan encourage infill development, require contiguous development rather than "leapfrog development," and require areawide plans for annexed land, thus limiting the potential for unplanned, induced growth. In addition, the Proposed Project includes policies and implementation actions to conserve farmland and create a greenbelt on the eastern edge of the Planning Area, which would constrain induced growth in this area.

Table 3.10-8: Jobs-to-Housing Unit Ratio (2015 & 2035)

	2015[1]	*2035*[2]
Jobs[3]	8,700	30,800
Housing Units[3]	13,800	23,400
Jobs to Housing Unit Ratio	0.63	1.32

Notes:
1. Includes jobs and housing units within Ceres city limits
2. Includes existing and potential new jobs and housing units within the entire Planning Area.
3. Numbers rounded to the nearest hundred.

Source: Economic & Planning Systems, Inc, 2016, which includes data from the 2015 Q2 California Employment Development Department (EDD); 2015 California Department of Finance; Dyett & Bhatia, 2017; Stanislaus County Assessor, 2014.

However, the Proposed Project plans for both an increase in population and an increase in the number of jobs, and also plans for infrastructure extensions to serve new growth. Therefore, implementation of the Proposed Project would have a significant impact related to inducing substantial population growth in the area.

Proposed General Plan Policies that Reduce the Impact

Policy 2.A.3, as listed under Impact 3.10-1 above; and Policy 2.A.2, as listed under Impact 3.10-2 above.

Land Use and Community Design Element

2.B.3 **Greenbelt.** In cooperation with Stanislaus County and the City of Hughson, seek to establish a permanent greenbelt between Ceres and Hughson.

2.D.1 **Promote Infill.** Promote infill development and reuse of underutilized parcels in the city to reduce pressure to develop on farmland or other "greenfield" sites on the periphery.

2.I.1 **Annexations.** Approve annexations only after City approval of an appropriate area-wide plan (e.g., master plan, specific plan) that addresses land use, circulation, housing, infrastructure, and public facilities and services, based on the City's annexation policy, while also adhering to the policies of the General Plan. Exceptions to this requirement for area-wide plans include annexations of:

- Existing developed areas;
- Areas of less than five acres; and
- Housing developments for very-low and low-income households.

Agricultural and Natural Resources Element

4.A.1 **Land Use Pattern.** Prioritize infill development, allowing development on agricultural lands only where contiguous to existing urban development and when it advances the city's overall growth and development objectives. Encourage compact

development that concentrates development in urbanized areas in order to limit the conversion of agricultural land and minimize the potential for land use conflicts along the urban/agricultural interface.

Implementation Actions

2.8 To ensure the permanence of a greenbelt between Ceres and Hughson and buffering between urban and agricultural uses, analyze and pursue, as appropriate, the use of various policy strategies, including, but not limited to, the following:

- Large ranchette lots on the periphery (e.g., to 2-5 acre lots) with setbacks to buffer with agricultural uses.
- Public or private recreational uses (e.g, parks, golf courses) on the periphery to buffer with agricultural uses.
- Sizing of infrastructure (e.g. water and sewer mains) to accommodate only limited, low-density growth on the eastern border of the Sphere of Influence, to make future expansion more difficult.
- Design of circulation system to make eastward extension more difficult.
- Special provisions (i.e., a "supermajority"— four-fifths of the City Council) to allow any amendments to the boundary.

Mitigation Measures

The purpose of the Proposed Project itself is to provide for future development of new housing and employment opportunities and to ensure that adequate infrastructure is provided to support this development. There is no feasible mitigation to reduce this impact to a less than significant level while still achieving the project objectives. The impact is considered significant and unavoidable.

Impact 3.10-5 Implementation of the Proposed Project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere. (*Less than Significant*)

The majority of developed land in the Planning Area is composed of residential uses, which are not anticipated to undergo substantial land use changes under the Proposed Project. The Proposed Project does not propose converting established residential areas to non-residential land uses or changing the land use or development character of existing developed residential areas.

As shown in Table 3.10-6: Projected Housing Units to Meet the City of Ceres Regional Housing Needs Allocation (2014-2023), the Proposed Project is expected increase the overall number of dwelling units. However, as shown in the Environmental Setting above, a substantial portion of Ceres residents are burdened by housing costs, as defined as paying more than 30 percent of household income towards housing costs. Therefore, increasing the supply of housing may not meet the housing needs of the residents. Policies in the draft General Plan aim to ensure that the

new housing serves the diverse needs of the community, with affordable, senior, and multi-family housing.

Therefore, implementation of the Proposed Project would have a less than significant impact on displacing a substantial number of existing housing units or people with implementation of the proposed policies below.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.I.2 **Area-wide Plans.** Use area-wide plans (i.e., master plans or specific plans) to comprehensively plan for new neighborhood developments. Each residential area-wide plan should at minimum address the following:

- The distribution, location, and extent of land uses, including standards for land use intensity.
- Compatibility of new development with adjacent existing and proposed development.
- Provision of a range of housing types to ensure socially and economically integrated neighborhoods based on the Housing Element projections of housing needs.
- Distribution and location of roadways, including design standards for and the general alignment of arterial and collector streets. Specific provisions for local streets and bikeways should be shown, where necessary.
- Provisions for the extension of the existing city roadway system into new development areas. New development shall be linked to adjacent existing neighborhoods and planned neighborhoods.
- Distribution and location of and specifications for sewer, water, and drainage facilities needed to serve new development and future development areas consistent with the Sewer, Water, and Drainage Master Plans, including reservations for needed wells and storage areas.
- Distribution and location of neighborhood commercial centers, parks, schools, and other public- and quasi-public facilities.
- Provisions for linking residential neighborhoods, parks, schools, shopping areas, and employment centers through a system of pedestrian and bicycle pathways.
- Design guidelines for all new public and private development, including landscaping, roadway frontage treatment, subdivision identification signs and monuments, and walls and fences.
- Provisions for development phasing to ensure orderly and contiguous development consistent with infrastructure expansions and anticipated market demand.
- Provisions for minimizing conflicts between new development and adjacent agricultural uses.

- Implementation measures necessary to carry out the plan, including a program for financing public infrastructure improvements.

2.A.6 **Range of Housing.** Ensure that a range of residential densities and housing types, including small-lot single family, move-up, townhouses, apartments, accessory dwelling units, affordable housing, senior housing, and condominiums, is available to accommodate the housing needs of all residents.

2.A.7 **Diversity.** Embrace diversity—physical, cultural, language, and social—and sensitively integrate new development with the old.

2.A.8 **Plan for All.** Plan and provide for the public welfare of all Ceres residents, based on community engagement and careful consideration of those who have been historically disadvantaged, including people of color and low-income residents.

2.A.9 **Age in Place.** Help older adults live independently in the community of their choice, through "Age in Place" strategies, including engaging older adults in the planning process, planning for a range of affordable housing options, providing convenient transportation options, and strengthening community resources for seniors.

2.A.11 **Prioritize Development with Community Benefits.** Prioritize development projects that are needed to provide for the City's fair share of regional housing needs, including very-low- and low-income housing, or provide substantial benefits to the community, including, but not limited to, unique economic development opportunities (e.g., substantial number of jobs, substantial sales tax revenues).

2.A.17 **Equitable Investments.** Improve quality of life for all Ceres residents through equitable investments in programs and facilities with particular focus on meeting the needs of disadvantaged communities.

2.C.6 **Housing Options.** Promote Downtown as an attractive option for existing and prospective residents looking for housing in Ceres, with a wide variety of rental and ownership housing opportunities.

Mitigation Measures

None required.

3.11 Noise

This section assesses potential environmental impacts related to noise from future development under the Proposed Project, including those associated with noise standards, groundborne vibration, ambient noise levels, and airport noise. The section describes the characteristics, measurement, and physiological effects of noise; characteristics of groundborne vibration; and existing sources of noise and vibration in the Planning Area, as well as relevant federal, State, and local regulations and programs.

Environmental Setting

PHYSICAL SETTING

Noise

Noise Characteristics and Measurement

Noise is generally defined as unwanted sound and can consist of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. The classification of sound as noise is subjective and relies heavily on the quality and context of the sound.

The objectionable nature of noise may be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the frequency of the vibrations that produce the sound. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear, and is measured by the amplitude of the sound wave.

The following noise measurement scales are used to describe noise in a particular location:

- **Frequency.** Frequency is the composition or spectrum of the sound. Frequency is a measure of the pressure fluctuations per second of a sound wave.
- **Level.** The decibel (dB) system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Decibel measurement may also be "A-weighted" to de-emphasize the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear in a manner that correlates well with subjective reactions to noise. Ambient sounds generally range from 30 A-weighted decibels (dBA) (very quiet) to 100 dBA (very loud).

- **Variation.** Variation is the sound level over time. Predominant rating scales for human communities in the State of California (State) are Equivalent Noise Level (L_{eq}) and the Community Noise Equivalent Level (CNEL) or the day-night average level (DNL) based on A-weighted decibels. 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 a 10-dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). DNL is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and DNL are within 1 dBA of each other and are normally interchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Representative noise levels are shown in Figure 3.11-1: Typical Noise Levels in the Environment as characterized in dBA.

Physiological Effects of Noise

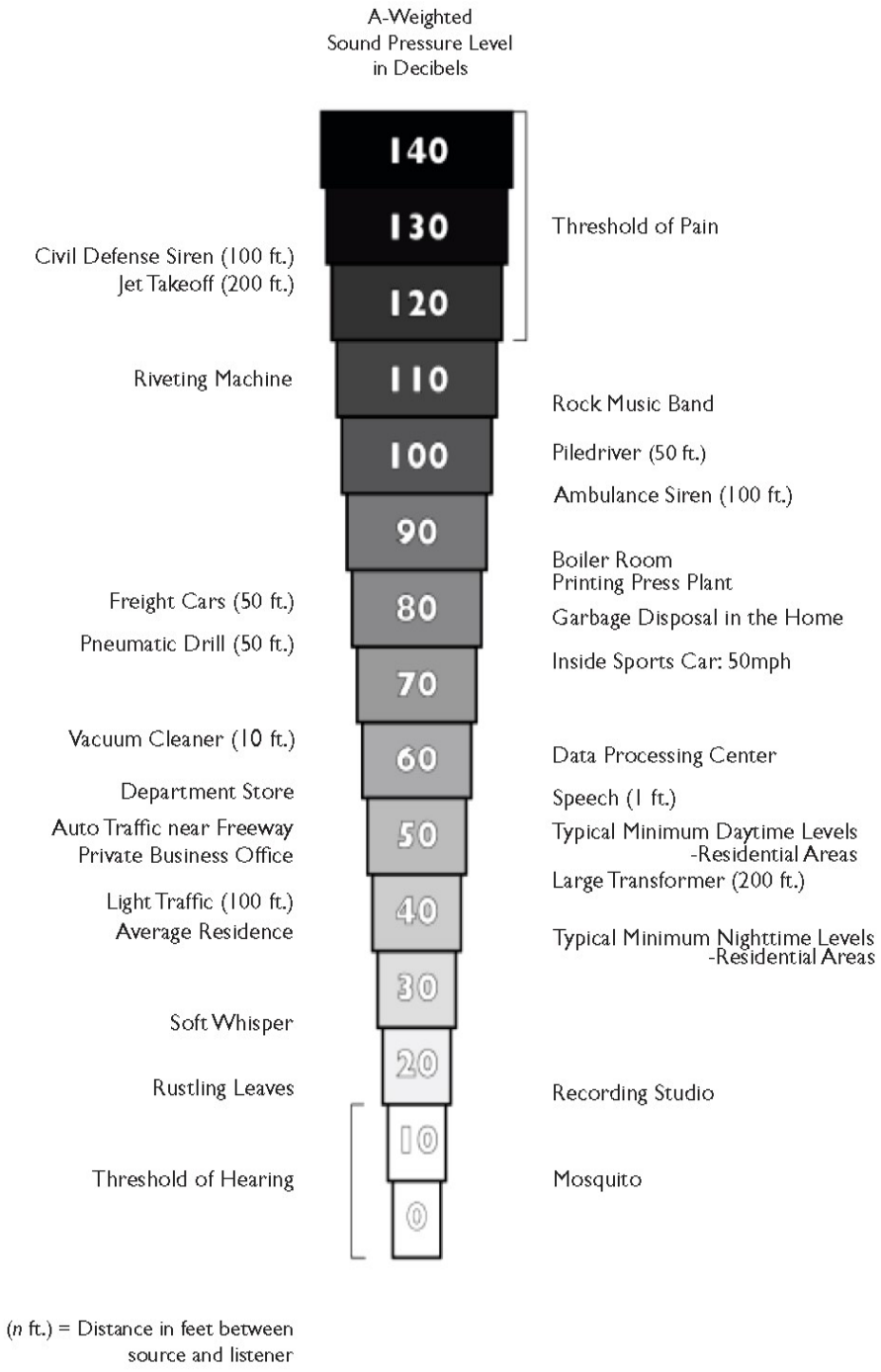
Audible increases (increases that are noticeable to humans) in noise levels generally refer to a change of 3 dB or greater, since this level has been found to be barely perceptible in exterior environments. Changes in the noise level between 1 and 3 dB has been found to be noticeable only in laboratory environments, and changes in noise level of less than 1 dB are inaudible to the human ear.

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA would result in permanent cell damage; at 120 dBA, sound levels reach the threshold of feeling in the ear; at 140 dBA, sound levels reach the threshold of pain; and a sound level of 160 to 165 dBA will potentially result in dizziness or loss of equilibrium.

Noise-Sensitive Receptors

Noise-sensitive receptors are land uses where the presence of unwanted sound could adversely affect the use of the land. Examples include residential areas, senior and child care facilities, schools, and religious facilities.

Figure 3.11-1: Typical Noise Levels in the Environment



Sources of Noise

In Ceres, noise may be a concern near busy transportation corridors, the Modesto City-County Airport, and land uses that rely on heavy equipment. Common sources of noise and vibration in Ceres are described below.

Traffic

Traffic noise levels generally depend on three major factors: the volume of traffic, the speed of traffic, and the number of trucks in the flow of traffic. Vehicle noise is a combination of the sounds produced by the engine, exhaust, tires, and the wind generated by taller vehicles. Other factors that affect the perception of traffic noise include distance from the roadway, terrain, vegetation, and natural and structural obstacles.

Major sources of transportation noise in Ceres include SR 99 and busy arterials such as Hatch Road, Whitmore Avenue, and Service Road. There are several truck routes that allow for goods movement through the city, where higher frequencies of truck traffic contribute to noise levels. Buses also contribute to traffic noise along established CAT, MAX, and StaRT routes. Figure 3.11-2: Existing Noise Contours (2017) shows existing noise contours for major streets in the community based on a noise survey conducted in April and May of 2016 at 46 locations in the Planning Area.

Railway

Union Pacific Railroad operates two rail lines through the City of Ceres used by freight trains. One generally parallels SR 99, and grade separated crossing are provided at major roadways, including Hatch Road, Whitmore Avenue, and Service Road. The second line has a north-south orientation and is located equidistant between Crows Landing Road and Morgan Road.

An extension of the Altamont Commuter Express (ACE) system is planned from Manteca to Merced. As of 2017, ACE commuter rail provides four westbound morning trains and four eastbound morning trains from Stockton to San Jose with other Central Valley stops in Lathrop and Tracy. The San Joaquin Regional Rail Commission (SJRRC), which oversees the operations of capital projects for ACE service, is evaluating extending ACE service to Downtown Merced, with potential stops in downtown Modesto, Ceres, and Turlock. The Downtown Ceres ACE train stop would be located on the west side of SR 99.

The ACE extension to Modesto could be implemented within the next 10 years with two trains leaving Modesto each morning and two return trains in the evening. Subsequent improvements would support an extension to Merced, a stop in Ceres, and increased service to six round trips per day (six trains traveling from the Central Valley to San Jose in the morning and six returning in the afternoon/evening) to Ceres within the General Plan planning horizon.

Aircraft

The Modesto City-County Airport is located directly north of Ceres. As shown in Figure 3.11-2: Existing Noise Contours (2017), projected noise contours presented in the Stanislaus County ALUCP show portions of the 60 to 65 dB CNEL and 65 to 70 dB CNEL contours extending into the Ceres Planning Area, though remaining primarily outside of city limits. One small segment of the 60 to 65 dB CNEL contour crosses city limits at River Road and Central Avenue, but does not

cover any significant portion of any parcel within the city. However, any portion of the city located within the Modesto City-County Airport Influence Area may experience some aircraft noise from overflight operations.

Noise from the airport is generated primarily from takeoffs and landings. On average, the airport accommodates approximately 230 takeoffs and landings per day, with a long-range forecast of 386 operations per day. The majority of operations take place during the day. The Stanislaus County ALUCP includes policies to ensure that new development is compatible with the noise environment surrounding the airport.

Stationary Noise Sources

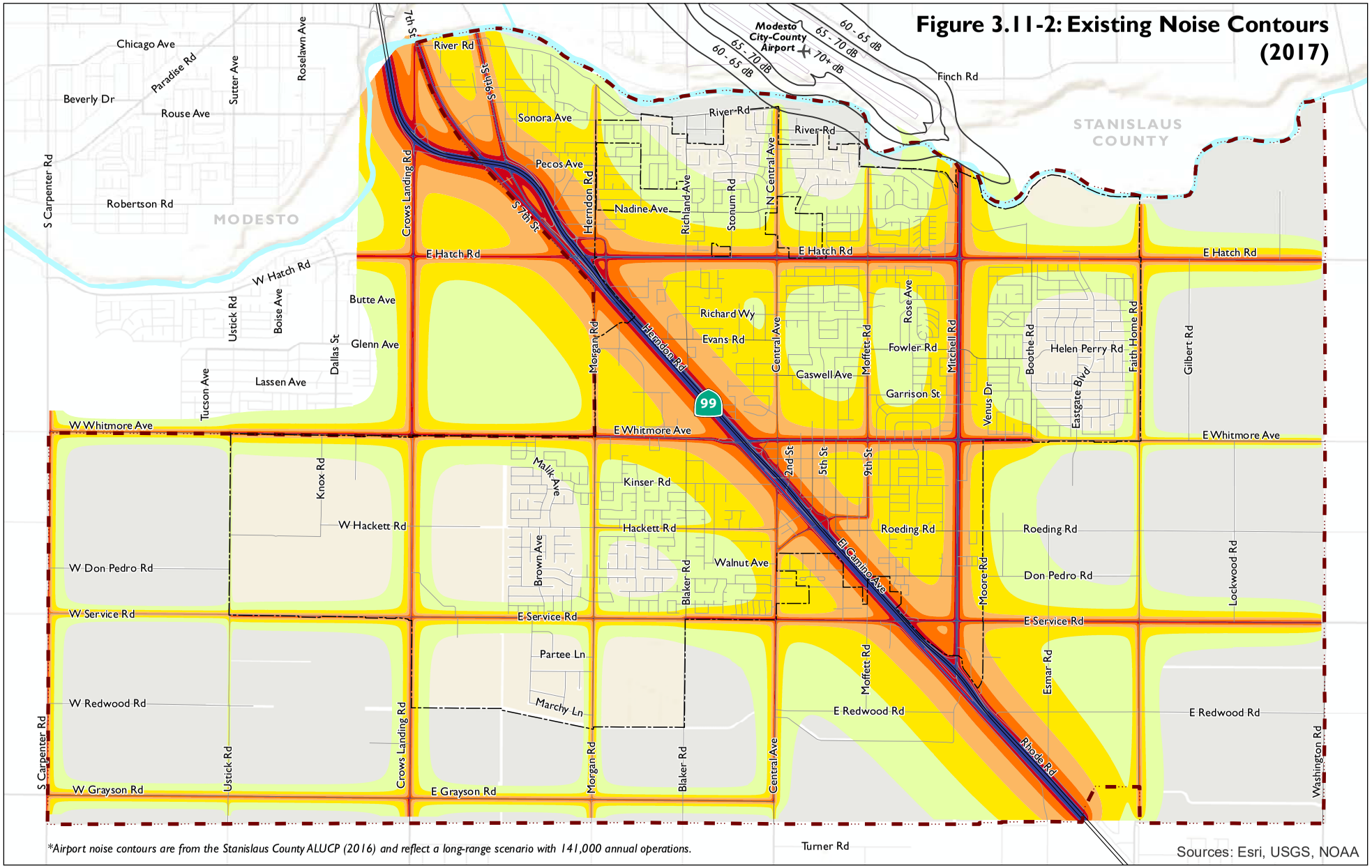
Stationary noise sources include land uses where loud equipment may generate noise. These may include light or general industrial uses where mechanical equipment, generators, and vehicles could contribute to noise levels. Short-term noise measurements were taken in three of the city's industrial areas in April and May of 2016. In two cases, there were no significant noise sources other than traffic. In one case, a 15-minute L_{eq} of 61 dB was recorded at approximately 255 feet from a rock crushing facility.

In Ceres, agricultural operations may also be a source of noise, due to use of heavy equipment and spraying. For any land use, mechanical equipment such as pumps and fans or rooftop equipment can produce constant levels of noise. The potential for noise concerns associated with stationary sources arises mainly when sensitive receptors are affected by industrial sources, which may occur when noise-generating uses and sensitive uses are sited too close together without adequate buffering, noticing, or proper building design or construction.

Other Noise Sources

Other sources of noise can include construction and the use of portable or small-scale pieces of equipment. Construction can be a substantial, though short-term, source of noise, and is most disruptive when it takes place near sensitive uses or during night or early morning hours. Power equipment, such as leaf blowers and drills, can produce high noise levels at the location of work. Other amplified sounds, such as audio equipment, can also create noise exposure.

Figure 3.11-2: Existing Noise Contours (2017)



*Airport noise contours are from the Stanislaus County ALUCP (2016) and reflect a long-range scenario with 141,000 annual operations.

Sources: Esri, USGS, NOAA

Highway
Major Roads
Local Roads
River

Existing Traffic Noise Contours
DNL 55 to 60 dB
DNL 60 to 65 dB
DNL 65 to 70 dB
DNL 70 to 75 dB
DNL 75 to 80 dB
DNL > 80 dB

Airport Noise Contours*
Noise Impact Zones

City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: Stanislaus County Airport Land Use Compatability Plan, 2016; Charles M. Salter Associates, Inc., 2017; Stanislaus County GIS, 2015;

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Groundborne Vibration

Vibration Characteristics and Measurement

Vibration refers to groundborne noise and perceptible motion of the earth. Similar to airborne noise, vibration is transmitted in noise-like waves through the earth and solid objects. There are several ways to categorize vibration sources. One way is to divide vibration into natural sources (e.g., earthquakes, volcanic eruptions, sea waves, and landslides) and human sources (e.g., explosions, machinery, traffic, trains, and construction equipment). Similar to noise sources, vibration sources can also be described as continuous (e.g., operating factory machinery) or transient (e.g., explosions).

As with noise, ground vibrations can be described by amplitude and frequency. Vibration amplitude is characterized by its displacement, velocity, and acceleration. Displacement is the distance that soil particles travel from their original location as a result of vibration, as measured in inches or millimeters. Velocity is the speed of the soil particles measured in inches per second or millimeters per second. Acceleration of the soil particles is measured in inches per second or millimeters per second. Particle velocity is the most commonly used vibration attribute used to describe vibration. Table 3.11-1: Human Reaction to Typical Vibration Levels presents the human reaction to various levels of peak particle velocity. Vibrations also vary in frequency. Traffic vibrations generally range in frequencies from 10 to 30 hertz (Hz), and tend to average around 15 Hz. As a point of reference, city buses often generate frequencies around 3 Hz at high vehicle speeds, due to their suspension systems.

Table 3.11-1: Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (inches/second)	*Human Response*
3.6	Very disturbing
0.7	Disturbing
0.10	Strongly perceptible
0.035	Distinctly perceptible
0.012	Slightly perceptible

Source: Caltrans, 2013.

Factors that influence groundborne vibration and noise include the following:

- **Vibration Source.** Vehicle suspension, wheel types and condition, track/roadway surface, track support system, speed, transit structure, and depth of vibration source.
- **Vibration Path.** Soil type, rock layers, soil layering, depth to water table, and frost depth.
- **Vibration Receiver.** Foundation type, building construction, and acoustical absorption.

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground versus at ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration

propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at a great distance from the source. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

Effects of Vibration

Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable. Without the effects associated with the shaking of a building, there is less adverse reaction. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. Building damage is not a factor for normal projects, with the occasional exception of blasting and pile driving during construction or mining. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by up to 10 decibels. This is an order of magnitude below the damage threshold for normal buildings.

Sources of Vibration

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with groundborne vibration and noise from these sources are usually localized to within about 100 feet of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet (Federal Transit Authority, 2006). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible.

REGULATORY SETTING

Federal Regulations

Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development's environmental criteria and standards are presented in 24 Code of Federal Regulations (CFR) Part 51. New construction proposed in high noise areas (exceeding 65 dBA DNL) must incorporate noise attenuation features to maintain acceptable interior noise levels. A goal of 45 dBA DNL is set forth for interior noise levels and attenuation requirements are geared toward achieving that goal. It is assumed that with standard construction, any building will provide sufficient attenuation to achieve an interior level of 45 dBA DNL or less if the exterior level is 65 dBA DNL or less. Approvals in a "normally unacceptable noise zone" (exceeding 65 dB, but not exceeding 75 dB) require a minimum of 5 dB of additional noise attenuation for buildings having noise sensitive uses if the DNL is greater than 65 dB, but does not exceed 70 dB, or a minimum of 10 dB of additional noise attenuation if the day-night average is greater than 70 dB, but does not exceed 75 dB.

Federal Highway Administration

An assessment of noise and consideration of noise abatement per Title 23 of the CFR, Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise," is required for

proposed federal or federal-aid highway construction projects on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. The FHWA considers noise abatement for sensitive receivers, such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, places of worship, libraries, and hospitals when "worst-hour" noise levels approach or exceed 67 dBA L_{eq}. The California Department of Transportation (Caltrans) has further defined "approach" as meaning to be within 1 dB of the Noise Abatement Criteria (NAC).

Federal Transit Administration

This analysis uses the Federal Transit Administration's vibration impact criteria for sensitive buildings, residences, and institutional land uses near railroads. The thresholds for residences and buildings where people normally sleep are 72 vibration decibels (VdB) for frequent events (more than 70 events of the same source per day), 75 VdB for occasional events (30 to 70 vibration events of the same source per day), and 80 VdB for infrequent events (less than 30 vibration events of the same source per day). As the threshold of perception is usually taken to be approximately 65 VdB, vibration from train pass-bys may be felt even if the requirements are met.

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration (FAA), Title 14 of the CFR, Part 150 describes the procedures, standards and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs. Title 14 also identifies the land uses that are normally compatible with various levels of exposure to noise by individuals. The FAA has determined that sound levels up to 45 dBA CNEL are acceptable within residential buildings.

Federal Railroad Noise Emissions Compliance Regulation

The Federal Railroad Administration's Office of Safety is responsible for enforcing the Railroad Noise Emissions Compliance Regulation that sets maximum sound levels from railroad equipment and for regulating locomotive horns.

State Regulations

California Noise Control Act of 1973

The California Noise Control Act of 1973 is in Sections 46000 through 46080 of the California Health and Safety Code. The act finds that excessive noise can result in physiological, psychological, and economic damage. This act states that it is the policy of the State of California to provide an environment for all Californians free from noise that jeopardizes their health or welfare and they are entitled to a peaceful and quite environment without the intrusion of noise that may be hazardous to their health or welfare.

California Health and Safety Code Section 118825–118830

This law addresses noise pollution regarding supersonic transport aircraft and prohibits the service of private or commercial aircraft landings or take offs within the state that do not comply with federal certification limits for subsonic jet transport aircraft.

State of California Building Code

The State of California's noise insulation standards are codified in the California Code of Regulations (CCR), Title 24. These noise standards are applied to new construction in California for the purpose of ensuring that the level of exterior noise transmitted to and received within the interior living spaces of buildings is compatible with their comfortable use. For new residential dwellings, hotels, motels, dormitories, and school classrooms, the acceptable interior noise limit for habitable rooms in new construction is 45 dBA CNEL or DNL. Title 24 requires acoustical studies for residential development in areas exposed to more than 60 dBA CNEL to demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. Where exterior noise levels are projected to exceed 60 dBA CNEL or DNL at the facade of a building, a report must be submitted with the building plans that describe the noise control measures that have been incorporated into the design of the project to meet the 45-dBA noise limit.

California Code of Regulations Title 21- Airport Noise Standards

Noise standards governing the operation of aircraft and aircraft engines for all airports are described in CCR Title 21, Division of Aeronautics, Subchapter 6 "Noise Standards." The regulations are designed to cause the airport proprietor, aircraft operator, local governments, pilots, and the Department of Aeronautics to work cooperatively to diminish noise. The regulations are achieved by controlling and reducing noise that affects communities in the vicinity of airports.

State of California Land Use Compatibility Criteria

The State of California adopts suggested land use noise compatibility levels as part of its General Plan Update Guidelines. These suggested guidelines are an integral tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, and clearly unacceptable noise levels for various land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated into the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

Local Regulations

City of Ceres Noise Ordinance

The City of Ceres Noise Ordinance is Chapter 9.36 of the Ceres Code of Ordinances. The ordinance defines unnecessary noises for a number of potential sources, including horns, construction, machinery, and motor vehicles. The ordinance establishes the allowable period for construction noises as between 7:00 am and 8:00 pm.

Stanislaus County General Plan

The Noise Element of the Stanislaus County General Plan is intended to limit the exposure of the community to excessive noise levels. The element provides a noise exposure map of the county and establishes land use compatibility guidelines, including those for development near railroads, exterior noise exposure, and allowable noise exposure from stationary sources. Goals include

preventing the encroachment of incompatible land uses near noise-producing industries, railroads, airports, and other noise sources to protect the County's economic base; and protecting citizens from the harmful effects of exposure to excessive noise.

Stanislaus County Noise Control Ordinance

The Stanislaus County Noise Control Ordinance is Chapter 10.46 in the County Code. It establishes procedures for noise level measurements as well as noise level standards for exterior noise levels, cumulative duration of noises, specific noise sources such as power tools and construction equipment, and vibration.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;**

Criterion 2: **Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;**

Criterion 3: **A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;**

Criterion 4: **A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or**

Criterion 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 expose people residing or working in the project area to excessive noise levels.**

METHODOLOGY AND ASSUMPTIONS

Construction Noise

Potential short-term construction noise impacts were evaluated using the FHWA Roadway Construction Noise Model (FHWA, 2006) and reference noise levels for each piece of construction equipment from the same model. Construction noise levels from a group of specific construction equipment that would operate together during the worst construction phase were calculated at a distance of 50 feet.

Potential short-term construction vibration impacts were evaluated using FTA methodology for construction vibration from FTA Transit Noise and Vibration Impact Assessment Manual (FTA, 2006). The distance within the construction vibration damage criteria was determined based on reference vibration levels for specific construction equipment.

Traffic Noise

The FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions. This model requires various parameters, including traffic volumes, vehicle mix, 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 CNEL values.

The proposed General Plan noise standards are at least as stringent as those found in the current Ceres General Plan, and, if adopted, would replace existing General Plan noise standards and require updates to the City's Noise Ordinance. Thus, the proposed General Plan noise standards are used to evaluate potential noise impacts from traffic sources in the City of Ceres. The Stanislaus County General Plan and Noise Control Ordinance is used to evaluate potential noise impacts in the unincorporated county.

Stationary Noise

Potential long-term (operational) noise impacts from stationary non-transportation sources are regulated by the City's Noise Ordinance and Stanislaus County's Noise Control Ordinance. The proposed General Plan noise standards are at least as stringent as those found in the current Ceres General Plan, and, if adopted, would replace existing General Plan noise standards and require updates to the City's Noise Ordinance. Thus, the proposed General Plan noise standards are used to evaluate potential noise impacts from stationary sources in the City of Ceres. The Stanislaus County Noise Control Ordinance is used to evaluate potential noise impacts in the unincorporated county.

SUMMARY OF IMPACTS

Implementation of the proposed Project would potentially result in noise and vibration impacts. These impacts could occur due to future construction activities such as grading and excavation associated with development, and due to increased vehicular traffic associated with future growth within the Planning Area. For traffic noise, potential noise impacts on new development would be less than significant, but potential noise impacts on existing development would be significant and unavoidable, as discussed below. The potential short-term and long-term noise and vibration

impacts from the implementation of the Proposed Project would be considered less than significant. The implementation of the proposed General Plan policies would further minimize short-term and long-term noise and vibration levels.

IMPACTS

Impact 3.11-1 Implementation of the Proposed Project would not expose persons to or generate noise levels in excess of the noise standards established in the proposed General Plan Noise Element or applicable standards of other agencies. (*Significant and Unavoidable*)

Implementation of the proposed General Plan may result in both temporary and permanent increases in noise levels, but the increases associated with construction, rail, and stationary noise sources would be less than significant. For traffic noise, potential noise impacts on new development would be less than significant, but potential noise impacts on existing development would be significant and unavoidable, as discussed below.

Construction Noise

Future development associated with the implementation of the General Plan update would generate noise levels from construction activities. Two types of short-term noise impacts could occur during construction. First, construction crew commutes and the transport of construction equipment and materials to construction sites would incrementally increase noise levels on access roads leading to the sites. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to 55 dBA L_{max}), the effect on longer term (hourly or daily) ambient noise levels would be small. Therefore, short-term construction-related impacts associated with worker commute and equipment transport would be less than significant.

The second type of short-term noise impact is related to noise generated during grading and building erection on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment, and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site, and therefore, the noise levels surrounding the site 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 3.11-2: Typical Construction Equipment Noise Levels, below, lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Table 3.11-2: Typical Construction Equipment Noise Levels

Equipment Description	*Spec 721.560[1] Lmax at 50 ft.*	*Actual Measured[2] Lmax at 50 ft.*
Backhoes	80	78
Compactor (ground)	80	83
Cranes	85	81
Dozers	85	82
Dump Truck	84	76
Excavators	85	81
Flat Bed Trucks	84	74
Front-End Loaders	80	79
Graders	85	N/A[3]
Jackhammer	85	89
Pickup Truck	55	75
Pneumatic Tools	85	85
Pumps	77	81
Rock Drill	85	81
Roller	85	80
Scrapers	85	84
Tractors	84	N/A
Vibratory Pile Driver	95	101

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.

2 The maximum noise level was developed based on the average noise level measured for each piece of equipment during the CA/T program in Boston, Massachusetts.

3 Since the maximum noise level based on the average noise level measured for this piece of equipment was not available, the maximum noise level developed based on Spec 721.560 was used.

Lmax = maximum instantaneous sound level

N/A = not applicable

Source: Federal Highway Administration Roadway Construction Noise Model, 2006.

Typical noise levels range up to 88 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving 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 projects under implementation of the Proposed Project would be expected to require the use of scrapers, bulldozers, and water trucks/pickup trucks. Noise associated with the use of construction equipment is estimated to be between 55 and 85 dBA L_{max} at a distance of 50

feet from the active construction area for the grading phase. As seen in Table 3.11-2: Typical Construction Equipment Noise, the maximum noise level generated by each scraper is assumed to be approximately 85 dBA L_{max} at 50 feet from the scraper in operation. Each bulldozer would generate approximately 85 dBA L_{max} at 50 feet. The maximum noise level generated by water trucks/pickup trucks is approximately 55 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 88 dBA L_{max} (at a distance of 50 feet from an active construction area).

The exact location of projects and construction activities that would be implemented under the Proposed Project are not known at this time, though it is likely that construction activities would take place within the vicinity of sensitive receptors, given that these types of uses are widespread in the Planning Area and interspersed with likely development opportunity sites. The City regulates noise associated with construction equipment and activities through its Noise Ordinance in the Municipal Code. Thus, compliance with the City's Noise Ordinance in the Municipal Code in Chapter 9.36 and Stanislaus County's Noise Control Ordinance in Chapter 10.46 in the County Code would be required for any future construction. Therefore, the noise impact from construction activities associated with implementation of the proposed General Plan would be less than significant.

Traffic Noise

Implementation of the Proposed Project would generate traffic, which would increase traffic noise levels along existing and future roadways. The FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions in the Planning Area. Future traffic volumes were those analyzed for Section 3.13: Transportation, and extrapolated traffic volumes from the Stanislaus Council of Governments (StanCOG) model were used to assess the potential traffic noise impacts along the street segments in the Planning Area. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels were weighted and summed over 24-hour periods to determine the CNEL values. Future traffic volumes were used to assess future traffic noise levels. Table 3.11-3: Existing and Future Traffic Noise Levels, below, compares projected traffic noise levels for the Proposed Project with existing noise levels. The projected noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Figure 3.11-3: Projected Noise Contours (2035) shows projected noise level contours along local roadways and freeways within the Planning Area with the Proposed Project.

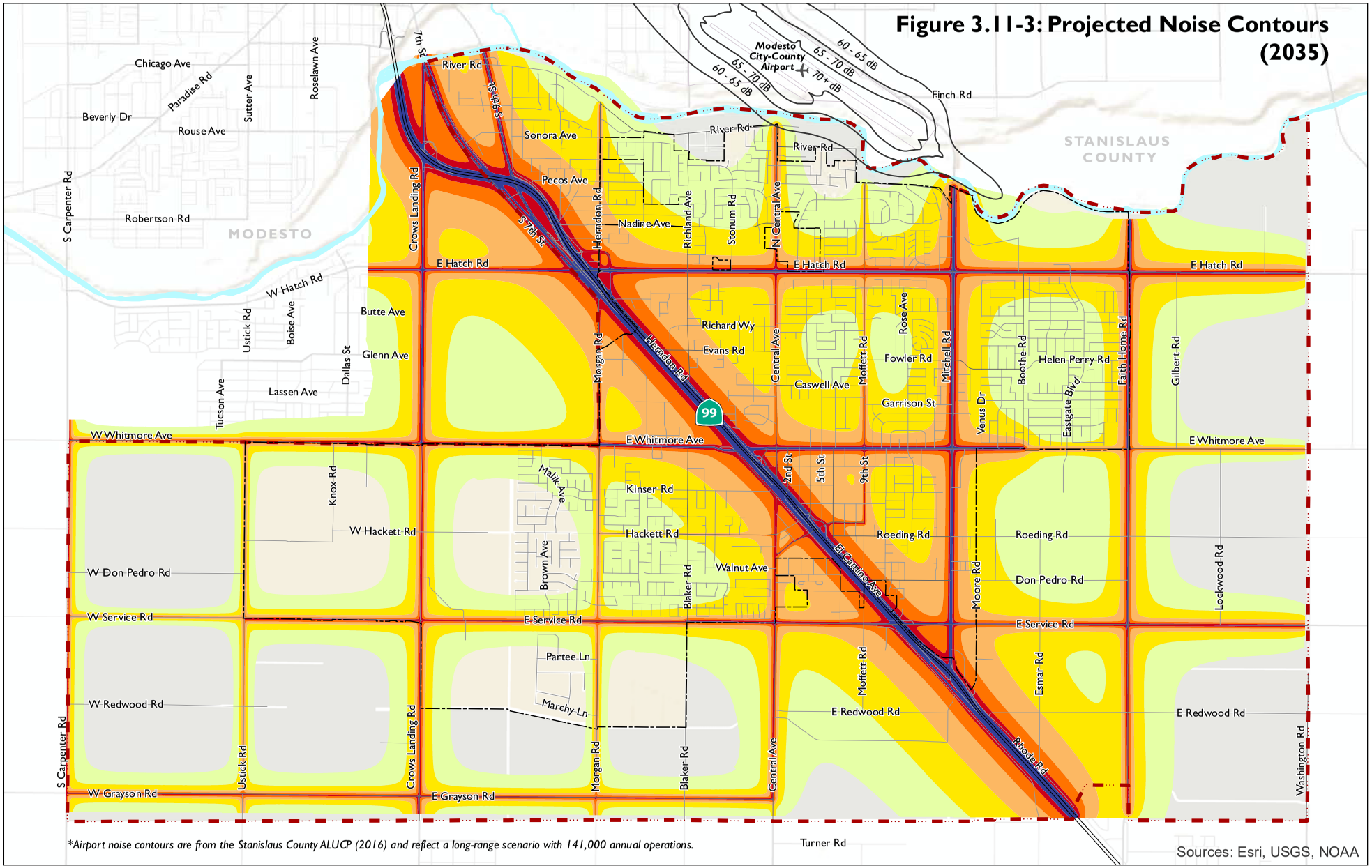
According to the noise exposure guidelines in the proposed General Plan, the most stringent limit on exterior noise for any land use category is 60 dBA CNEL for residential and other sensitive land uses. The threshold for office buildings is 65 dBA CNEL, and the threshold for playgrounds and parks is 70 dBA CNEL. These standards are as stringent as those in the city's current General Plan. They are also as stringent as—and in some cases more stringent than—the exterior noise exposure guidelines in the Stanislaus County General Plan. With approval of the Proposed Project, the environmental impacts from future traffic on existing uses and on new development

itself would be assessed on a case-by-case basis using project-level information and the proposed community noise exposure standards for the most representative assessment of individual development impacts.

Although not all roadway segments are located within 50 feet of a noise-sensitive land use, a reference distance of 50 feet was utilized in the noise modeling to conservatively assess potential noise impacts. As discussed in the Physical Setting section above, audible increases in noise levels generally refer to a change of 3 dB or greater, since this level has been found to be barely perceptible in exterior environments. Therefore, this analysis considers an increase in noise greater than 3 dBA as substantial. Modeling indicates that there are nine roadway segments that would experience noise levels more than 3 dBA CNEL in 2035 with the Proposed Project over existing conditions. These increases in noise level could lead to a significant impact related to noise resulting from implementation of the Proposed Project.

The proposed General Plan policies listed below prohibit development of noise-sensitive land uses in certain scenarios, require noise mitigation measures, and require acoustical analyses to ensure noise exposure standards are met. These policies would ensure that new development complies with proposed General Plan noise standards, which are at least as stringent as those found in the current Ceres General Plan, reducing potential noise impacts on new development to a less than significant level. However, the Proposed Project does not guarantee that noise generated from transportation sources will be reduced, nor does it require noise mitigation for existing land uses. Therefore, impacts of new traffic noise on existing sensitive receptors, such as the residences near the roadway segments that would experience noise levels more than 3 dBA CNEL in 2035 with the Proposed Project over existing conditions, would be significant and unavoidable.

Figure 3.11-3: Projected Noise Contours (2035)



*Airport noise contours are from the Stanislaus County ALUCP (2016) and reflect a long-range scenario with 141,000 annual operations.

Sources: Esri, USGS, NOAA

- Highway
- Major Roads
- Local Roads
- River

Future Traffic Noise Contours

- DNL 55 to 60 dB
- DNL 60 to 65 dB
- DNL 65 to 70 dB
- DNL 70 to 75 dB
- DNL 75 to 80 dB
- DNL > 80 dB

Airport Noise Contours*

- Noise Impact Zones

- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1 MILES

Data Source: Stanislaus County Airport Land Use Compatability Plan, 2016; Charles M. Salter Associates, Inc., 2017; Stanislaus County GIS, 2015;

GENERAL PLAN UPDATE
City of Ceres

Table 3.11-3: Existing and Future Traffic Noise Levels

	Existing		*Future with Proposed General Plan*						
Roadway Segment	*ADT*	*CNEL (dBA) 50 ft. from Centerline of Outermost Lane*	*ADT*	*Change in ADT*	*Centerline to 70 dBA CNEL (ft.)*	*Centerline to 65 dBA CNEL (ft.)*	*Centerline to 60 dBA CNEL (ft.)*	*CNEL (dBA) 50 ft. from Centerline of Outermost Lane*	*Increase over Baseline CNEL (dBA) 50 ft. from Centerline of Outermost Lane*
1. 7th Street north of River Road (Modesto)	16,300	68	38,800	22,500	110	240	520	75	7
2. 9th Street north of River Road (Modesto)	19,500	75	33,700	14,200	150	330	720	77	2
3. Mitchell Road at Tuolumne River (Modesto)	42,700	76	47,000	4,300	160	340	730	77	1
4. Carpenter Road at Tuolumne River (Modesto)	20,100	73	41,600	21,500	130	280	600	76	3
5. Crows Landing Road south of 7th Street (Modesto)	12,700	70	29,200	16,500	90	200	440	74	4
6. West Hatch Road east of South Carpenter Road (Modesto)	10,500	70	19,600	9,100	70	160	350	73	3
7. West Hatch Road west of Crows Landing Road (Modesto)	18,800	72	26,800	8,000	90	200	430	74	2
8. East Hatch Road east of Central Avenue	30,900	77	45,900	15,000	190	410	870	79	2
9. East Hatch Road west of Faith Home Road	11,000	73	25,200	14,200	130	290	620	76	3
10. Herndon Road south of East Hatch Road	6,800	65	9,600	2,800	<50	60	130	66	1
11. Central Avenue south of East Hatch Road	7,900	67	17,100	9,200	70	140	300	72	5
12. Moffett Road south of East Hatch Road	5,900	64	6,000	100	<50	<50	90	64	<1
13. Faith Home Road south of East Hatch Road	3,600	68	26,400	22,800	140	300	650	77	9
14. Crows Landing Road north of West Whitmore Avenue	24,600	74	46,500	21,900	130	290	610	76	2
15. Morgan Road north of East Whitmore Avenue	5,900	67	11,700	5,800	60	120	270	71	4
16. Central Ave north of E Whitmore Ave	8,500	66	13,500	5,000	<50	70	160	68	2
17. Moffett Road north of East Whitmore Avenue	7,000	69	7,400	400	50	100	210	69	<1
18. West Whitmore Avenue east of South Carpenter Road	6,000	68	6,600	600	<50	90	180	68	<1

Table 3.11-3: Existing and Future Traffic Noise Levels

	Existing		*Future with Proposed General Plan*						
Roadway Segment	*ADT*	*CNEL (dBA) 50 ft. from Centerline of Outermost Lane*	*ADT*	*Change in ADT*	*Centerline to 70 dBA CNEL (ft.)*	*Centerline to 65 dBA CNEL (ft.)*	*Centerline to 60 dBA CNEL (ft.)*	*CNEL (dBA) 50 ft. from Centerline of Outermost Lane*	*Increase over Baseline CNEL (dBA) 50 ft. from Centerline of Outermost Lane*
19. East Whitmore Avenue west of Morgan Road	14,500	72	14,500	0	60	140	300	72	<1
20. East Whitmore Avenue east of Blaker Road	24,500	74	41,800	17,300	130	290	620	76	2
21. East Whitmore Avenue west of Central Avenue	26,600	76	44,500	17,900	170	360	780	78	2
22. East Whitmore Avenue west of Faith Home Road	6,900	65	9,300	2,400	<50	70	160	68	3
23. Faith Home Road south of East Whitmore Avenue	4,100	61	26,200	22,100	110	240	510	75	14
24. Hackett Road west of Morgan Road	2,400	62	2,600	200	<50	<50	70	62	<1
25. Pine Street west of El Camino Avenue (at SR 99 Ramps)	9,300	71	12,800	3,500	70	150	330	72	1
26. West Service Road east of South Carpenter Road	1,800	65	2,000	200	<50	50	120	66	1
27. East Service Road west of Morgan Road	7,000	69	10,900	3,900	70	150	310	72	3
28. East Service Road east of Central Avenue	11,900	72	19,700	7,800	90	200	420	74	2
29. East Service Road west of Faith Home Road	4,100	72	5,900	1,800	90	200	420	74	2
30. Ustick Road south of West Service Road	300	54	4,900	4,600	<50	60	130	66	12
31. Crows Landing Road south of West Service Road	4,900	70	9,600	4,700	80	170	370	73	3
32. Morgan Road south of East Service Road	2,900	65	3,700	800	<50	60	140	67	2
33. Central Avenue south of East Service Road	5,600	69	12,900	7,300	70	160	340	73	4
34. Mitchell Road south of East Service Road	29,600	78	39,700	10,100	190	410	890	79	1
35. Faith Home Road south of East Service Road	4,100	68	15,800	11,700	80	180	390	73	5
36. West Grayson Road east of South Carpenter Road	3,300	68	6,700	3,400	60	130	280	71	3
37. South Carpenter Road south of West Grayson Road	5,300	69	6,100	800	50	100	220	70	1

Table 3.11-3: Existing and Future Traffic Noise Levels

	Existing		*Future with Proposed General Plan*						
Roadway Segment	*ADT*	*CNEL (dBA) 50 ft. from Centerline of Outermost Lane*	*ADT*	*Change in ADT*	*Centerline to 70 dBA CNEL (ft.)*	*Centerline to 65 dBA CNEL (ft.)*	*Centerline to 60 dBA CNEL (ft.)*	*CNEL (dBA) 50 ft. from Centerline of Outermost Lane*	*Increase over Baseline CNEL (dBA) 50 ft. from Centerline of Outermost Lane*
38. Crows Landing Road south of East Grayson Road	7,700	71	13,700	6,000	90	190	400	74	3
39. Morgan Road south of East Grayson Road	1,300	66	1,700	400	<50	70	140	67	1
40. Blaker Road south of East Grayson Road	400	50	600	200	<50	<50	<50	52	2
41. Central Avenue south of East Grayson Road	3,500	58	5,000	1,500	<50	<50	50	60	2
42. Highway 99 South of Mitchel Road	101,500	84	165,800	64,300	610	1310	2810	86	2
43. Highway 99 Mitchell Road to Whitmore Avenue	94,000	84	158,800	64,800	570	1220	2630	86	2
44. Highway 99 Whitmore Avenue to Hatch Road	105,000	84	170,350	65,350	630	1360	2940	87	3
45. Highway 99 North of Hatch Road	109,000	85	174,800	65,800	640	1370	2950	87	2
46. Railroad (parallel HWY 99)	n/a	77	n/a	n/a	150	320	680	77	<1

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
n/a = not applicable

Source: Charles M. Salter Associates, Inc., 2017.

Rail Noise

For all future developments within the Planning Area that fall within the required noise screening distances as specified in the FTA Noise and Vibration Manual, a detailed noise analysis would be required. The screening distance for commuter rail and freight trains are 750 feet with no obstruction between the rail line and receptor and 375 feet with intervening buildings. State legislation passed in 2017 includes a proposed ACE train stop in Ceres, and the Proposed Project includes policies that support transit-oriented development around this proposed stop. The proposed ACE train stop is a separate project from the Proposed Project analyzed in this EIR. Since the Proposed Project does not propose additional rail lines, impacts due to rail noise would be less than significant.

Stationary Noise

New development associated with implementation of the Proposed Project could expose existing and/or new sensitive uses to stationary noise sources, such as industrial and/or commercial uses. The development of new commercial and industrial uses pursuant to the Proposed Project may generate noise levels that exceed the City's maximum exterior and interior limit due to the establishment of new stationary noise sources. Although vehicular noise is exempt from local regulation when operating on public streets, cities and counties can regulate vehicular noise while operating on private property. Industrial processing equipment and conducting outdoor industrial activities could also generate increased noise levels. New projects developed under the Proposed Project would be subject to the City's Noise Ordinance and the County's Noise Control Ordinance. New development would also be subject to the proposed General Plan policies that further reduce the impacts from stationary noise sources on sensitive land uses, and include mechanisms to ensure appropriate review and placement of noise reduction requirements on new development, reducing the impact to below a level of significance.

Proposed General Plan Policies that Reduce the Impact

Health and Safety Element

Goal 5.L Protect the community from the harmful and annoying effect of exposure to excessive noise and vibration.

5.L.1 **Community Noise Compatibility.** Use [proposed General Plan] Table 5-3: Community Noise Compatibility Matrix and the Projected Noise Contours (2035) in [proposed General Plan] Figure 5-13 as guidelines to evaluate land use compatibility of new development, including whether a proposed use is compatible with the existing or planned noise environment of a given location, as well as whether a proposed use would negatively affect the noise environment for existing or planned uses in the area.

5.L.2 **Maximum Allowable Noise Exposure.** Use the standards in [proposed General Plan] Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources to regulate acceptable limits of noise for various land uses for both exterior and interior environments from transportation sources.

5.L.3 **Performance Standards.** Use performance standards established in [proposed General Plan] Table 5-5: Performance Standards for Stationary Sources to regulate

operational noise associated with new non-residential development or changes of non-residential use. Require, prior to approval of a project, that noise generated by the project be mitigated so as not to exceed the performance standards of Table 5-5. Standards apply to the noise sources themselves, as measured at the edge of the property line of residential or other sensitive uses; noise caused by motor vehicles traveling to and from the site is exempt from these standards.

5.L.4 **Siting Noise Sensitive Uses.** Prohibit the development of noise-sensitive uses where noise levels are "normally unacceptable" or higher as shown in Table 5-3: Community Noise Compatibility Matrix, unless effective noise mitigation measures have been incorporated into the development design to achieve the specified interior noise standards in Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources. For public schools, require acoustic analyses for any schools proposed in areas where noise levels would be considered "normally unacceptable" per Table 5-3: Community Noise Compatibility Matrix.

5.L.6 **Compatibility with Noise Sensitive Uses.** Require that noise created by new proposed non-transportation sources be mitigated so as not exceed the noise level standards of Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources as measured at the property line of lands designated on the General Plan Land Use Map for noise-sensitive uses.

5.L.7 **Acoustical Analysis.** Require an acoustical analysis as part of the environmental review process for proposed non-residential land uses that are likely to produce noise levels exceeding the performance standards of Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources for existing or planned noise-sensitive uses to ensure that mitigation is included in the project design. The acoustical analysis shall meet the following requirements:

- It shall be the financial responsibility of the applicant;
- It shall be prepared by a qualified person, selected by the City, who is licensed through the State of California in the fields of environmental noise assessment and architectural acoustics;
- It shall include representative noise measurements with sufficient sampling period sand locations to adequately describe local conditions and the predominant noise sources;
- It shall include estimates of existing and projected cumulative (20 years) noise levels in terms of DNL or CNEL and/or the standards of Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources, and compare those levels to the adopted policies of the General Plan;
- It shall recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan, 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. Where the noise source in question

consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance;

- It shall include estimates of noise exposure after the prescribed mitigation measures have been implemented; and
- It shall describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures, when deemed necessary by the City.

5.L.8 **Airport Noise Compatibility.** Ensure that new development complies with the Modesto City-County Airport Land Use Compatibility Plan policies regarding noise.

5.L.9 **Overflight Noise.** Oppose changes in flight patterns that would increase flight activity over Ceres and significantly increase noise concerns.

5.L.10 **Temporary Events.** Require applicants for special events, such as community celebrations, festivals, music events, and public gatherings, to acquire a permit for the temporary amplification of sound and adhere to City standards regarding timing of sound amplification, and noticing prior to the event.

5.L.11 **Noise Compatibility.** Prevent incompatible land uses from encroaching upon existing or planned noise-generating uses (such as agricultural, industrial, or commercial uses) by avoiding the placement of incompatible uses in environments where existing noise levels conflict with guidelines and standards provided in [proposed General Plan] Table 5-3: Community Noise Compatibility Matrix , Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources, and Table 5-5: Performance Standards for Stationary Noise Sources, or where land use designations provide for future uses whose noise levels would be likely to conflict, in order to protect the city's economic base.

5.L.12 **Noise Mitigation.** Require, where noise mitigation measures are required to achieve the standards of [proposed General Plan] Table 5-4: Maximum Allowable Noise Exposure for Transportation Noise Sources and Table 5-5: Performance Standards for Stationary Noise Sources, that the emphasis of such measures be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

5.L.13 **Airport Compatibility.** For projects within the Modesto City-County Airport Influence Area, utilize the noise standards contained in the Stanislaus County Airport Land Use Compatibility Plan, as well as the noise standards contained in [the proposed General Plan Health and Safety Element].

Mitigation Measures

Beyond the proposed General Plan policies listed above, no mitigation measures have been identified that would be able to reduce, with a reasonable degree of certainty, traffic-related noise impacts on existing sensitive receptors.

Impact 3.11-2 Implementation of the Proposed Project would not expose people to or generate excessive groundborne vibration or groundborne noise levels. (Less than Significant)

Implementation of the Proposed Project may result in groundborne vibration, but the increases associated with various sources would be less than significant, as discussed below.

Construction Vibration

Future development under the Proposed Project would generate excessive groundborne noise and vibration near construction sites, and if sensitive receptors or land uses are adjacent to these sites, there could be significant impacts from groundborne noise or vibration. Construction activities can produce vibration that may be felt by adjacent land uses. As long as construction of a particular development did not require the use of equipment, such as pile drivers, known to generate substantial construction vibration levels, the primary source of vibration during construction would likely be from bulldozer and truck operation.

Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds, with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels that would result in damage to nearby structures.

Table 3.11-4: Construction Vibration Damage Criteria shows the vibration damage threshold for modern structures, residential structures, and fragile structures. As shown in Table 3.11-4, potential vibration damage would occur at 0.12 peak particle velocity (PPV) in inches per second (in/sec) for fragile structures, 0.2 PPV in inches per second (in/sec) for residential structures, and 0.3 to 0.5 PPV in/sec for modern industrial/commercial structures.

Table 3.11-4: Construction Vibration Damage Criteria

Building Category	*PPV (in/sec)*	*Approximate L_v[1]*
Reinforced-concrete, steel or timber (no plaster)	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Non-engineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90

Note:
1. RMS velocity in decibels (VdB) relative to 1 micro-inch/second.

Source: FTA, 2006.

The use of large bulldozers and trucks for construction would generate the highest ground-borne vibration levels. Based on the FTA Transit Noise and Vibration Impact Assessment Manual (FTA, 2006), a large bulldozer and loaded trucks would generate vibration levels of 0.089 PPV in/sec and 0.076 PPV in/sec, respectively, when measured at 25 feet. Table 3.11-5: Distance within Vibration Damage Criteria shows that fragile structures located within 19 feet, residential structures constructed with non-engineered timber located within 12 feet, and modern

industrial/commercial structures constructed with engineered concrete and masonry located within 8 feet of construction activity with the use of a large bulldozer would potentially damage the structure. Construction activities with the use of a large bulldozer would not likely occur within the structure type and their corresponding distance mentioned above. Therefore, vibration levels generated during construction would be considered less than significant.

Table 3.11-5: Distance within Vibration Damage Criteria

Construction Equipment	*Modern Commercial Industrial Structures*	*Residential Structures*	*Fragile Structures*
	0.3 PPV (in/sec)	***0.2 PPV (in/sec)***	***0.12 PPV (in/sec)***
Large Bulldozer	8 feet	12 feet	19 feet
Loaded Trucks	7 feet	10 feet	16 feet

Source: Dyett & Bhatia, 2017.

Traffic Vibration

The Proposed Project would allow for future land development, which would not in and of itself generate any traffic vibration levels. However, vehicular traffic would generate ground-borne vibration and are typically caused by poor road conditions, such as potholes, bumps, expansion joints, or other discontinuities in the road surface. Passenger vehicles and trucks would cause effects such as rattling of windows, and the source would almost always be airborne noise. For areas within the Planning Area where the Proposed Project would not improve roadways, vibration levels generated from vehicular traffic would not change. For areas within the Planning Area where the Proposed Project would improve roadways, vibration levels generated from vehicular traffic would be reduced as potholes, bumps, or other discontinuities in the road surface are addressed. Therefore, ground-borne vibration impacts generated by vehicles traveling within the Planning Area would be considered less than significant.

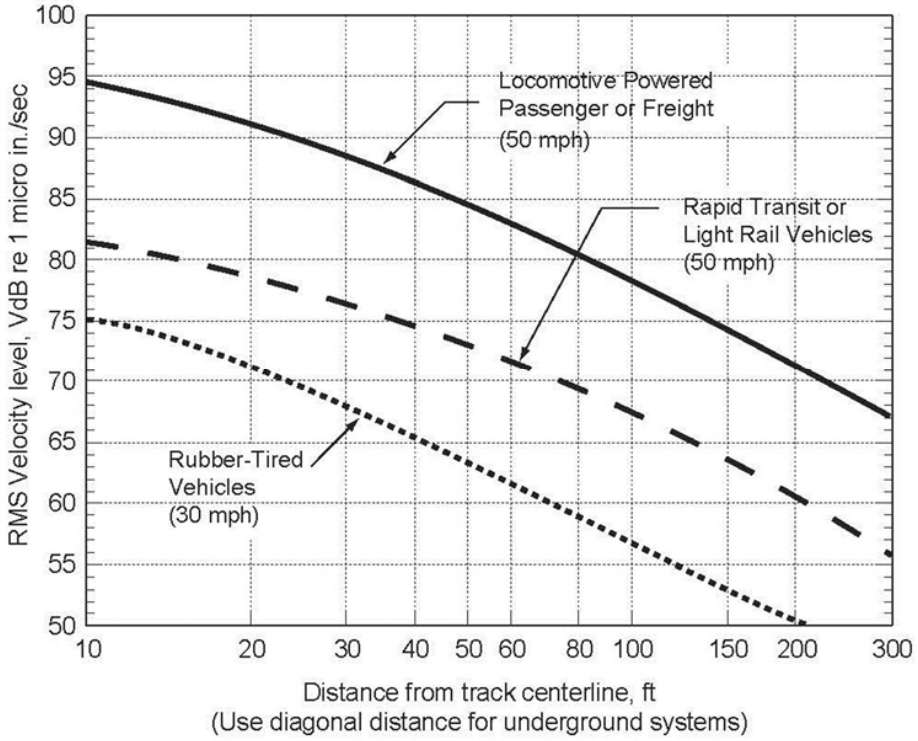
Rail Vibration

The operations of the Union Pacific Railroad currently generate vibration levels. Although existing train operations generate vibration levels and planned ACE train extension will likely introduce new sources of vibration, the Proposed Project itself would not change vibration levels generated from trains.

Typical vibration levels generated from trains are described in Figure 3.11-4: Generalized Ground Surface Vibration Curves. As shown in Figure 3.11-4, locomotive powered passenger or freight trains would typically generate a vibration level of 90 VdB at a distance of 25 feet.

For all future development within the Planning Area that fall within the required noise screening distances as specified in the FTA Noise and Vibration Manual, a detailed noise analysis would be required. The screening distance for commuter rail is 750 feet with no obstruction between the rail line and receptor and 375 feet with intervening buildings. Due to required noise analyses, vibration levels generated from trains would be considered less than significant.

Figure 3.11-4: Generalized Ground Surface Vibration Curves



Mitigation Measures

None required.

Impact 3.11-3 The development of the Proposed Project would result in a substantial permanent increase in ambient noise levels above levels existing without the Proposed Project. (Significant and Unavoidable)

Implementation of the Proposed Project may result in permanent increases in ambient noise levels, but the increases associated with rail and stationary noise sources would be less than significant. For traffic noise, potential noise impacts on new development would be less than significant, but potential noise impacts on existing development would be significant and unavoidable, as discussed below.

Traffic Noise

Table 3.11-3: Existing and Future Traffic Noise Levels shows that there are nine roadway segments that would experience noise levels more than 3 dBA CNEL in 2035 with the Proposed Project over existing conditions. These increases in noise level could lead to a significant impact to noise resulting from implementation of the Proposed Project. The proposed General Plan policies listed under Impact 3.11-1 prohibit development of noise-sensitive land uses in certain

scenarios, require noise mitigation measures, and require acoustical analyses to ensure noise exposure standards are met. While these policies reduce the effects of traffic noise to new development, impacts of increased traffic noise on existing development would not be reduced. Therefore, substantial permanent increase in ambient noise levels from traffic noise would be significant and unavoidable.

Rail Noise

The extension of ACE service to Ceres could expose more people to noise from railway operations. However, the Proposed Project itself would not affect existing rail operations in the Planning Area in a manner that would result in a substantial permanent increase in ambient noise levels above noise levels that would exist without the Proposed Project. Therefore, there would not be a substantial permanent increase in ambient noise levels from rail noise from the Proposed Project and there would be no impact.

Stationary Noise

New development associated with implementation of the Proposed Project could expose existing and/or new sensitive uses to stationary noise sources, such as industrial and/or commercial uses. The development of new commercial and industrial uses pursuant to the Proposed Project may increase noise levels in their vicinity due to the establishment of new stationary noise sources. Although vehicular noise is exempt from local regulation when operating on public streets, cities and counties can regulate vehicular noise while operating on private property. Industrial processing equipment and conducting outdoor industrial activities could also generate increased noise levels. New projects developed under the Proposed Project would be subject to the City's Noise Ordinance and the County's Noise Control Ordinance. New development would also be subject to the proposed General Plan policies that further reduce the impacts from stationary noise sources on sensitive land uses, and would include mechanisms to ensure appropriate review and placement of noise reduction requirements.

Proposed General Plan Policies that Reduce the Impact

Goal and policies under Impact 3.11-1.

Mitigation Measures

Beyond the proposed General Plan policies listed above, no mitigation measures have been identified that would be able to reduce, with a reasonable degree of certainty, traffic-related noise impacts on existing sensitive receptors.

Impact 3.11-4 The development of the Proposed Project not would result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the Proposed Project. (Less than Significant)

Construction noise generated from development associated with the Proposed Project would temporarily increase ambient noise levels above existing noise levels without the proposed General Plan. As construction activities would comply with the City's Noise Control Ordinance in the Municipal Code in Chapter 9.36 and Stanislaus County's Noise Control Ordinance in Chapter 10.46 in the County Code, substantial temporary increase in ambient noise levels from construction noise would be considered less than significant.

Mitigation Measures

None required.

Impact 3.11-5 The Proposed Project would not result in a project that exposes people residing or working in the project area to excessive noise levels due to the project's location within an airport land use plan noise impact area. (Less than Significant)

The Modesto City-County Airport is located just north of Ceres, on the north side of the Tuolumne River. Figure 3.11-3: Projected Noise Contours (2035) shows portions of the 60 to 65 dB CNEL and 65 to 70 dB CNEL contours for the airport extending into the Ceres Planning Area. The proposed General Plan designates these areas for Very Low Density Residential land uses. Single family residences are already located in this portion of the Planning Area. The Proposed Project does not propose more intense uses or dense housing in the areas where there are existing residences located within the 60 to 65 dB CNEL and 65 to 70 dB CNEL contours for the Modesto City-County Airport. Additionally, future residences would include noise attenuation consistent with the Health and Safety Element of the proposed General Plan (see proposed General Plan Policies 5.M.7 and 5.M.12). The proposed plan Health and Safety Element also includes policies requiring compliance with the ALUCP for the Modesto City-County Airport (Policies 5.M.8 and 5.M.13) and prohibiting flight activity over Ceres that would significantly increase noise concerns (Policy 5.M.9). Therefore, impacts due to aircraft noise would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Goal 5.M and policies 5.M.7, 5.M.8, 5.M.9, 5.M.12, and 5.M.13 under Impact 3.11-1.

Mitigation Measures

None required.

3.12 Public Services and Recreation

This section provides an evaluation of potential impacts on public facilities and services as a result of the Proposed Project, including impacts related to fire, police, and school services, and park and recreation facilities. This section describes existing public services and facilities in the Planning Area, as well as relevant federal, State, and local regulations and programs.

There was one comment on the NOP regarding topics addressed in this section. The Stanislaus Local Agency Formation Commission (LAFCO) requested that the EIR discuss what specific measures would be implemented to improve and/or maintain the current level of services prior to expansion of the City's boundaries. This section of the EIR considers police and fire protection in the Planning Area and discusses potential impacts, existing regulations, and proposed policies that would affect the provision of these services. The Proposed Project is not itself an application for the expansion of the City's boundaries. Should the City choose to apply for annexations in the future, it would address specific measures to improve and/or maintain levels of service as part of a Plan for Services as required by LAFCO and Government Code Section 56653.

Environmental Setting

PHYSICAL SETTING

Public Safety Services

Fire and Emergency Medical services

The City of Ceres Fire Department serves an area of 15 square miles, including about 47,000 residents in the City of Ceres; 1,200 residents in Stanislaus County south of Ceres city limits in the Ceres Fire Protection District; and 4,000 residents in Stanislaus County north of Ceres city limits in the Industrial Fire Protection District. There are four fire stations in Ceres, including Fire Station #1, which also houses the Department's administrative headquarters and fire prevention services. Fire stations are mapped in Figure 3.12-1: Public Safety Facilities, and staffing for each station is shown in Table 3.12-1: Ceres Fire Department Staffing and Facilities.

Table 3.12-1: Ceres Fire Department Staffing and Facilities

Station	*Number of firefighters/paramedics on duty per day*
Fire Station #1 (2755 Third Street)	3
Fire Station #2 (830 Pecos Avenue)	3
Fire Station #3 (420 Service Road)	2
Fire Station #4 (3101 Fowler Road)	3
Administrative Headquarters (2755 Third Street)	2
Fire Prevention (2755 Third Street)	1

Source: City of Ceres Fire Department, 2016.

The City of Ceres Fire Department provides fire protection and emergency medical services as well as hazardous materials mitigation, technical rescue fire investigations, and public education. The Department is involved in the early permitting stages of planning and development in order to ensure that buildings are constructed in such a way as to minimize fire hazards, new development is sited to be reachable by fire services, and roads can accommodate turn radii of fire service vehicles. In addition, the Fire Department inspects businesses and residences upon request to ensure adherence to fire safety requirements.

Staffing and Service Standards

As of 2016, the Department had a staff of 38.5, including one secretary (half time), one chief, three battalion chiefs, 13 captains, 12 engineers, and nine firefighters. The Fire Department does not have service ratio standards (e.g. number of responders per 1,000 residents), but does aim for the National Fire Protection Association's (NFPA's) national response time standard of responding within nine minutes of a dispatch notification at least 90 percent of the time. During 2015, the average response time for fire and emergency calls in the Planning Area was less than five minutes, well below the target response time.

Police Service

Police services in the Planning Area are provided by the Ceres Police Department and the Stanislaus County Sheriff's Department. As shown in Figure 3.12-1: Public Safety Facilities, the Police Department is headquartered at 2727 3rd Street Downtown near the Ceres Community Center and Ceres Fire Department, while the Stanislaus County Sheriff's Department is located on the western side of the city near other County offices. The Ceres Police Department provides a full range of police services with 51 sworn officers in fiscal year 2015/16, in addition to non-sworn personnel, as shown in Table 3.12-2: Ceres Police Department Staffing by Divisions. The Stanislaus County Sheriff's Department provides general-service law enforcement to unincorporated areas of Stanislaus County outside of the Ceres city limits.

Table 3.12-2: Ceres Police Department Staffing by Divisions

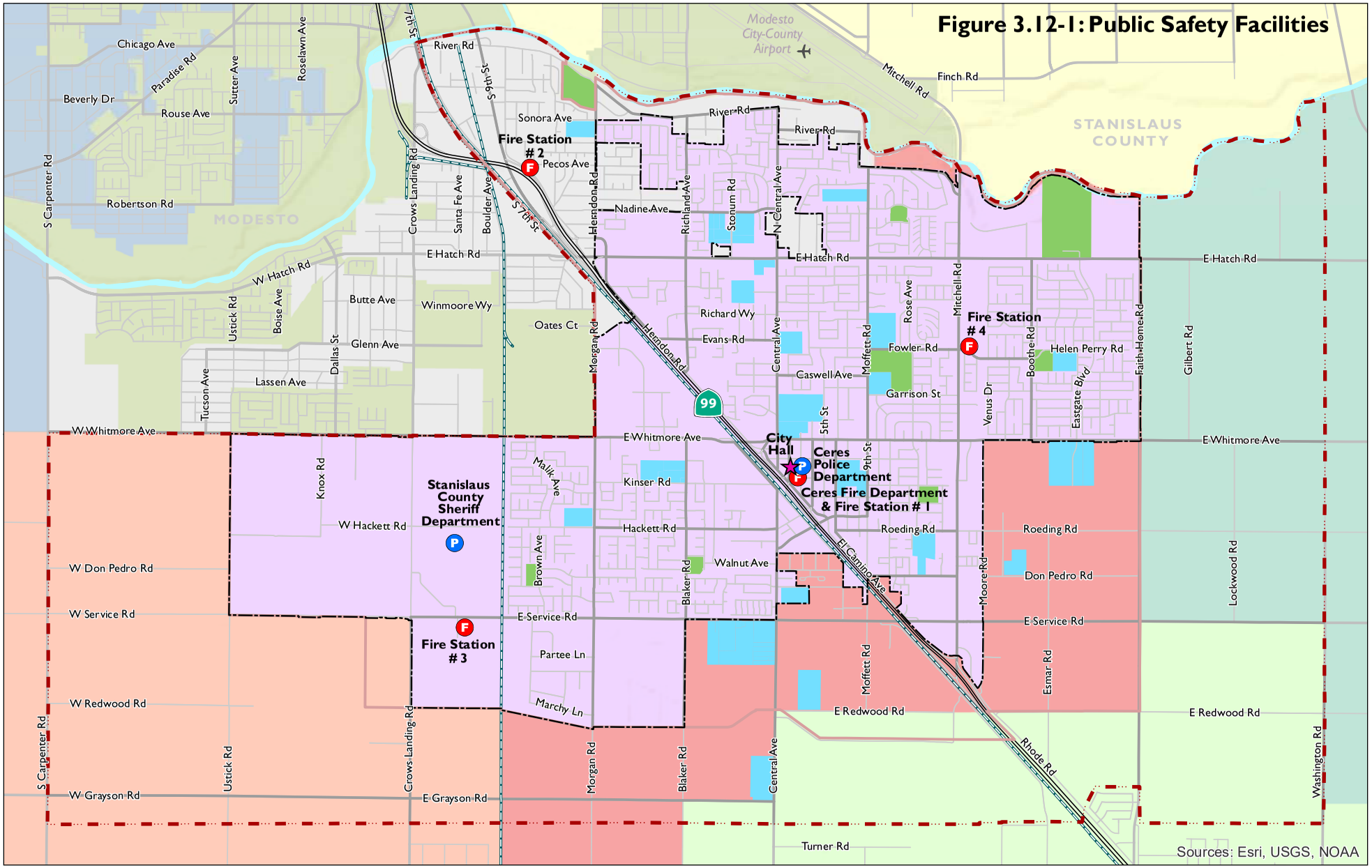
Division	*Number of Employees/Volunteers*
Administration (Chief, Captain, 3 Lt)	5
Sergeants	9
Patrol Officers	24
Detectives	8
Traffic	2
School Resource Officers	3
Total Sworn Officers	**51**
Volunteers in Public Safety	15
Communications (Dispatch)	8
Chaplains	3
Records	3
Community Service Officers	1.5
Code Enforcement	1
Total Non-Sworn Staff	**31.5**

Source: Ceres Police Department, 2015.

Staffing and Service Standards

The Ceres Police Department's 2015 service ratio was 1.0 officers per 1,000 residents, which was below its goal of 1.3 officers per 1,000 residents. As of 2015, based on Ceres' population of 47,000, the Police Department would have to increase by about 15 officers to meet the service ratio goal.

The average response time in 2015 for priority one (highest priority, major crimes and incidents) calls was about five minutes, though the Police Department does not have response time standards. Response time refers to the time between dispatch and the first unit's arrival.



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Schools

Public Schools

Ceres Unified School District (CUSD) provides educational services for students of all grades in elementary, junior, and high school in Ceres. As shown in Figure 3.12-2: Schools and Community Facilities, schools are located throughout the Planning Area in almost every residential neighborhood. Twenty-two of the school district's 23 schools are within the Planning Area. Within city limits, there are nine elementary schools, two middle schools, two high schools, two charter schools (Whitmore Charter School of Technology and Whitmore Charter School of Personalized Learning), and two alternative schools (Ceres Adult School and Stanislaus County Institute of Learning). There are three elementary schools, one middle school, two high schools, and one charter school (Whitmore Charter High) located outside of city limits but within the Sphere of Influence, and one elementary school in the Planning Area outside of the Sphere of Influence. Enrollment for the 2016-2017 school year, current enrollment capacity, and remaining capacity is shown in Table 3.12-3: Enrollment and Capacity in Ceres Unified School District (2016-2017 School Year) for the entire district.

Table 3.12-3: Enrollment and Capacity in Ceres Unified School District (2016-2017 School Year)

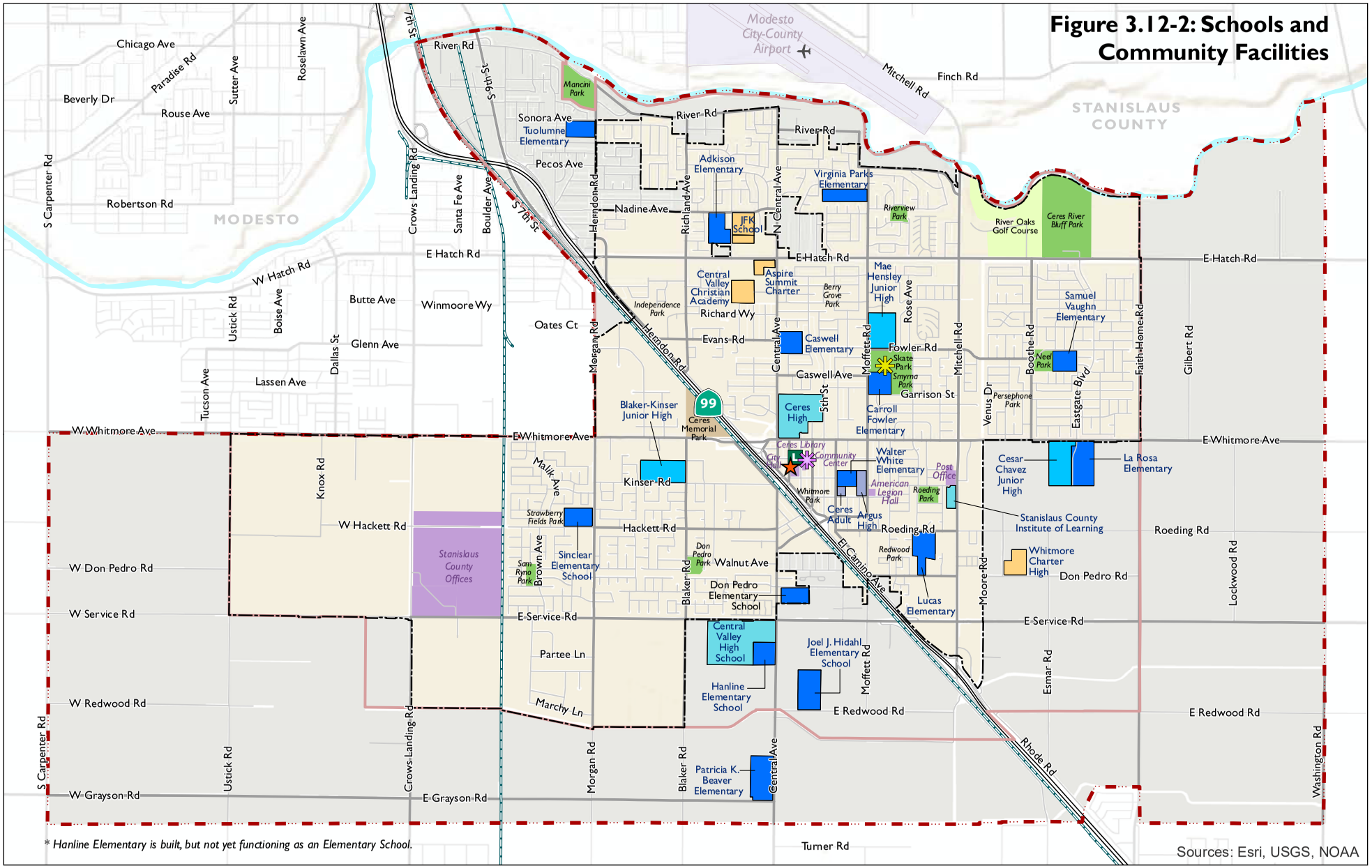
Grade	*Total Enrollment*	*Total Capacity*	*Remaining Capacity*
Elementary Schools (K-6)	7,329	9,805	2,476
Junior High Schools (7-8)	1,764	2,495	731
High Schools (9-12)	3,302	3,870	568
Charter Schools (K-12)	587	700	133
Total	**12,982**	**16,870**	**3,888**

Source: Ceres Unified School District, 2017.

Other Schools

There are two private schools in Ceres. Aspire Summit Charter Academy (2036 Hatch Road) educates elementary school students, and Central Valley Christian Academy (2020 Academy Place) educates students in kindergarten through 12th grade. In addition, there are two schools operated by the Stanislaus County Office of Education: John F. Kennedy School is located at 1336 Stonum Road and serves special education students, and Stanislaus County Institute of Learning/Tactical Character Academy is located at 3113 Mitchell Road.

Figure 3.12-2: Schools and Community Facilities



Highway
Ramps
Major Roads
Local Roads
Railroads

Elementary School
Junior High School
High School
Alternative School
Charter Schools/Private Schools

City Hall
Library
Community Center
Skate Park

Parks
Golf Course
Cemetery
Public Facilities

River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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City of Ceres

Parks and Recreational Facilities

Park Classification

The City of Ceres provides several types of parks and recreation facilities, which can be classified as follows:

- **Neighborhood Parks.** Neighborhood parks may be up to 10 acres. They are intended to serve residents of immediately surrounding neighborhoods within a quarter- to a half-mile radius. They provide space for both active and passive activities, and include elements such as tennis or basketball courts, horseshoe or bocce pitches, dog parks, turf areas for flexible activity use, play equipment for children, exercise equipment for adults, and walking paths. Neighborhood parks are typically equipped with perimeter lighting and shaded seating areas.
- **Community Parks.** Community parks range from 10 to 40 acres and serve as destinations within the community. They contain facilities not found at neighborhood parks, including natural areas, dog parks, competition sport fields, spray-grounds, and BMX and skate parks. Community parks may provide lighting, restroom facilities, play equipment, exercise equipment, multi-use and social areas, and parking.
- **Regional Parks.** Regional parks serve as regional draws for recreational use. They may include natural areas for passive activity such as birdwatching, and developed areas for active uses including biking and walking. Competition sport fields can be located in regional parks, in addition to community parks.

Existing and Planned Parks and Parkland Ratio

The City of Ceres maintains 13 parks covering more than 150 acres. As shown in Figure 3.12-3: Existing and Planned Parks and Recreation Facilities, parks are located throughout the community and typically serve surrounding neighborhoods. Table 3.12-4: Existing and Planned Parks within Ceres City Limits provides an inventory of acreage totals by park type. As of 2016, there are 11 neighborhood parks totaling about 48 acres, one community park totaling about 28 acres, and one regional park totaling 76 acres. In addition, per the 2016 City of Ceres Parks and Recreation Master Plan, three parks are planned within the community—including Whitmore Mansion Park, Ceres Lions Park, and Eastgate Park—and will increase the park total in Ceres by about 23 acres upon completion. Planned parks have begun the detailed planning, permitting, and construction phases of development, but are not yet ready for public use.

Table 3.12-4: Existing and Planned Parks within Ceres City Limits

Park Name	*Acres*
Existing Parks	**152.2**
Neighborhood Parks	*48.3*
Berrygrove Park	3.7
Don Pedro Park	5.0
Independence Park	4.3
Neel Park	8.2
Persephone Park	3.1
Redwood Park	1.0
Riverview Park	5.6
Roeding Heights Park	6.1
Sam Ryno Park	5.2
Strawberry Fields Park	4.6
Whitmore Park	1.5
Community Parks	*27.9*
Smyrna Park	27.9
Regional Parks	*76.0*
River Bluff Regional Park	76.0
Planned Parks	**22.6**
Neighborhood Parks	*22.6*
Whitmore Mansion Park	2.6
Ceres Lions Park	10.0
Eastgate Park	10.0
Total Parks (Existing and Planned)	**174.8**

Source: City of Ceres Parks and Recreation Master Plan, 2016.

Table 3.12-5: Existing Park Ratios Within the Ceres City Limits shows the estimated amount of parkland per 1,000 residents in Ceres. There were 3.2 acres of public parkland per 1,000 residents available in 2015. When accounting for planned parkland, the City provided 3.7 acres of public parkland per 1,000 residents, which is lower than the City's parkland standard of 4.0 acres per 1,000 residents.

Mancini Park is the only other park in the Planning Area. It is a 20-acre community park operated by the City of Modesto located along the Tuolumne River in the northern portion of the Planning Area.

Table 3.12-5: Existing Park Ratios Within the Ceres City Limits

	2015
City of Ceres Population	47,000
Existing Public Park Acres	152.2
Park Ratio (Acres of Parkland per 1,000 Residents)	3.2
Existing and Planned Public Park Acres[1]	174.8
Park Ratio (Acres of Parkland per 1,000 Residents)	3.7
Existing and Planned Public and Private Park Acres[2]	199.8
Park Ratio (Acres of Parkland per 1,000 Residents)	4.3

Notes:

1. Planned parks, include Ceres Lions Park, Eastgate Park, and Whitmore Mansion Park.
2. Includes private park land owned by private organizations and homeowner associations.

Sources: StanCOG 2040 Demographic Forecast, 2016; Economic & Planning Systems, Inc., 2016.; West Landing Specific Plan, 2011; Notice of Preparation of Environmental Impact Report for Whitmore Ranch Specific Plan, 2017; City of Ceres Parks and Recreation Master Plan, 2016; California Department of Finance, 2015; Dyett & Bhatia, 2017.

Recreational Facilities and Programming

Public recreational facilities in the Planning Area are all located within city limits. The City of Ceres Recreational Division provides programming for youth, teens, adults, and seniors. The City offers a wide range of programming, including exercise classes, sports leagues, art classes and workshops, dance classes, first aid training, aquatics programs, and more. Most classes and workshops are taught at the Ceres Community Center, located at 2701 4th Street. Most programs offered by the City of Ceres have a participant fee.

As the Community Center does not have indoor space for active uses, such as aquatics and indoor athletics, the City of Ceres has a Joint Facility Use Agreement with CUSD. The City utilizes the gyms, pools, and classrooms at school sites while schools are not in session, and CUSD utilizes the Ceres Community Center.

The City allows the public to rent the Ceres Community Center and sites within Smyrna Park, Roeding Heights Park, Whitmore Park, and Ceres River Bluff Park. Though the City has agreements with agencies to provide indoor recreational space, there is still a need for additional spaces for youth recreation, particularly indoor recreation. Recreational facilities are shown in Figure 3.12-3: Existing and Planned Parks and Recreation Facilities.

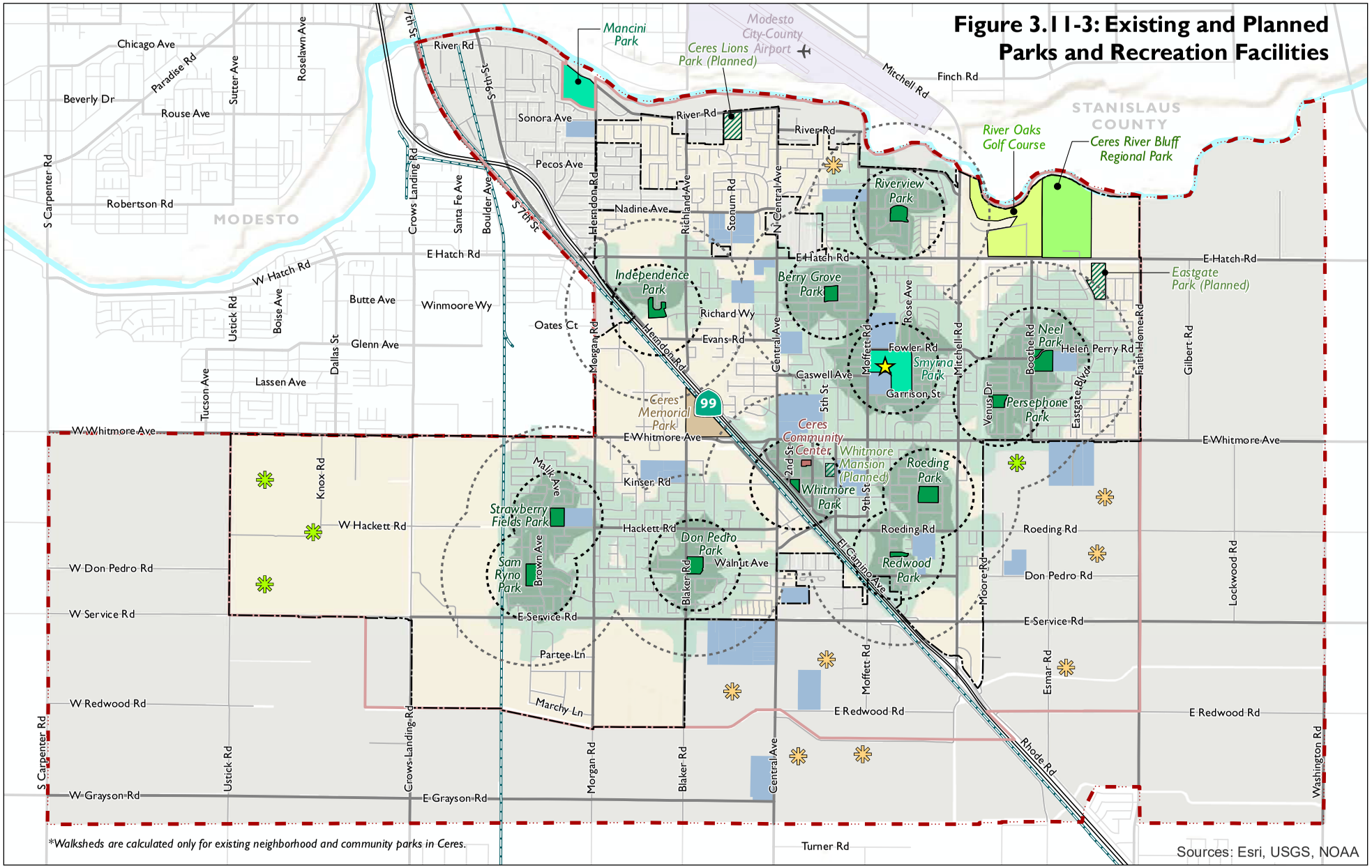
Figure 3.11-3: Existing and Planned Parks and Recreation Facilities
Mancini Park
Ceres Lions Park (Planned)
Modesto City-County Airport
Mitchell Rd
Finch Rd
STANISLAUS COUNTY
River Oaks Golf Course
Ceres River Bluff Regional Park
River Rd
Sonora Ave
Pecos Ave
Nadine Ave
Riverview Park
Independence Park
Berry Grove Park
Richard Wy
Evans Rd
Oates Ct
Fowler Rd
Smyrna Park
Caswell Ave
Garrison St
Neel Park
Helen Perry Rd
Persephone Park
Eastgate Park (Planned)
E Hatch Rd
W Hatch Rd
Butte Ave
Winmoore Wy
Glenn Ave
Lassen Ave
Ceres Memorial Park
Ceres Community Center
Whitmore Mansion (Planned)
Whitmore Park
Roeding Park
E Whitmore Ave
W Whitmore Ave
Kinser Rd
Strawberry Fields Park
Hackett Rd
W Hackett Rd
Don Pedro Park
Walnut Ave
Sam Ryno Park
Redwood Park
Roeding Rd
Don Pedro Rd
W Don Pedro Rd
W Service Rd
E Service Rd
Partee Ln
Marchy Ln
W Redwood Rd
E Redwood Rd
W Grayson Rd
E Grayson Rd
Turner Rd
Rhode Rd
MODESTO
Chicago Ave
Beverly Dr
Rouse Ave
Paradise Rd
Sutter Ave
Roselawn Ave
Robertson Rd
S Carpenter Rd
Crows Landing Rd
Santa Fe Ave
Boulder Ave
Hereford Rd
Richland Ave
Stonum Rd
N Central Ave
Rose Ave
Moffett Rd
Mitchell Rd
Faith Home Rd
Gilbert Rd
Eastgate Blvd
Venus Dr
Ustick Rd
Boise Ave
Dallas St
Tucson Ave
Morgan Rd
Central Ave
5th St
2nd St
9th St
Knox Rd
Malik Ave
Brown Ave
Blaker Rd
Moore Rd
Esmar Rd
Lockwood Rd
Washington Rd
El Camino Ave
99
7th St
9th St
S 10th St
Sources: Esri, USGS, NOAA
*Walksheds are calculated only for existing neighborhood and community parks in Ceres.
Highway
Ramps
Major Roads
Local Roads
Railroads
Skate Park
Neighborhood Park
Community Park
Regional Park
Parks Quarter Mile Service Radius
Parks Half Mile Service Radius
Parks Walkshed*
5 Minute Walking Distance
10 Minute Walking Distance
Planned Parks
Golf Course
Cemetery
Community Center
Schools
Proposed Parks
Potential Parks
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area
0 0.25 0.5 1
MILES
Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.
GENERAL PLAN UPDATE
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Other Community Facilities

Community facilities are public and private institutions that support the civic and social needs of the population. They offer a variety of recreational, artistic, and educational programs for all ages, and often serve as venues for special public and private events.

- **City administrative offices.** City administrative offices are located at 2720 Second Street and 2200 Magnolia Street in Downtown Ceres and serve as the headquarters for Ceres City government.
- **Ceres Community Center**. The Ceres Community Center, located at 2701 4th Street, was built in 2009 in Downtown Ceres. It contains 26,500 square feet of usable community space and features a teen activity room, an arts and crafts center, a computer learning center, a senior activity room, assembly space, and a kitchen. It hosts special events, classes for all ages, and more.
- **Ceres Public Works Department.** The Ceres Public Works Department is located at 2220 Hackett Road, Ceres.
- **Daniel Whitmore Home.** The Daniel Whitmore Home was built by the founder of Ceres in 1870 and is a historical landmark on the National Register of Historical Places. It is located in Downtown Ceres and is part of the Ceres Museum.
- **Whitmore Mansion.** The Whitmore Mansion was built in 1903 by the city founder's son. The City bought the Mansion in 2012 and partners with a non-profit group that is responsible for its operation, including renting the Mansion and grounds for special events.
- **Ceres American Legion Memorial Building.** The American Legion Memorial Building**,** located at 2609 Lawrence Street, can be rented for meetings and events.
- **Ceres Unified School District Administrative Office.** CUSD's administrative office is located at 2503 Lawrence Street and serves as the headquarters for the school district.
- **Stanislaus County Offices.** Stanislaus County Offices, including the County public safety services, animal shelter, welfare department, administration, and sheriff department are located in southwest Ceres to the immediate east of Crows Landing Road.
- **Ceres Public Library.** The Ceres Public Library is located adjacent to the Community Center in Downtown Ceres. It is a branch of the Stanislaus County Library.

REGULATORY SETTING

Federal Regulations

There are no relevant federal laws, policies, plans, or programs that apply to the Proposed Project.

State Regulations

California Fire Code, Code of Regulations Title 24, Part 9

The California Fire Code establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems, such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

School Site Selection and Construction, California Education Code and California Public Resources Code

California Education Code Part 10.5, Chapter 1 School Sites

Sections 17210 to 17224 of the California Education Code governs the evaluation and selection of new sites and additions to existing sites for public schools, and for charter schools seeking state funding for school property acquisition or construction. Section 17211 requires the governing board of a school district to evaluate property proposed for a new school site or addition to an existing site at a public hearing prior to acquisition. Section 17212 requires the governing board of a school district to evaluate expert investigations into all factors affecting the public interest regarding a proposed school site prior to acquisition, including geological and soil engineering studies of such a nature as to preclude siting of a school in any location where the geological and site characteristics are such that the construction effort required to make the building safe for occupancy is economically infeasible. Under section 17212, the evaluation should also include the site's location in respect to population, transportation, water supply, waste disposal, utilities, traffic hazards, and surface drainage conditions, and other factors affecting the costs of the project. The chapter precludes the selection of a site where hazardous geological or soil conditions, hazardous substances, or proximity to an airport would pose a danger to public health or safety.

California Education Code Part 10.5, Chapter 3 Construction of Buildings

The California Department of Education (CDE) establishes standards for the selection of school sites pursuant to Education Code Section 17251. In 2000, the CDE School Facilities Planning Division (SFPD) updated the Guide to School Site Analysis and Development, which was originally published in 1966. The guide assists school districts in determining the amount of land needed to meet their educational purposes according to CDE recommendations.

California Public Resources Code Section 21151.8

Public Resources Code Section 21151.8 requires that an EIR or negative declaration for a project involving the purchase of a school site or the construction of a new elementary or secondary school by a school district must include information on potential safety and health hazards to school occupants, including the presence of hazardous waste, hazardous substance release, pipelines, and air quality risks.

SB 50 (Statutes of 1998), State School Funding, Education Code Section 17620

California Education Code 17620 establishes the authority of any school district to levy a fee, charge, dedication, or other requirements against any development within the school district for the purposes of funding the construction of school facilities, as long as the district can show justification for the fees. Senate Bill 50 was adopted in 1998. The legislation limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development. It also authorizes school districts to levy statutory developer fees at levels higher than previously allowed and according to new rules.

Quimby Act

The 1975 Quimby Act (California Government Code section 66477) authorized cities and counties to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. Under the Quimby Act, fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services communitywide; however, revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities. The act states that the dedication requirement of parkland can be a minimum of three acres per thousand residents or more, and equal to the existing parkland provision (up to five acres per thousand residents) if the existing ratio is greater than the minimum standard. In 1982, the act was substantially amended. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must show a reasonable relationship to a project's impacts as identified through studies required by CEQA. The City of Ceres has adopted a subdivision ordinance pursuant to the Quimby Act with a parkland standard of 4 acres per 1,000 residents, as described below.

Local Regulations

Stanislaus County General Plan

The Stanislaus County General Plan applies to the unincorporated County land in the Planning Area. Goal Four of the 2015 Stanislaus County General Plan reads: "Ensure that an effective level of public service is provided in unincorporated areas." Polices related to this goal include:

- **Policy 23.** At least three net acres of developed neighborhood parks, or the maximum number of acres allowed by law, should be provided for every 1,000 residents, through land dedication and development, payment of in lieu of fees, public facility fees, or other methods acceptable to the Parks Department.

- **Policy 24.** Future growth shall not exceed the capabilities/capacity of the provider of services such as sewer, water, public safety, solid waste management, road systems, schools, health care facilities, etc.

City of Ceres Municipal Code

Chapter 13.18 Storm Water Management and Discharge Control

The purpose of Ceres' Storm Water Management and Discharge Control Ordinance (Chapter 13.18 of the Municipal Code) is to control non-storm water discharges to the storm water conveyance system from spills, dumping or disposal of material other than storm water, and by reducing pollutants in urban storm water discharges to the maximum extent practicable. It regulates discharging during many activities, including construction.

Chapter 15.10, California Fire Code

The Fire Code is Chapter 15.10 of the Ceres Municipal Code. It adopts an amended version of the California Fire Code. Amendments are related to permit application processes, permit requirements, fire hydrants, and other topics.

Chapter 15.14, California Green Building Standards Code

The City of Ceres has adopted the 2010 California Green Building Standards Code (California Code of Regulations, Title 24, Park 11). The purpose of the California Green Building Standards Code (CALGreen) is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories:

- Planning and design;
- Energy efficiency;
- Water efficiency and conservation;
- Material conservation and resources efficiency; and
- Environmental quality.

CALGreen includes both mandatory and voluntary measures for both residential and non-residential development. These measures include site development policies related to storm water drainage and retention during construction, as well as grading and paving.

City of Ceres Subdivision Ordinance

The City's Subdivision Ordinance includes a section on Park and Recreation Land (Section 17.34), which establishes the parkland standard for new subdivisions as four acres per 1,000 residents. As a condition of approval of a tentative subdivision map or parcel map, a subdivider is required to dedicate land, pay a fee in lieu thereof, or both, at the option of the City, and pay a fee for improving the land for parks or recreational purposes to ensure that the parkland standard is met for the new residents. The requirement does not apply to commercial or industrial subdivisions. Required dedications are based on the number of units, location, and characteristics of the proposed development as specified in Section 17.34.040 of the Municipal Code, and the in

lieu fee is determined by the Ceres Public Facilities Fees Program (Municipal Code Section 17.34.050). Where private open space for park and recreational purposes is provided in a proposed subdivision, up to 50 percent of the proposed park space may be credited to the requirement of land dedication of in-lieu fees, given that the Planning Commission finds that it is in the public interest to do so (Municipal Code Section 17.34.090).

City of Ceres Parks and Recreation Master Plan

The Parks and Recreation Master Plan provides an inventory and assessment of existing park facilities, summarizes community input and a needs assessment, provides recommendations for expansion of the park system, and provides an outline for implementation. The Parks and Recreation Master Plan includes undeveloped City parks and private parks within the city in its inventory of parks, totaling 197.75 acres of park space in the city. Based on a population of 46,989 residents, the Parks and Recreation Master Plan calculated a 2015 ratio of 4.2 acres of parkland per 1,000 residents, thus achieving the City parkland standard of four acres per 1,000 residents. This ratio contrasts with the parkland ratio presented in the Physical Setting above because it includes parkland owned by private organizations and homeowners' associations. The analysis in this EIR includes only public parkland.

The Parks and Recreation Master Plan recommends a new typology of parks with pocket parks, neighborhood parks, community parks, and regional parks to replace that used in the 1997 General Plan. In addition, it recommends improved and expanded playground facilities, and expanded sports facilities and passive recreation facilities such as barbeques. In addition, it recommends reconsidering the City's park mitigation fees and other potential approaches to park financing.

City of Ceres Specific Plans

Ceres Downtown Specific Plan

The Ceres Downtown Specific Plan recommends improvements and investments in public facilities, services, and infrastructure. In terms of recreation and open space, the Downtown plan proposes a new civic plaza, improvements to Whitmore Park, a new green space at the Whitmore Mansion site, and a new small park at the Ceres Water Tower. The Stanislaus County 2006-2007 Capital Improvement Plan identifies Ceres as the future location of a 25,000-square foot regional library facility, and the Downtown plan assumes this library facility would locate Downtown. There are no recommendations for new fire or police service facilities, and the Downtown plan recommends that developments pay school impact fees.

Eastgate Master Plan

The Eastgate Master Plan was adopted in 2004. The master plan provides 19 acres of neighborhood parkland. The City had approved a master plan for the Ceres River Bluff Regional Park shortly before adoption of the Eastgate Master Plan, therefore the master plan was not required to provide additional community parkland. There are no plans for additional fire or police service in the Eastgate Master Plan.

West Landing Specific Plan

Adopted in 2011, the West Landing Specific Plan explains that the Ceres Police and Fire Departments would likely support a combined new facility, within the specific plan area to serve the new development. In terms of parks and recreation, the specific plan provides approximately 42.4 acres of parkland, including one community park and two neighborhood parks. The West Landing Specific Plan area was within the Modesto City School District, but an agreement between Modesto City Schools and the Ceres Unified School District provided for the transfer of the specific plan area from the Modesto City Schools to the Ceres Unified School District, which has occurred.

Whitmore Ranch Specific Plan (WRSP)

Development of the Draft Whitmore Ranch Specific Plan (WRSP) was initiated in 2016. The plan covers approximately 94 acres located south of Whitmore Avenue and east of Moore Road. Sixty acres of the Draft WRSP is planned for future residential development, and approximately 40 acres includes two developed Ceres Unified School District sites: La Rosa Elementary School and Cesar Chavez Junior High School. The WRSP includes plans for approximately five acres of new parkland.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:**

- **a) Fire protection,**
- **b) Police protection,**
- **c) Schools,**
- **d) Parks, or**
- **e) Other public facilities;**

Criterion 2: **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**

Criterion 3: **Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.**

METHODOLOGY AND ASSUMPTIONS

Population

This analysis uses a buildout population estimate of 79,000 for the Proposed Project, including existing and new development for the entire Planning Area (including the city, the SOI, and unincorporated areas), derived from a projected dwelling unit capacity of 23,400 units.

Parks

This analysis uses the standard of 4 acres per 1,000 population established by the 1997 General Plan and continued in the proposed General Plan. To project the amount of parkland required at buildout, the projected buildout population increase of 24,000 in the Planning Area was divided by 1,000 and multiplied by four acres. The difference between this number and the existing amount of park acreage equals the area of new parkland needed to satisfy City park standards at buildout. An increase in population without progress toward meeting the City's park standard would create a significant impact.

Schools

Projected demand for school facilities is based on the increase in housing units resulting from buildout of the proposed General Plan and the distribution of new housing units throughout the Planning Area. The student generation rates used in the 2010 West Landing Specific Plan EIR (Lamphier-Gregory, 2011), and originally provided by CUSD, were used to determine the projected number of elementary, junior high, and high school student per single-family and multi-family unit. To determine the number of new students resulting from proposed General Plan buildout, the student generation rates were applied to the number of new housing units in the Planning Area. Student generation rates used to project student population at buildout for elementary, junior, and high schools per single-family and multi-family unit are shown in Table 3.12-6: Assumed Student Generation Rates.

Table 3.12-6: Assumed Student Generation Rates

	Student Generation Rate	
Grade	*Per Single-Family Unit*	*Per Multi-Family Unit*
Elementary School (K-6)	0.548	0.410
Junior High School (7-8)	0.157	0.051
High School (9-12)	0.259	0.077

Source: Lamphier-Gregory, 2011.

Under SB 50 (Chapter 407, Statutes of 1998), a school district may levy impact fees on new development in order to mitigate potential impacts of the development on school facilities, and payment of these fees is considered "full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073, on the provision of adequate school facilities" (California Government Code Section 65995). Government Code Section 65995 limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development, stating that a

"local agency may not deny or refuse to approve a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization… on the basis of a person's refusal to provide school facilities mitigation that exceeds the amounts authorized pursuant to this section or pursuant to Section 65995.5 or 65995.7, as applicable." Thus, the consideration of potential impacts from development on school facilities occurring under the Proposed Project is outside of the scope of this EIR and would be addressed at the time development is proposed through procedures outlined in Government Code Section 65995, and only indirect impacts resulting from the construction of new facilities are evaluated here.

Public Safety Services

The Fire Department does not have service ratio standards, but does aim for the National Fire Protection Association's (NFPA's) national response time standard of responding within nine minutes of a dispatch notification at least 90 percent of the time.

City Administrative Facilities

The City does not have a standard for administrative facilities.

SUMMARY OF IMPACTS

With implementation of the Proposed Project, there is expected to be an increase in population growth and a corresponding increase in the demand for public services. This increase in demand could potentially lead to a need for additional public service facilities, including fire service, police service, school, and park facilities. Existing regulations and proposed General Plan policies that protect natural resources and limit environmental impacts would ensure that demand for new facilities would not result a significant impact to the environment. Additionally, population growth and the corresponding increase in the use of existing parks and recreational facilities would not substantially physically deteriorate those facilities, as the Proposed General Plan includes policies to ensure that the needs of the population of the Planning Area will be met under the buildout of the Proposed Project. All impacts are considered less than significant.

IMPACTS

Impact 3.12-1 Implementation of the Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. (Less than significant)

Fire Service

The projected addition of approximately 24,000 residents by 2035would likely increase the demand for emergency fire response and preventive services in the Planning Area. Although the Fire Department does not have service ratio standards, the Fire Department is likely to need to increase staffing levels in order to provide service for future population growth. According to communication with the Fire Department in 2016, a new station is planned for the West Landing Specific Plan area, and two additional stations may be needed in order to adequately provide fire protection services elsewhere in the Planning Area (City of Ceres Fire Department, 2016).

Policies included in the Proposed Project regarding fire safety education and requiring the Fire Department's review of development proposals would help to keep service demand increases to a minimum. In addition, the Proposed Project promotes a relatively compact development pattern with infill development and new development contiguous to existing urbanized areas, thus ensuring that new development would be located close to existing fire stations. In general, new development allowed under the Proposed Project would be located within three miles of an existing fire station. Furthermore, proposed policies regarding emergency access, resiliency in the transportation system, and acceptable travel flow would ensure that emergency vehicles could efficiently access all parts of the Planning Area, thereby reducing the need for new facilities located closer to new development. Development impact fees from new development would serve to ensure that improvements to existing facilities are made in a timely manner so as to avoid the deterioration of those facilities.

However, should new fire service facilities need to be constructed in the future, construction of those facilities could result in environmental impacts, including disturbances or conversion of habitat, water pollution during construction, increased noise levels, and an increase in impermeable surfaces. In the event that implementation of the Proposed Project results in the need for new fire service facilities, existing regulations would serve to reduce potential environmental impacts. For example, the City's Green Building Standards contain mandatory and voluntary measures to reduce negative environment impacts during siting and construction, and the Ceres Storm Water Management and Discharge Control Ordinance reduces the impact of construction activities on stormwater. Additionally, new projects would be subject to CEQA requirements for environmental assessment; although compliance would not necessarily guarantee that significant impacts would be avoided or mitigated, it would allow for the identification and consideration of potential impacts and mitigation.

New facilities would be located consistent with specified land use designations and would be subject to policies in the proposed General Plan. These policies would further reduce potential impacts of siting, construction, and operation of new facilities to the extent assessed in other sections of this EIR. Proposed policies include those requiring construction best management practices to limit land disturbance, development review to protect significant biological resources, air pollution mitigation measures as a condition of obtaining permits, and management of archaeological materials found during development.

Due to the minimal effects that the development of new facilities would have on the environment with compliance with existing regulations and proposed General Plan policies, the concentration of new development in areas already well-served by fire protection services, and the addition of policies to reduce fire hazards in the city, this impact is considered less than significant for fire protection.

Police Service

Buildout estimates of the Proposed Project assume 24,000 new residents within the Planning Area by 2035, including 12,000 new residents in the area within city limits as of 2017. In order to serve the Planning Area's buildout population at the Police Department's service ratio goal of 1.3 officers per 1,000 residents, the Police Department would need 30 new officers. Thus, new police facilities may eventually be required to achieve and maintain service ratios.

The Proposed Project promotes Crime Prevention through Environmental Design (CPTED) and other public safety programs, which would help to keep service demand increases to a minimum. In addition, the Proposed Project promotes a relatively compact development pattern with infill development and new development contiguous to existing urbanized areas. Thus, new development would be located close to the existing police station. Development impact fees from new development would serve to ensure that improvements are made in a timely manner so as to avoid the deterioration of existing facilities.

Should new police service facilities need to be constructed in the future, construction of those facilities could result in environmental impacts, including disturbances or conversion of habitat, water pollution during construction, increased noise levels, and an increase in impermeable surfaces. In the event that implementation of the Proposed Project results in the need for new police service facilities, existing regulations would serve to reduce potential environmental impacts. Existing regulations that would reduce the impacts include the City's Green Building Standards, which include both mandatory and voluntary measures to reduce negative environmental impacts of building construction, as well as the Ceres Storm Water Management and Discharge Control Ordinance, which reduces impacts from facility construction on stormwater. Additionally, new projects would be subject to CEQA requirements for environmental assessment; although compliance would not necessarily guarantee that significant impacts would be avoided or mitigated, it would allow for the identification and consideration of potential impacts and mitigation.

New facilities would be located consistent with specified land use designations and would be subject to policies in the proposed General Plan that would further reduce potential impacts of siting, construction, and operation of new facilities to the extent assessed in other sections of this EIR. Proposed policies include those requiring construction best management practices to limit

land disturbance, development review to protect significant biological resources, air pollution mitigation measures as a condition of obtaining permits, and management of archaeological materials found during development.

Due to the minimal effects that the development of new facilities would have on the environment with compliance with existing regulations and proposed General Plan policies, the concentration of new development in areas already served by police protection services, and the addition of policies to reduce fire hazards in the city, this impact is considered less than significant for police services.

Schools

At buildout of the Proposed Project, the school-aged population is expected to increase and impact enrollment totals in CUSD facilities in the Planning Area. The estimated number of students in the Planning Area in 2035 is based on the estimated number of new single-family and multi-family units in the Planning Area from buildout of the Proposed Project. Residential development from implementation of the Proposed Project could generate approximately 3,017 new students in the Planning Area. Table 3.12-7 shows the total enrollment capacity, excess capacity as of 2017 based on 2017-2018 enrollment, potential new enrollment at buildout, and estimated excess at buildout in the school district.

As shown in Table 3.12-7: Estimated Changes in Enrollment and Capacity at Buildout, the projected elementary and high school population at buildout would exceed existing capacity while the junior high population could be accommodated by existing facilities. The elementary school capacity shown does not account for new elementary school capacity from development of the West Landing Specific Plan, which includes 16 acres for two elementary school sites. The 2010 West Landing Specific Plan EIR stated that these two elementary school sites could accommodate up to 625 students each, or 1,250 students total, if built to CUSD standards. With development of the elementary schools in the West Landing Specific Plan, elementary school capacity is expected to be sufficient to accommodate the projected student population at buildout. To accommodate additional high school students, CUSD may choose to expand class sizes, physically expand existing high schools, or develop a new high school.

Although capacity at existing and planned facilities are estimated to be sufficient to accommodate future elementary and junior high school students, demand for new facilities is not based solely on total school capacity, but also on the geographic distribution of potential residential growth in relation to the distribution of school capacity. If new residential development occurs where the capacity of nearby schools is limited, new elementary and junior high school capacity also may be required.

The construction of new schools or alterations to existing schools could have environmental impacts, including disturbances or conversion of habitat, water pollution during construction, increased noise levels, and an increase in impermeable surfaces. The siting of new schools is regulated by the CDE. The California Education Code (see Regulatory Settings) contains various provisions governing the siting of new public schools that require school districts to consider potential hazards to school occupants as well as other factors relevant to the public interest prior to the acquisition of a proposed school site. Although in many cases the avoidance or mitigation of hazards to school occupants would reduce impacts to the surrounding environment, the

provisions of the California Education Code would not eliminate the potential for all construction-based or operational impacts of a new school.

Table 3.12-7: Estimated Changes in Enrollment and Capacity at Buildout

Grade	*Total Enrollment Capacity (2017)*	*Excess Capacity (2017-2018)*	*Potential New Enrollment from Proposed Project (2035)*	*Remaining Excess Capacity at Buildout (2035)*
Elementary Schools (K-6)	9,197	1,680	1,851	(171)[1]
Junior High Schools (7-8)	2,633	568	444	124
High Schools (9-12)	3,989	(80)	722	(802)
Charter Schools (K-12)	743	154	-	154
Total	**16,870**	**3,888**	**3,017**	**(716)**

Note:

1. Based on existing capacity; does not include additional elementary school capacity from buildout of the West Landing Specific Plan.

Source: Ceres Unified School District, 2017; Dyett & Bhatia, 2017.

Policies in the proposed General Plan require close cooperation with CUSD in locating appropriate sites for new schools and coordinating land use planning in the Planning Area, thus providing an opportunity for the City to minimize environmental impacts of concern to the community. Given the proposed land use diagram for the Proposed Project, future residential development in the Planning Area would be expected to take place on infill sites in the SOI, within specific plan areas, and in the area south of Service Road and State Route 99 (SR 99) east of Blaker Road. This development would be located near existing school facilities or, in the case of development in the West Landing Specific Plan area, near planned facilities. Thus, the need for additional facilities due to the geographical distribution of new students would likely not be required, particularly for grades K through 8.

In the event that implementation of the Proposed Project results in the need for new or expanded public school facilities, existing regulations such as the City's Green Building Standards and the Ceres Storm Water Management and Discharge Control Ordinance would serve to reduce potential environmental impacts. Additionally, school projects would be subject to CEQA requirements for environmental assessment; although compliance would not necessarily guarantee that significant impacts would be avoided or mitigated, it would allow for the identification and consideration of potential impacts and mitigation.

New facilities would be located consistent with specified land use designations and would be subject to policies in the proposed General Plan that would further reduce potential impacts of siting, construction, and operation of new facilities to the extent assessed in other sections of this EIR. Proposed policies include those requiring construction best management practices to limit land disturbance, development review to protect significant biological resources, air pollution

mitigation measures as a condition of obtaining permits, and management of archaeological materials found during development.

Due to the concentration of new development in areas proximate to existing school facilities, the minimal effects that the development of new facilities would have on the environment with compliance with existing regulations and proposed General Plan policies, and the addition of policies to ensure coordination between the City and CUSD, this impact is considered less than significant for public school facilities.

Parks

New park and recreation facilities have the potential to negatively impact the environment through disturbances or conversion of habitat, water pollution during construction, increased noise levels, an increase in impermeable surfaces, increased exposure of sensitive habitats to human activity and traffic, introduction of invasive species, and the conversion of open space that could otherwise have been preserved.

As Ceres's population increases, the City will need to develop additional park space and facilities in order to maintain the existing levels of park space per resident, as well as to satisfy the proposed General Plan's park standards of 4.0 acres per 1,000 residents. As shown in Table 3.12-5: Existing Park Ratios Within the Ceres City Limits, as of 2015, the City did not meet the parks standard with existing and planned public parks (planned parks are those for which the City has begun the detailed planning, permitting, and construction phases of development, but are not yet ready for public use). Policies in the proposed General Plan would require that new development provide parkland or pay in lieu fees to cover the costs of providing parkland elsewhere in the city. Therefore, with the expected increase in population from implementation of the Proposed Project and proposed policies requiring new parkland to serve the additional population, the construction of new park facilities would be expected.

In the event that implementation of the Proposed Project results in the need for new parks and recreation facilities, existing regulations such as the City's Green Building Standards and the Ceres Storm Water Management and Discharge Control Ordinance would serve to reduce potential environmental impacts. Additionally, new projects would be subject to CEQA requirements for environmental assessment; although compliance would not necessarily guarantee that significant impacts would be avoided or mitigated, it would allow for the identification and consideration of potential impacts and mitigation.

The proposed General Plan land use diagram identifies generalized locations where potential new parks may be located. These locations do not identify any specific sites, rather general areas where new park facilities would serve future residential development. The parks would be sited and designed as part of the planning for specific development projects, rather than piecemeal prior to any increase in demand for recreational facilities in those areas. Meanwhile, proposed General Plan policies regarding maintenance and investment in existing parks would ensure that existing facilities could continue to serve the recreational needs of the community.

The precise amount, type, and location of new parks and recreational facilities would be determined as part of a planning process. New facilities would be located consistent with specified land use designations and would be subject to policies in the proposed General Plan that would

further reduce potential impacts of siting, construction, and operation of new facilities to the extent assessed in other sections of this EIR. Proposed policies include those requiring construction best management practices to limit land disturbance, development review to protect significant biological resources, air pollution mitigation measures as a condition of obtaining permits, and management of archaeological materials found during development.

Due to the minimal effects that the development of new facilities would have on the environment with compliance with existing regulations and proposed General Plan policies to maintain existing parks and joint use agreements in the city, this impact is considered less than significant for park and recreation facilities.

Other Public Facilities

The anticipated growth associated with implementation of the Proposed Project may have an impact related to other public facilities, such as administrative facilities and the library. The Proposed Project does not establish precise service standards for these other public facilities; rather, the Proposed Project includes policies that direct the City to provide these facilities commensurate with new growth.

In the event that implementation of the Proposed Project results in the need for new public facilities, existing regulations such as the City's Green Building Standards and the Ceres Storm Water Management and Discharge Control Ordinance would serve to reduce potential environmental impacts. Additionally, new projects would be subject to CEQA requirements for environmental assessment; although compliance would not necessarily guarantee that significant impacts would be avoided or mitigated, it would allow for the identification and consideration of potential impacts and mitigation.

New facilities would be located consistent with specified land use designations and would be subject to policies in the proposed General Plan. These policies would further reduce potential impacts of siting, construction, and operation of new facilities to the extent assessed in other sections of this EIR. Proposed policies include those requiring construction best management practices to limit land disturbance, development review to protect significant biological resources, air pollution mitigation measures as a condition of obtaining permits, and management of archaeological materials found during development.

Due to the minimal effects that the development of new facilities would have on the environment with compliance with existing regulations and proposed General Plan policies, this impact is considered less than significant for other public facilities.

Proposed General Plan Policies that Reduce the Impact

Land Use and Community Design Element

2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. See Chapter 3: Transportation and Circulation Element for more information and related goals and policies.

Transportation and Circulation Element

3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service ("LOS") C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects support other goals from the General Plan including transit, active transportation, and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the "LOS" standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character.

Agricultural and Natural Resources Element

4.F.6 **Green Infrastructure.** Require the use of feasible and practical best management practices (BMPs) and low-impact development (LID) strategies to protect receiving waters from the adverse effects of construction activities and urban runoff.

4.F.9 **Construction Best Management Practices.** Require measures during construction and post construction to limit land disturbance activities such as clearing and grading and cut-and-fill; avoid steep slopes, unstable areas, and erosive soils; and minimize disturbance of natural vegetation and other physical or biological features important to preventing erosion or sedimentation.

4.G.14 **Construction Mitigation.** Require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction. Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to:

- Site watering or application of dust suppressants;
- Phasing or extension of grading operations;
- Covering of stockpiles;
- Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour); and
- Revegetation of graded areas.

4.I.2 **Archaeological Resource Management.** Establish a procedure for the management of archaeological materials found on-site during a development, including the following provisions:

- If significant resources are known or suspected to be present on a site, require that a qualified archaeologist conduct monitoring of building demolition and/or construction grading activities.

- If materials are found on-site during construction activities, require that work be halted until a qualified archaeologist evaluates the find and makes a recommendation for the preservation in place or recovery of the resource.

Health and Safety Element

5.E.1 **Green Building Code.** Continue to implement and enforce the California Green Building Code to promote energy efficient building design and construction.

5.F.7 **Resilient Transportation.** Promote a resilient transportation system that offers connectivity for multiple transportation modes in the face of extreme weather events, such as storms and flooding, related to climate change. Transportation improvements may include elevating transportation infrastructure, installing culverts, or raising bridges where necessary.

5.G.8 **Construction Erosion.** Require the use of best management practices to control and mitigate soil erosion during construction activities.

5.M.3 **Design for Emergency Access.** Ensure all-weather access for emergency vehicles and services by providing at least two means of ingress/egress into new communities, limitations on the length of cul-de-sacs, proper roadway widths and road grades, and other requirements per the California Fire Code, and ensure that all roads, streets, and major public buildings are identified in a manner that is clearly visible to fire protection and other emergency vehicles.

Public Facilities and Services Element

6.A.1 **Quality Education.** Continue to assist the Ceres Unified School District in providing quality education facilities that will accommodate projected student growth.

6.A.2 **Close Cooperation with Schools.** Continue to work cooperatively with the Ceres Unified School District in monitoring housing, population, and school enrollment trends and in planning for future school facility needs, and assist the District in locating appropriate sites for new schools in the Planning Area.

6.A.3 **Coordinate Land Use Planning.** Coordinate the City's land use planning with the planning of school facilities. Work with the Ceres Unified School District starting from the early stages of the areawide planning and school site selection processes. As needed, reserve school sites in areawide plans to accommodate school district needs.

6.A.12 **Joint Use Agreements.** Continue joint use agreements with the Ceres Unified School District, and create joint use agreements with private schools to utilize facilities for non-school-related activities, including recreational use and child care services. Future negotiations should consider use of school facilities to be used for recreational opportunities for Ceres residents.

6.B.4 **Development Fees.** Continue to cooperate with the County in collecting County development fees on new development in Ceres to ensure that new development

contributes its fair share to the development of additional library facilities, as long as the mutual agreement is in force.

6.C.2 **Population Growth.** Ensure that the development of parks and recreational facilities keeps pace with population growth within the city.

6.C.3 **Acres of Parkland.** Provide a minimum of 4.0 acres of publicly accessible parkland per 1,000 residents.

6.C.4 **Parkland Dedication.** Continue to require that new development provide dedicated parkland, in lieu fees, or both, in accordance with the Quimby Act, to meet the recreational needs of new residents. Prefer dedication of public parkland to in lieu fees, provided that the developed parkland is open to the greater Ceres community and not privatized by its design, operation, or location.

6.C.5 **In Lieu Fees.** Calculate park fees to enable purchase of acreage and provision of off-site improvements for 4.0 acres of parkland per 1,000 residents added. Review and update in lieu fees on a regular basis to reflect the total cost of improvements required to serve new development.

6.C.12 **Joint Development of Commercial or Private Recreational Facilities.** Encourage the establishment or joint development of commercial or private recreation facilities within the Planning Area in appropriate locations.

6.C.14 **Joint Development of Parks and Recreation Facilities.** Continue to cooperate with public and quasi-public agencies, including the Ceres Unified School District, in the joint development, maintenance, and use of parks and recreation facilities.

6.J.2 **Measure and Meet Response Time Standards**. Establish and strive to achieve response time standards. Measure response times and annually review progress in meeting response time standards.

6.J.4 **Public Safety Programs.** Promote public safety programs, including neighborhood watch, child identification and fingerprinting, and other public education efforts for people of all ages.

6.J.5 **Designing to Improve Public Safety.** Consider public safety issues and Crime Prevention through Environmental Design (CPTED) principles in all aspects of public facility, commercial, and residential project design.

6.J.6 **Modern Facilities and Equipment.** Within the City's overall budgetary constraints, ensure that law enforcement services have modern facilities and equipment (including patrol and other vehicles, necessary equipment, and support personnel) needed to perform their duties and ensure efficient dispatch and response time.

6.J.7 **Continue Funding of Police Services.** Continue to ensure that new development funds police facilities, personnel, operations, equipment and maintenance that, at a minimum, maintains the response standards.

6.K.3 **Fire Safety Education.** Identify key fire loss problems and design appropriate fire safety education programs to reduce fire incidents and losses, and promote awareness of fire hazards and safety.

6.K.4 **Project Review.** Endeavor through project review to control fire losses and fire protection costs through requiring use of automatic fire detection, control, and suppression systems.

6.K.5 **Ensure Adequate Funding for Fire Services.** Within the City's overall budgetary constraints, ensure that fire and emergency medical services have modern facilities, equipment, and staffing needed to perform their duties and ensure efficient response time. Seek grants and County funding when facilities, equipment, and staffing needs exceed the City's budget.

6.K.6 **New Development Funding of Fire Services.** Require new development to develop or fund fire protection facilities, personnel, and operations and maintenance that, at a minimum, maintains the above service level standards.

Mitigation Measures

None required.

Impact 3.12-2 Implementation of the Proposed 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*)

Without the development of new parks and adequate maintenance of existing parks, the potential increase in population from implementation of the Proposed Project could place additional physical demands on existing parks and facilities. An increase in the number of park users may cause parks to be in active use for longer periods of time and/or to be used more intensively over the course of a typical day. As a result, vital park elements such as vegetation, built structures, walking/biking paths, sport facilities, and others could face increased wear-and-tear over the course of the planning horizon and, without proper maintenance, their useful life could be shortened.

The Proposed Project anticipates the need for new park and recreation facilities to meet the needs of new residents in the Planning Area, as shown in Figure 3.12-3: Existing and Planned Parks and Recreation Facilities. New parks are planned in the eastern and southern portions of the Planning Area to serve new residential and non-residential development. The West Landing Specific Plan area also includes land designated for the development of parks.

The Proposed Project also includes provisions to ensure ongoing investment and maintenance in public recreation facilities, thus preventing any substantial physical deterioration of existing or

new facilities. A proposed policy requiring the continued use of the City's Parks and Recreation Master Plan would provide a tool to track and plan for necessarily improvements to the parks and recreation system. The Proposed Project also includes policies to continue joint use agreements with CUSD to utilize school facilities for public recreational activities. These agreements provide additional recreational space, which reduces the potential for overuse of City parks.

In addition, the Proposed Project would require the City to provide adequate parkland to serve the city's population as it expands. Policies that ensure equitable access and planning for all residents, especially those who have historically been disadvantaged, would ensure that new parkland is distributed evenly throughout the Planning Area, thus reducing the likelihood that any existing neighborhood, community, or regional parks, or other recreational facilities would experience overuse that could result in the physical deterioration of those facilities.

Therefore, with implementation of existing regulations and proposed General Plan policies, impacts associated with substantial physical deterioration of park and recreation facilities resulting from implementation of the Proposed Project would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies 6.A.12, 6.C.2, 6.C.3, 6.C.4, 6.C.5, 6.C.12, and 6.C.14 listed under Impact 3.12-1 above, as well as the following policies.

Land Use and Community Design Element

2.A.14 **Maintenance.** Maintain and invest in the public realm, including parks, sidewalks, and streets to enhance safety and character and to encourage upkeep and investment by private property owners.

2.A.17 **Equitable Investments.** Improve quality of life for all Ceres residents through equitable investments in programs and facilities with particular focus on meeting the needs of disadvantaged communities.

Health and Safety Element

5.B.4 **Access to Recreation.** Ensure equitable access to parks and recreation facilities through the following measures:

- Ensure that all residential areas of the city are within a half-mile (about a 10-minute walking distance) of recreational facilities by siting new parks and facilities in underserved areas;
- Regularly review the fee schedule for recreational programs and, as appropriate and feasible, explore and implement strategies that would ensure that programs are affordable for all members of the community; and
- Design new parks and improve existing parks such that they are accessible to users of all ages and abilities.

Public Facilities and Services Element

6.C.25 **Parks and Recreation Master Plan.** Use the Parks and Recreation Master Plan as the primary tool for planning specific capital improvements and programming, and update periodically based on community feedback, demographic changes, and recreation trends.

Mitigation Measures

None required.

Impact 3.12-3 Implementation of the Proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. (*Less than Significant*)

As shown in Figure 3.12-3: Existing and Planned Parks and Recreation Facilities, the Proposed Project plans for new recreation facilities in the West Landing Specific Plan area and the Whitmore Ranch Specific Plan area, shown as "Proposed Parks." The proposed parks in the West Landing Specific Plan area and the Whitmore Ranch Specific Plan area have been included in the environmental review of each respective specific plan. In addition, the Proposed Project includes "Potential Parks" with unspecific locations to meet the potential need for new parks to serve new residential and non-residential development where it is planned and anticipated to occur. The precise amount, type, and location of the new parks and recreational facilities would be determined during the planning process for individual development projects or master/specific plans, and would be consistent with the Proposed Project land use designations and policies.

As discussed under Impact 3.12-1, impacts associated with new recreation facilities resulting from implementation of the Proposed Project would be less than significant with implementation of existing regulations and proposed General Plan policies.

Proposed General Plan Policies that Reduce the Impact

Policies 4.F.6, 4.F.9, 4.G.14, 4.I.2, 5.E.1, and 5.G.8. as listed under Impact 3.12-1 above.

Mitigation Measures

None required.

3.13 Transportation

This section assesses potential environmental impacts on the transportation system from future development under the Proposed Project, including those related to performance standards, congestion management, air traffic patterns, hazards, emergency access, and public transit, bicycle, and pedestrian facilities. This section describes the existing transportation system, characteristics, and operations of the Planning Area, as well as relevant federal, State, and local regulations and programs.

Responses to the NOP regarding topics addressed in this section included the following:

- The California Department of Transportation (Caltrans) commented that future projects in the Planning Area may significantly impact State Routes, and that traffic analyses will be required for any future projects taking place within the influence area of the State Highway System. While project-level impacts from future development is outside of the scope of this EIR, this section includes consideration of potential program-level impacts from the Proposed Project on State Routes.
- A member of the public commented that the proposed designation of a parcel at Roeding Road and McGee Road as Light Industrial be assessed in terms of safety due to its proximity to an existing school and existing and proposed residential uses. Hazardous traffic conditions related to land use compatibility are discussed under Impact 3.13-4.
- A second member of the public commented that the proposed Light Industrial designation of the parcel at Roeding Road and McGee Road be assessed in terms of damage to transportation infrastructure from traffic wear. Project-specific impacts such as pavement conditions on individual roadways is outside of the scope of this EIR.

Environmental Setting

PHYSICAL SETTING

The study area for this analysis consists of the Planning Area. The circulation network serving the Planning Area consists of roadways, bicycle, pedestrian, and transit facilities. Key travel and transportation facility characteristics in Ceres are described below.

Travel Characteristics

An analysis of American Community Survey (ACS) data available from the US Census Bureau provides information related to the travel trends and behavior amongst workers 16 years of age and older in Ceres and surrounding areas. According to the ACS 2014 5-Year estimates, 78 percent of

commuters drive alone in Ceres, compared to 80 percent in Stanislaus County, 73 percent in California and 76 percent in the United States (Table 3.13-1: Commuter Mode Share in Ceres and Surrounding Areas). Comparatively, 15 percent of workers in Ceres carpooled, which is higher than the county average. Transit, walking, and biking are all approximately 1 percent or less of commute trips. Three percent of workers work from home, which is consistent with local and regional rates.

Census data also indicates that commute departure times are typical of other communities in Stanislaus County, with almost half of all commuters departing for work between 6:00 and 9:00 AM. Within that time, there are slightly more workers who depart between 6:00 and 6:30 AM than other nearby communities. The average travel time to work is approximately 27 minutes, which is consistent with other communities in Stanislaus County.

Vehicle ownership rates in Ceres are slightly higher than in surrounding communities, as shown in Table 3.13-2: Vehicle Ownership in Ceres and Surrounding Areas. Approximately 45 percent of workers age 16 and over have access to three or more vehicles; the percentage was 35 percent in Modesto, 37 percent in Turlock, 39 percent in Stanislaus County, and 36 percent in California.

A majority of Ceres residents commutes outside of city limits for work, with only 19 percent of Ceres residents living and working within city limits. As shown in Table 3.13-3: Percentage of Residents Who Work in City of Residence in Ceres and Surrounding Area, the percentage is 43 percent in Turlock, 54 percent in Modesto, and 34 percent in Stanislaus County as a whole.

Table 3.13-1: Commuter Mode Share in Ceres and Surrounding Areas

	Drove Alone	*Carpooled*	*Transit*	*Walk*	*Bike*	*Other*	*Work from Home*
Ceres	78%	15%	1%	1%	>1%	2%	3%
Modesto	81%	10%	2%	1%	1%	1%	3%
Turlock	91%	11%	1%	2%	1%	1%	4%
Stanislaus County	80%	12%	1%	2%	>1%	1%	4%
California	73%	11%	5%	3%	>1%	1%	5%

Source: American Community Survey 2014 5-Year Estimates.

Table 3.13-2: Vehicle Ownership in Ceres and Surrounding Areas

	No Vehicle Available	*1 Vehicle Available*	*2 Vehicles Available*	*3 Vehicles Available*
Ceres	2%	17%	37%	45%
Modesto	2%	21%	42%	35%
Turlock	3%	18%	41%	37%
Stanislaus County	2%	18%	40%	39%
California	4%	20%	40%	36%

Source: American Community Survey 2014 5-Year Estimates.

Table 3.13-3: Percentage of Residents Who Work in City of Residence in Ceres and Surrounding Area

	Work in City of Residence
Ceres	19%
Modesto	54%
Turlock	43%
Stanislaus County	34%
California	35%

Source: American Community Survey 2014 5-Year Estimates.

Motorized Transportation Network

Roadway Classifications

A roadway's functional classification generally defines the types of design features including the level of access provided to individual parcels, the types of users and access restrictions, and the level of traffic volumes the roadway is intended to accommodate. The existing Ceres General Plan has designated six categories of roadway classification: freeways, expressways, arterials, primary collectors, secondary collectors, and local streets. Figure 3.13-1: Functional Roadway Classifications presents the existing General Plan circulation diagram for roadway facilities within the Planning Area. The following describes the various facility types.

Freeways

Freeways are grade-separated and access-controlled roads designed to carry large vehicular traffic volumes over long distances at a high rate of speed. Connections to other roads only occur at grade-separated interchanges, consisting of ramps and overpasses or underpasses. Center dividers separate opposing lanes of travel. Pedestrian, bicycle, and parking facilities are not provided on freeways.

California State Route 99 (SR 99) is a north-south freeway that connects Ceres to Modesto and Turlock and beyond. Caltrans manages the operation of SR 99, and it is the only grade-separated and access-controlled freeway within the Planning Area. Beyond Stanislaus County, SR 99 spans almost the entire California Central Valley, providing access to many urban centers, and is a vital artery for intra-valley travel and is a critical regional goods movement route. Based on Caltrans

data from 2015, SR 99 has an average daily traffic volume of 102,000 vehicles at the Whitmore Avenue interchange. Freeways are designed to prioritize the movement of vehicles, including private automobiles, transit vehicles, and goods movement.

Expressways

Expressways are limited access, moderate- to high-speed facilities that typically have four to six lanes and generally only intersect with primary collectors, arterials, and expressways. The right-of-way for expressways ranges from 100 to 158 feet, with expected daily traffic volumes in excess of 25,000 vehicles per day. Expressways may access freeways at high volume interchanges. Limited direct access to industrial, commercial, and high-density residential are only allowed when approved through site plan review.

The Stanislaus County Council of Governments (StanCOG) Regional Expressway Study, 2010, identifies planned expressway facilities through Ceres. Two types of expressway facilities are identified for the Planning Area – Class B and Class C. Class B expressways, which potentially include Faith Home Road and Service Road, restrict access from driveways and local streets, but may allow right-turn access to/from secondary collectors. Class C expressways, which include Hatch Road, allow right-in/right-out access from minor streets, and may allow left-turn access from collector streets. Class C expressways are similar to arterial roadways in form, but access controls and preferential treatment for movements on the expressway provide additional capacity. If bicycle facilities are provided, it is usually a parallel Class I facility (discussed later in further detail). Parking is prohibited on expressway facilities. Designated expressways in the Planning Area include:

- Hatch Road from Faith Home Road to Carpenter Road;
- Service Road from Faith Home Road to Carpenter Road; and
- Faith Home Road from Garner/Claus Road to SR 99.[1]

Portions of these roadways extend beyond the Planning Area. Although these roadways are designated expressway facilities, they typically have not been upgraded to expressway standards. Expressways are generally designed to prioritize the movement of vehicles, including private automobiles, transit vehicles, and goods movement; though other modes may be accommodated.

Arterials

Arterial roadways are intended to accommodate high volumes of traffic within a four- to six-lane cross-section, plus left-turn pockets, and sometimes right-turn pockets. The right-of-way for these streets ranges from 90 to 120 feet. These roads typically provide access to collector streets into residential subdivisions, and can also provide direct access to commercial areas. They may or may not include sidewalks depending on recent development, and surrounding land use. Class II bicycle facilities may be present along arterials. Parking may be permitted on some arterial roadways. Arterials serve a variety of roadway users and, depending on the context, may emphasize vehicle, transit, or bicycle travel over other travel modes.

[1] Although Faith Home Road may ultimately be developed as an expressway, it may initially be constructed to arterial standards. For the purposes of this EIR, it was evaluated as both a four-lane arterial and a six-lane expressway.

Primary Collector Streets

Primary collector streets generally collect traffic from other collector and minor streets, and provide connections to arterial streets. They typically provide one vehicular travel lane in each direction within a right-of-way of 50 to 60 feet. Primary collector streets also provide direct links to neighborhood shopping areas. Primary collector streets are designated throughout the Planning Area, generally creating a half- to quarter-mile grid pattern. Depending on the presence of recent development, most collector streets have pedestrian facilities, but typically do not have designated bicycle facilities. Parking may be permitted on some primary collector streets. Collectors generally serve local travel and should emphasize slow vehicle travel to accommodate bicycle and pedestrian movements.

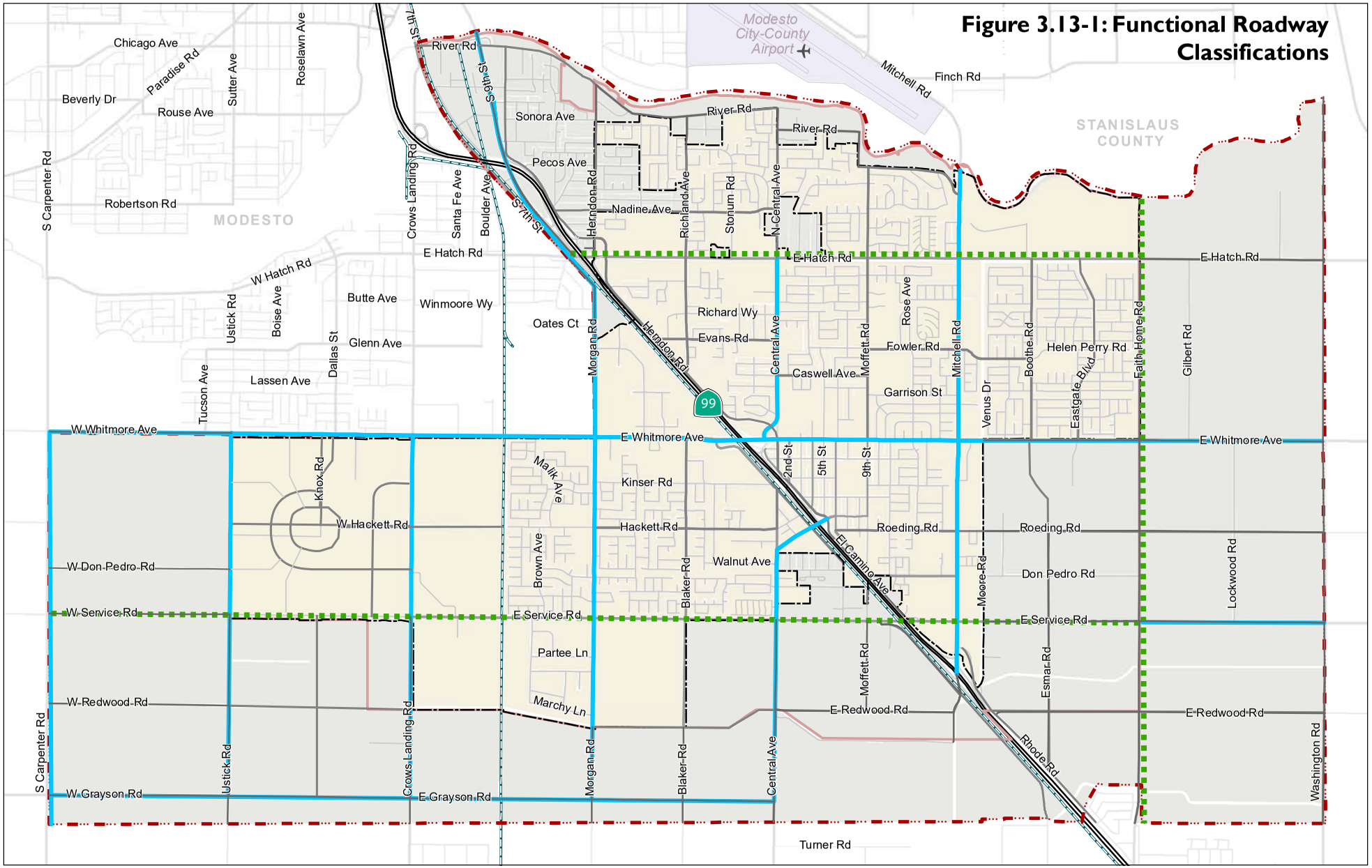
Secondary Collector Streets

Secondary collector streets are intended to carry moderate volumes of traffic from local streets to primary collectors and arterials. They typically provide one vehicular travel lane in each direction within a right-of-way of 50 to 60 feet. Secondary collector streets are not delineated on the Circulation Diagram; instead, they are located through the development and subdivision process. Depending on the presence of recent development, most collector streets have pedestrian facilities, but typically do not have designated bicycle facilities (though slow vehicle speeds enable bicycles to share vehicle travel lanes). Parking is typically permitted on secondary collector streets. Collectors generally serve local travel and should emphasize low volume, slow vehicle movements to accommodate bicycle and pedestrian movements.

Local Streets

Local Streets are intended as low capacity streets serving low- and medium-density residential uses, though local streets may be present in commercial and industrial areas as well. Local streets generally provide one travel lane per direction within a right-of-way of 46 to 60 feet, although narrower rights-of-way may be permitted in certain circumstances. Direct access to local streets is permitted consistent with adopted improvement standards. Local streets are not delineated on the Circulation Diagram; instead, they are located through the development and subdivision approval process. Most local streets have designated pedestrian facilities, and bicyclists typically share the travel lane with vehicles. Parking is typically permitted on local streets. Local streets generally serve local travel and should emphasize low volume, slow vehicle travel to accommodate bicycle and pedestrian movements. Transit vehicles typically do not travel on local streets.

Figure 3.13-1: Functional Roadway Classifications



Highway
Expressway
Arterial
Primary Collector
Other Roads
Railroads
River
Secondary Collector
Ceres Sphere of Influence
General Plan Planning Area
City of Ceres

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Roadway Operations

Methodology

This section describes the analysis procedures used to evaluate the operation of the roadway system, including peak hour intersection operations, daily roadway segment operations, and estimates of vehicle miles of travel.

The operations of roadway facilities can be described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (i.e., free flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F. The City of Ceres has established LOS D as the roadway standard for major roadways, and LOS C for secondary and local roadways, although one level of service deviation is permitted if automobile capacity enhancements would conflict with bicycle, pedestrian, or transit travel.

Peak hour operations of intersections were evaluated using methodologies developed by the Transportation Research Board (TRB), as documented in the 2010 *Highway Capacity Manual* (2010 HCM) for vehicles. The HCM methodology is the prevailing measurement standard used throughout the United States. The HCM 2010 methods calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, traffic control, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. These delay estimates are considered meaningful indicators of *driver* discomfort and frustration, fuel consumption, and lost travel time.

The relationship between LOS and control delay is summarized in Table 3.13-4: Signalized Intersection LOS Criteria for signalized intersections and Table 3.13-5: Unsignalized Intersection LOS Criteria for unsignalized intersections. While the level of service calculations do consider pedestrian, bicycle, and transit vehicle travel through the intersection, the results are not indicative of the experience a pedestrian, bicyclist, or transit rider might experience.

Table 3.13-4: Signalized Intersection LOS Criteria

Level of Service	*Description*	*Delay in Seconds*
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 Highway Capacity Manual.

Table 3.13-5: Unsignalized Intersection LOS Criteria

Level of Service	*Description*	*Delay (seconds)*
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: 2010 Highway Capacity Manual

An analysis of daily roadway segment operations is used to evaluate the overall use of a roadway facility and assess if the appropriate right-of-way is provided to generally accommodate daily travel demands. Note that the roadway segment analysis is based on traffic counts taken at a single location or link, which is intended to be representative of the entire segment. A link connects two intersections; a segment is a series of links. The segments used in this analysis were developed based on where a series of links had common physical and traffic conditions. Different capacity thresholds used in LOS analysis are developed for different facility types, as shown in Table 3.13-6: City of Ceres General Plan Per-Lane Roadway Segment Capacities. Thresholds were calculated based on the methodology contained in the 2010 HCM. These capacity factors are reflective of a generalized roadway segment and capacity adjustments (increase or decrease) may be warranted for specific locations based on additional roadway details.

Table 3.13-6: City of Ceres General Plan Per-Lane Roadway Segment Capacities

Type of Roadway Segment	*Hourly Capacity (vplph[1])*	*Daily Capacity (vplpd[2])*
Freeway Mainline	2,000	25,000
Expressway	1,250	15,630
Principal Arterial (6 lanes)	850	10,625
Minor Arterial (4 lanes)	750	9,380
Minor Arterial (2 lane facility with center left-turn lane)	800	10,000
Major Collector (4 lane facility)	700	8,750
Major Collector (2 lane facility with center left-turn lane)	750	9,380
Downtown Collector	700	8,750
Minor Collector and Local (2 lane facility)	500	6,250
Rural Road	900	11,250

Notes:
1. Vehicles per lane per hour.
2. Vehicles per lane per day.

Source: Fehr & Peers, 2017.

Vehicle miles of travel or VMT refers to vehicle trips generated or attracted by land uses within the Planning Area boundaries multiplied by their trip distances. To estimate the VMT of land uses within the Planning Area, Fehr & Peers used the updated City of Ceres General Plan model. The process that was undertaken to develop the model is detailed in Appendix D. To assess the VMT generated in Ceres, an origin-destination (OD) method was used which tracks all vehicular trips generated by the land uses within the Planning Area across the entire regional network. Four types of trips are isolated:

- **Internal-Internal (II) trips.** Include all trips that begin and end within the Planning Area.
- **Internal-External (IX) trips.** Include all trips that begin in within the Planning Area and end outside the Planning Area.
- **External-Internal (XI) trips.** Include all trips that begin outside the Planning Area and end inside the Planning Area.
- **External-External (XX) trips.** Trips that begin and end outside the Planning Area are not included. The City of Ceres assumes no responsibility for External-External trip type VMTs.

The VMT estimates in the model are sensitive to changes in land use and the transportation network. Generally, areas that have a more balanced jobs/housing ratio have lower VMT per capita as commute trips tend to be one of the most common reasons to travel and placing residential populations in close proximity to employment opportunities increases the likelihood of a shorter commute. VMT is also a statistic that is also used in air quality and greenhouse gas analyses because it provides an indication of the overall performance of the automobile and truck transportation system within the city. For a discussion of VMT as it relates to air quality and greenhouse gases, see Section 3.3: Air Quality; and Section 3.5: Energy, Greenhouse Gases, and Climate Change, of this EIR.

Existing Intersection Operations

As part of the General Plan update, Fehr & Peers retained a traffic count firm to conduct daily and peak period traffic counts at the locations shown on Figure 3.13-2: Transportation Data Collection Locations. Morning and evening peak period (7:00 to 9:00 AM and 4:00 to 6:00 PM) intersection turning movement counts were conducted at 20 intersections, including separate counts of passenger vehicles, heavy vehicles, pedestrians and bicyclists. For the study intersections, the single hour with the highest traffic volumes during the count periods was identified. The peak hour volumes are presented on Figure 3.13-3: Existing Peak Hour Intersection Volumes, Land Configurations, and Traffic Control along with the existing lane configuration and traffic control. Existing peak hour bicycle and pedestrian activity is shown on Figure 3.13-4: Existing Peak Hour Bicycle and Pedestrian Volumes.

Fig 3.13-2: Transportation Data Collection Locations

Highway
Ramps
Major Roads
Local Roads
Railraods
River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area
Peak Period Intersection Count Location
Daily Roadway Segment Count Location

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

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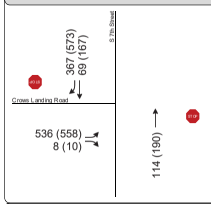
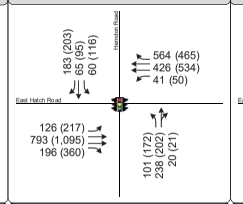
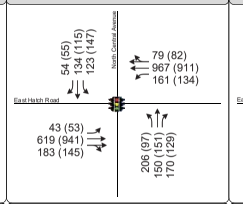
1. S 7th Street/Crows Landing Road



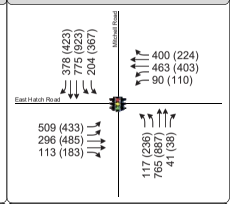
2. Herndon Road/East Hatch Road



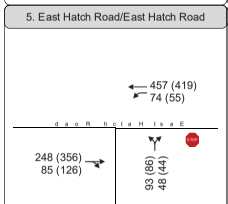
3. North Central Avenue/East Hatch Road



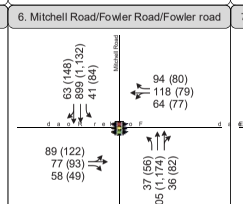
4. Mitchell Road/East Hatch Road



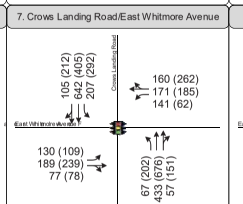
5. East Hatch Road/East Hatch Road



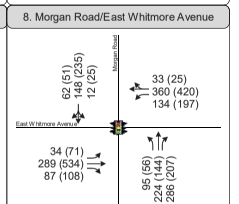
6. Mitchell Road/Fowler Road/Fowler road



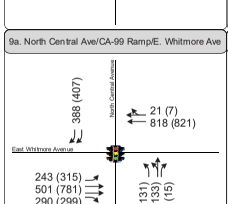
7. Crows Landing Road/East Whitmore Avenue



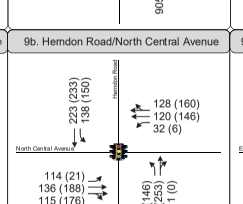
8. Morgan Road/East Whitmore Avenue



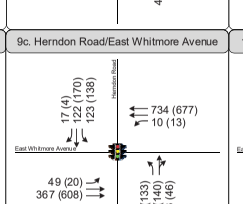
9a. North Central Ave/CA-99 Ramp/E. Whitmore Ave



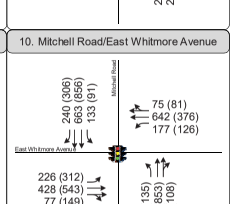
9b. Herndon Road/North Central Avenue



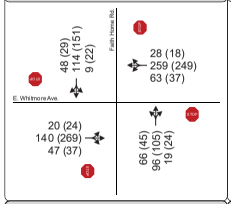
9c. Herndon Road/East Whitmore Avenue



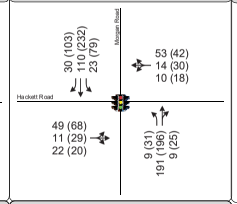
10. Mitchell Road/East Whitmore Avenue



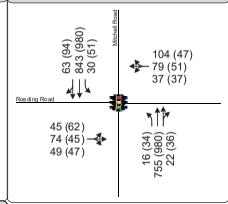
11. Faith Home Rd./E. Whitmore Ave.



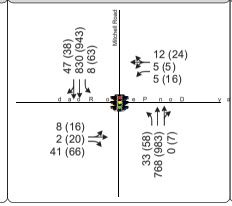
12. Morgan Road/Hackett Road



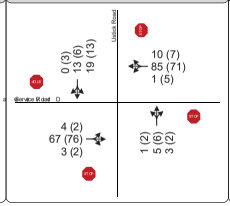
13. Mitchell Road/Roeding Road



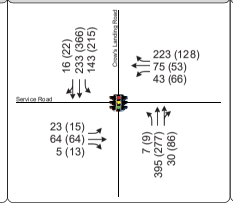
14. Mitchell Road/Don Pedro Road/Driveway



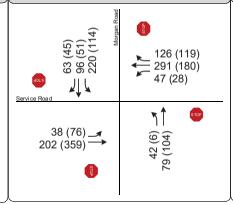
15. Ustick Road/Service Road



16. Crow's Landing Road/Service Road



17. Morgan Road/Service Road



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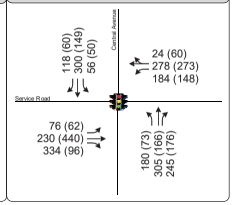
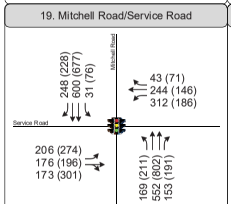
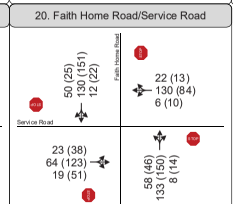


19. Mitchell Road/Service Road



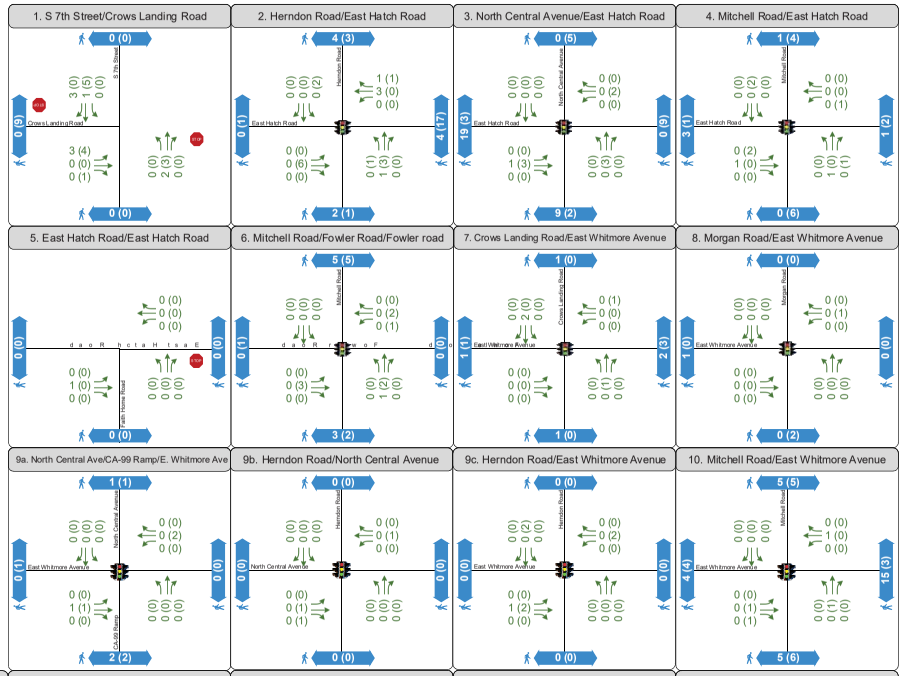
20. Faith Home Road/Service Road

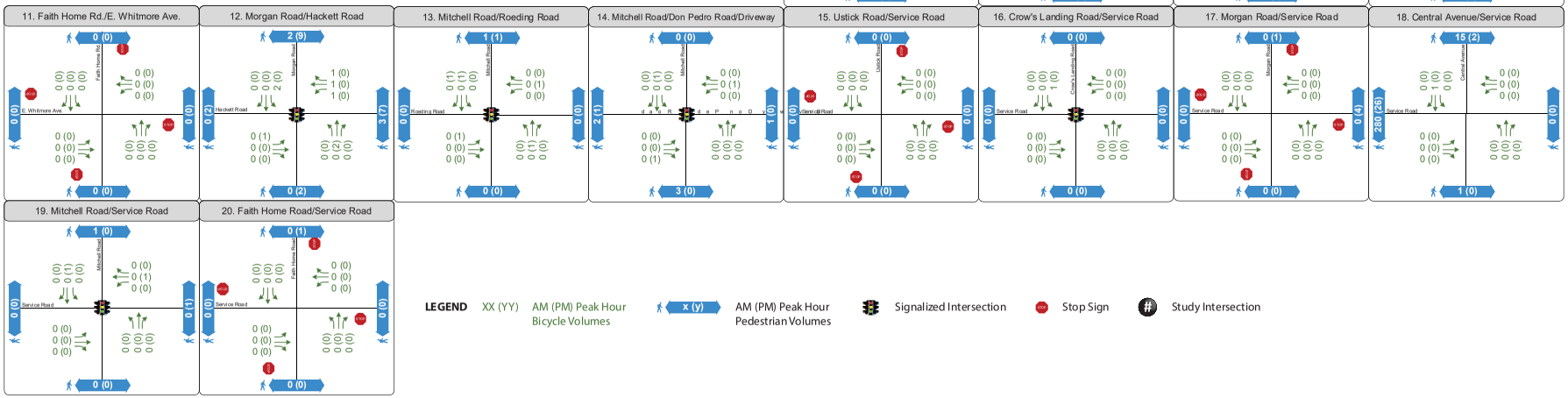


LEGEND XX (YY) AM (PM) Peak Hour Traffic Volumes | Signalized Intersection | Stop Sign | # Study Intersection

Figure 3.13-3

Existing Peak Hour
Intersection Volumes, Lane Configurations and Traffic Control





LEGEND XX (YY) AM (PM) Peak Hour Bicycle Volumes | x (y) AM (PM) Peak Hour Pedestrian Volumes | Signalized Intersection | Stop Sign | # Study Intersection

Figure 3.13-4

Existing Peak Hour Bicycle and Pedestrian Volumes

Existing operations were evaluated using the methods described above for the weekday AM and PM peak hours at the study intersections, as summarized in Table 3.13-7: Existing Intersection Level of Service. The analysis is based on volumes, lane configurations, and traffic control presented on Figures 3.13-3: Existing Peak Hour Intersection Volumes, Land Configurations, and Traffic Control and 3.13- 4: Existing Peak Hour Bicycle and Pedestrian Volumes. Observed peak hour factors[2] were used at all intersections. Pedestrian and bicycle activity was also factored into the analysis. As shown, all intersections currently operate within the LOS standards set by the City of Ceres, except for the Mitchell Road at Service Road intersection, which operates at a LOS E during the PM peak hour.

Table 3.13-7: Existing Intersection Level of Service

#	*Intersection*	*Control[1]*	*Peak Hour[2]*	*Delay (seconds)[3]*	*LOS[4]*
1	Crows Landing Road at 7th Street	SSSC	AM	4 (16)	A (C)
			PM	7 (20)	A (C)
2	Herndon Road at Hatch Road	Signal	AM	32	C
			PM	38	D
3	North Central Avenue at Hatch Road	Signal	AM	33	C
			PM	29	C
4	Mitchell Road at Hatch Road	Signal	AM	49	D
			PM	42	D
5	Faith Home Road at Hatch Road	SSSC	AM	5 (30)	A (D)
			PM	5 (36)	A (E)
6	Mitchell Road at Fowler Road	Signal	AM	23	C
			PM	27	C
7	Crows Landing Road at West Whitmore Avenue	Signal	AM	26	C
			PM	46	D
8	Morgan Road at East Whitmore Avenue	Signal	AM	15	B
			PM	20	B
9a[5]	Central Avenue at East Whitmore Avenue	Signal	AM	29	C
			PM	31	C
9b	Herndon Road at North Central Avenue	Signal	AM	42	D
			PM	17	B
9c	Herndon Road at East Whitmore Avenue	Signal	AM	31	C
			PM	19	B
10	Mitchell Road at East Whitmore Avenue	Signal	AM	53	D
			PM	46	D
11	Faith Home Road at East Whitmore Avenue	AWSC	AM	15	B
			PM	17	C

[2] The peak hour factor is the relationship between the peak 15-minute flow rate and the full hourly volume: PHF = Hourly volume / (4 x (volume during the peak 15 minutes of flow)). The analysis level of served is based on peak rates of flow occurring within the peak hour because substantial short-term fluctuations typically occur during an hour.

Table 3.13-7: Existing Intersection Level of Service

12	Morgan Road at Hackett Road	Signal	AM	7	A
			PM	9	A
13	Mitchell Road at Roeding Road	Signal	AM	12	B
			PM	11	B
14	Mitchell Road at Don Pedro Road	Signal	AM	3	A
			PM	5	A
15	Ustick Road at West Service Road	SSSC	AM	2 (11)	A (B)
			PM	2 (10)	A (A)
16	Crows Landing Road at West Service Road	Signal	AM	22	C
			PM	16	B
17	Morgan Road at East Service Road	AWSC	AM	24	C
			PM	17	C
18	Central Avenue at East Service Road	Signal	AM	38	D
			PM	19	B
19	Mitchell Road at East Service Road	Signal	AM	49	D
			PM	**59**	**E**
20	Faith Home Road at East Service Road	AWSC	AM	10	A
			PM	11	B

Notes:

1. AWSC = all way stop control, SSSC = side street stop control, Signal = signalized
2. AM = weekday morning peak hour, PM = weekday evening peak hour, SAT = Saturday afternoon Peak Hour
3. LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the method described in the 2010 Highway Capacity Manual. For side-street stop-controlled intersections, delays for worst approach and average intersection delay are shown: intersection average (worst approach).
4. **Bold Text** indicates potentially unacceptable operations.
5. HCM 2000 Methodology used; HCM 2010 is not able to calculate levels of service for some phasing types.

Source: Fehr & Peers, 2017.

Existing Roadway Segment Operation

Daily traffic counts, including speed information and vehicle classification data, were collected over a 48-hour period on clear days in February and March 2016 with area schools in normal session at 41 roadway segments, with the average volume over the two days of data collection presented in Table 3.13-8: Existing Roadway Segments Analysis. Levels of service were assessed for each of the roadway segments presented based on the existing functional classification, existing number of lanes, and the generalized capacities presented in Table 3.13-6: City of Ceres General Plan Per-Lane Roadway Segment Capacities.

On a daily basis, most roadways through the Planning Area operate within the established level of service standards, although there are several roadway segments that operate beyond the desired level of service standard. As the peak period intersection analysis shows that most intersections operate within established LOS ranges, these results indicate that the transportation system may be less resilient to disruption during some times of day, such as from a temporary road closure or

incident, rather than requiring additional vehicular capacity. On rural roadways, vehicles may spend an increasing percentage of their travel time following slower vehicles rather than being able to travel unimpeded. On arterial roadways, vehicle platoons will likely form, making efficient use of the transportation system.

Table 3.13-8: Existing Conditions Roadway Segment Analysis

	Average Weekday					
Roadway	*ADT*[1]	*Lanes*	*Classification*	*LOS*[2]	*Percent Trucks*	*85th Percentile Speed*[3]
1. 7th Street north of River Road	16,300	2	Arterial	**E**	0.1%	35
2. 9th Street north of River Road	19,500	4	Arterial	D	2.7%	49
3. Mitchell Road at Tuolumne River	42,700	4	Expressway	C	0.2%	44
4. Carpenter Road at Tuolumne River	20,100	2	Rural	**E**	1.0%	47
5. Crows Landing Road south of 7th Street	12,700	2	Arterial	D	0.2%	43
6. West Hatch Road east of South Carpenter Road	10,500	2	Arterial	D	0.5%	46
7. West Hatch Road west of Crows Landing Road	18,800	2	Arterial	**E**	0.6%	45
8. East Hatch Road east of Central Avenue	30,900	4	Expressway	B	2.6%	51
9. East Hatch Road west of Faith Home Road	11,000	2	Arterial	C	1.3%	57
10. Herndon Road south of East Hatch Road	6,800	2	Primary Collector	D	0.2%	34
11. Central Avenue south of East Hatch Road	7,900	2	Arterial	D	0.1%	38
12. Moffett Road south of East Hatch Road	5,900	2	Primary Collector	D	0.1%	33

Table 3.13-8: Existing Conditions Roadway Segment Analysis

	Average Weekday					
Roadway	*ADT*[1]	*Lanes*	*Classification*	*LOS*[2]	*Percent Trucks*	*85th Percentile Speed*[3]
13. Faith Home Road south of East Hatch Road	3,600	2	Rural	B	1.5%	57
14. Crows Landing Road north of West Whitmore Avenue	24,600	4	Arterial	D	2.3%	42
15. Morgan Road north of East Whitmore Avenue	5,900	2	Arterial	C	1.3%	41
16a. Central Ave north of E Whitmore Ave	8,500	4	Arterial	C	0.1%	34
16b. Herndon Road north of E Whitmore Ave	3,600	2	Arterial	C	1.5%	47
17. Moffett Road north of East Whitmore Avenue	7,000	2	Primary Collector	D	2.0%	44
18. West Whitmore Avenue east of South Carpenter Road	6,000	2	Rural	C	1.4%	45
19. East Whitmore Road west of Morgan Road	14,500	2	Arterial	**E**	1.1%	45
20. East Whitmore Road east of Blaker Road	24,500	4	Arterial	D	1.2%	45
21. East Whitmore Road west of Central Avenue	26,600	4	Arterial	D	1.4%	52
22. East Whitmore Road west of Faith Home Road	6,900	2	Rural	C	0.1%	37
23. Faith Home Road south of East Whitmore Avenue	4,100	2	Rural	B	0.5%	29
24. Hackett Road west of Morgan Road	2,400	2	Primary Collector	B	1.6%	37

Table 3.13-8: Existing Conditions Roadway Segment Analysis

	Average Weekday					
Roadway	*ADT*[1]	*Lanes*	*Classification*	*LOS*[2]	*Percent Trucks*	*85th Percentile Speed*[3]
25. Pine Street west of El Camino Avenue (at SR 99 Ramps)	9,300	2	Arterial	D	3.0%	47
26. West Service Road east of South Carpenter Road	1,800	2	Rural	B	3.8%	48
27. East Service Road west of Morgan Road	7,000	2	Arterial	D	1.7%	45
28. East Service Road east of Central Avenue	11,900	2	Arterial	D	0.5%	50
29. East Service Road west of Faith Home Road	4,100	2	Rural	B	11.4%	59
30. Ustick Road south of West Service Road	300	2	Rural	A	2.0%	42
31. Crows Landing Road south of West Service Road	4,900	3	Rural	C	3.1%	54
32. Morgan Road south of East Service Road	2,900	2	Arterial	B	2.4%	45
33. Central Avenue south of East Service Road	5,600	3	Arterial	C	1.5%	49
34. Mitchell Road south of East Service Road	29,600	4	Arterial	**E**	4.7%	62
35. Faith Home Road south of East Service Road	4,100	2	Rural	B	1.4%	52
36. West Grayson Road east of South Carpenter Road	3,300	2	Rural	B	7.2%	44
37. South Carpenter Road south of West Grayson Road	5,300	2	Rural	C	2.1%	48

Table 3.13-8: Existing Conditions Roadway Segment Analysis

	Average Weekday					
Roadway	*ADT*[1]	*Lanes*	*Classification*	*LOS*[2]	*Percent Trucks*	*85th Percentile Speed*[3]
38. Crows Landing Road south of East Grayson Road	7,700	2	Rural	C	0.8%	56
39. Morgan Road south of East Grayson Road	1,300	2	Rural	A	4.9%	58
40. Blaker Road south of East Grayson Road	400	2	Rural	A	0.1%	29
41. Central Avenue south of East Grayson Road	3,500	2	Rural	B	0.2%	25

Notes:

1. Average daily two-way traffic measured over two days (except as noted).
2. Average based on two days of data collection. **Bold Text** indicates potentially unacceptable operations.
3. 85 percent of the recorded speeds are lower or equal to the 85th percentile speed. 15 percent of the recorded speeds are above this speed.

Source: Fehr & Peers, 2017

Existing Vehicle Miles of Travel

The existing vehicle miles of travel generated by uses in the Planning Area is presented in Table 3.13-9: Existing Conditions Vehicle Miles of Travel in Planning Area which reflects two accounting methods: 1) shared accounting, where the responsibility of IX or XI trips is shared with the other jurisdiction and IX and XI trip lengths halved; and 2) total accounting, with the full length of trips presented.

Table 3.13-9: Existing Conditions Vehicle Miles of Travel in Planning Area[1]

	Base Year[2]	
Households	18,021	
Population	60,622	
Employment	14,099	
VMT	*Shared Accounting*	*Total Accounting*
Daily VMT	638,807	1,268,424
Daily VMT per Household	35.45	70.39
Daily VMT per Service Population[3]	8.55	16.98

Note:

1. The Planning Area includes the city limits, SOI, and unincorporated area.
2. Base year data used in the transportation analysis is from the existing regional travel model, and differs from the 2015 data used in Tables 2.3-2, 2.3-3, and 2.3-4.
3. Service population reflects the sum of residents and jobs.

Source: Fehr & Peers, 2017.

Bicycle Facilities

The California Department of Transportation's (Caltrans) *Highway Design Manual* (HDM) (Chapter 1000: Bikeway Planning and Design) and California Assembly Bill 1193 codify four distinct classifications of bikeways. Bikeways offer various levels of separation from traffic based on traffic volume and speed, among other factors. The City of Ceres does not have a Bicycle Master Plan but has secured funding to develop an Active Transportation Plan, the planning process for which is expected to commence in 2018. Until that document is prepared and adopted by the City, the General Plan Transportation and Circulation Element oversees bicycle planning. Additionally, StanCOG adopted a Non-Motorized Transportation in 2013 that identifies potential bicycle facilities within and connecting to the City of Ceres. Figure 3.13-5: Existing and Future Bicycle Facilities, shows existing and planned bicycle routes in Ceres. Bikeway classifications and existing facilities of each type are described below.

- **Class I Bikeway (Bike Path)** paths provide a separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow of vehicle traffic. In Ceres, this type of bicycle facility is primarily along canals. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes. Figure 3.13-6: Class I and Class II Bicycle Facilities, depicts a typical cross-section for a Class I Bikeway Facility.

  Turlock Irrigation District's (TID) Lateral #1 along Hatch Road is an east-west Class I off-street facility that spans approximately three miles parallel to Hatch Road from Herndon Road to Boothe Road. This path is separated from Hatch Road by a 60-foot open canal parallel to the road east of Central Avenue. There is a second Class I bike path along the TID Ceres Main Canal between Hatch Road and Roeding Road.

- **Class II Bike Lanes** provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or

parking, and green paint at conflict zones (such as driveways or intersections). Figure 3.13-6: Class I and Class II Bicycle Facilities, depicts a typical cross-section for a Class II Bicycle Lane and for a Class II Buffered Bicycle Lane.

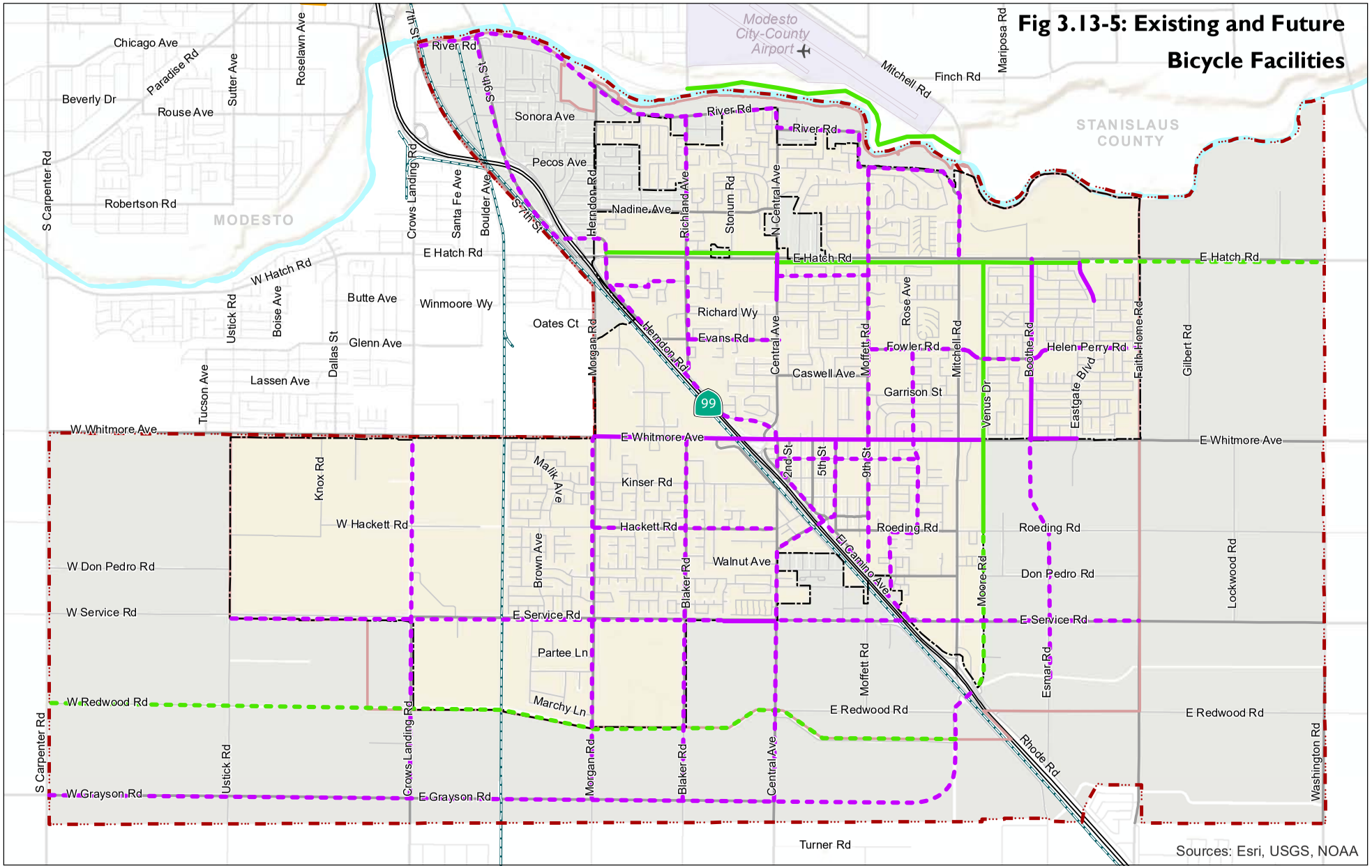
East Whitmore Avenue has Class II bicycle lanes from Morgan Road to east of Mitchell Road, and Boothe Road has Class II facilities from East Hatch Road to East Whitmore Avenue. Other roadways have short segments of Class II facilities, including Central Avenue south of East Hatch Road, East Whitmore Avenue west of Eastgate Boulevard, Service Road west of Central Avenue, and Morgan Road south of East Whitmore Avenue. These facilities would ultimately connect to other planned facilities. There are no buffered bicycle lanes in the Planning Area (see discussion of Class IV facilities below).

- **Class III Bike Routes** provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways. Figure 3.13-7: Class III and Class IV Bicycle Facilities depicts the typical cross-section for a Class III Bicycle Boulevard and a Class III Bicycle Route.

  Although the existing General Plan identifies planned Class III facilities, additional signing and striping (such as shared-use arrows) may be necessary to demarcate facilities as no Class III bicycle facilities are provided in the Planning Area.

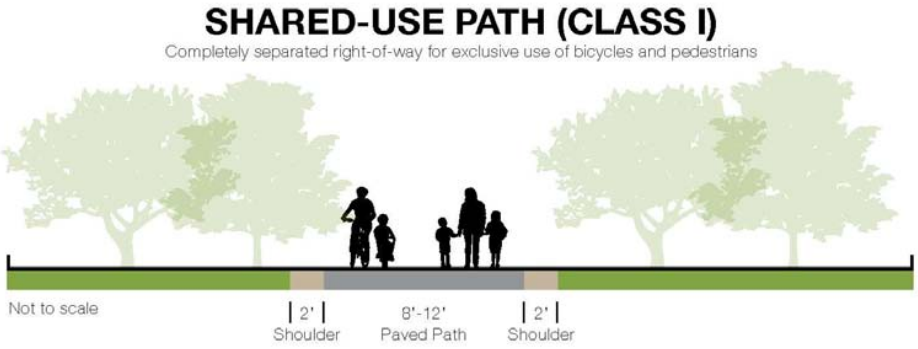
- **Class IV Bikeway (Separated Bikeway)** Separated Bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking. Figure 3.13-7: Class III and Class IV Bicycle Facilities depicts the typical cross-section for a Class IV Bicycle Facility.

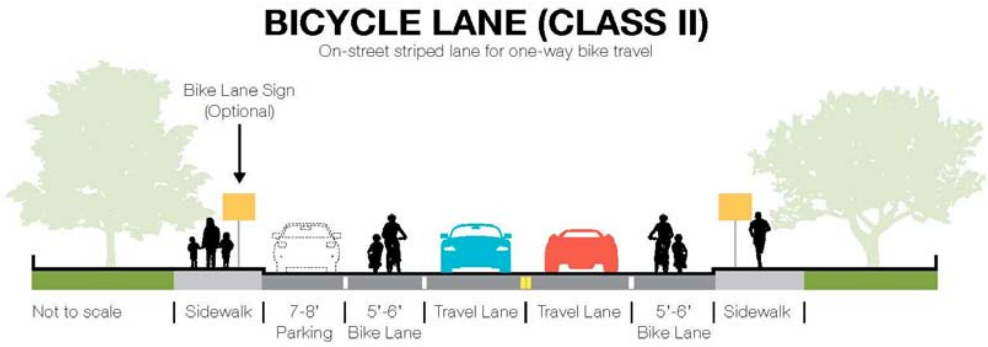
  There are no designated Class IV facilities in Ceres. Locations where these may be appropriate are on arterial roadways where vehicular travel speeds are a deterrent to bicycle riding, and where appropriate parallel facilities do not exist.



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres





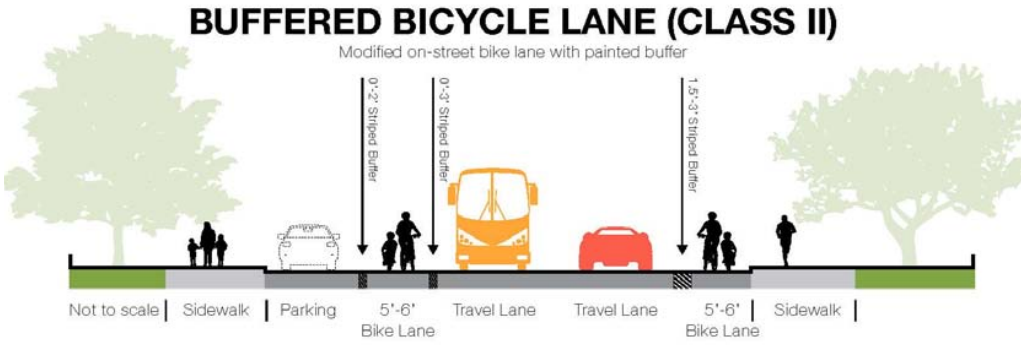


Figure 3.13-6

Class I and Class II Bicycle Facilities

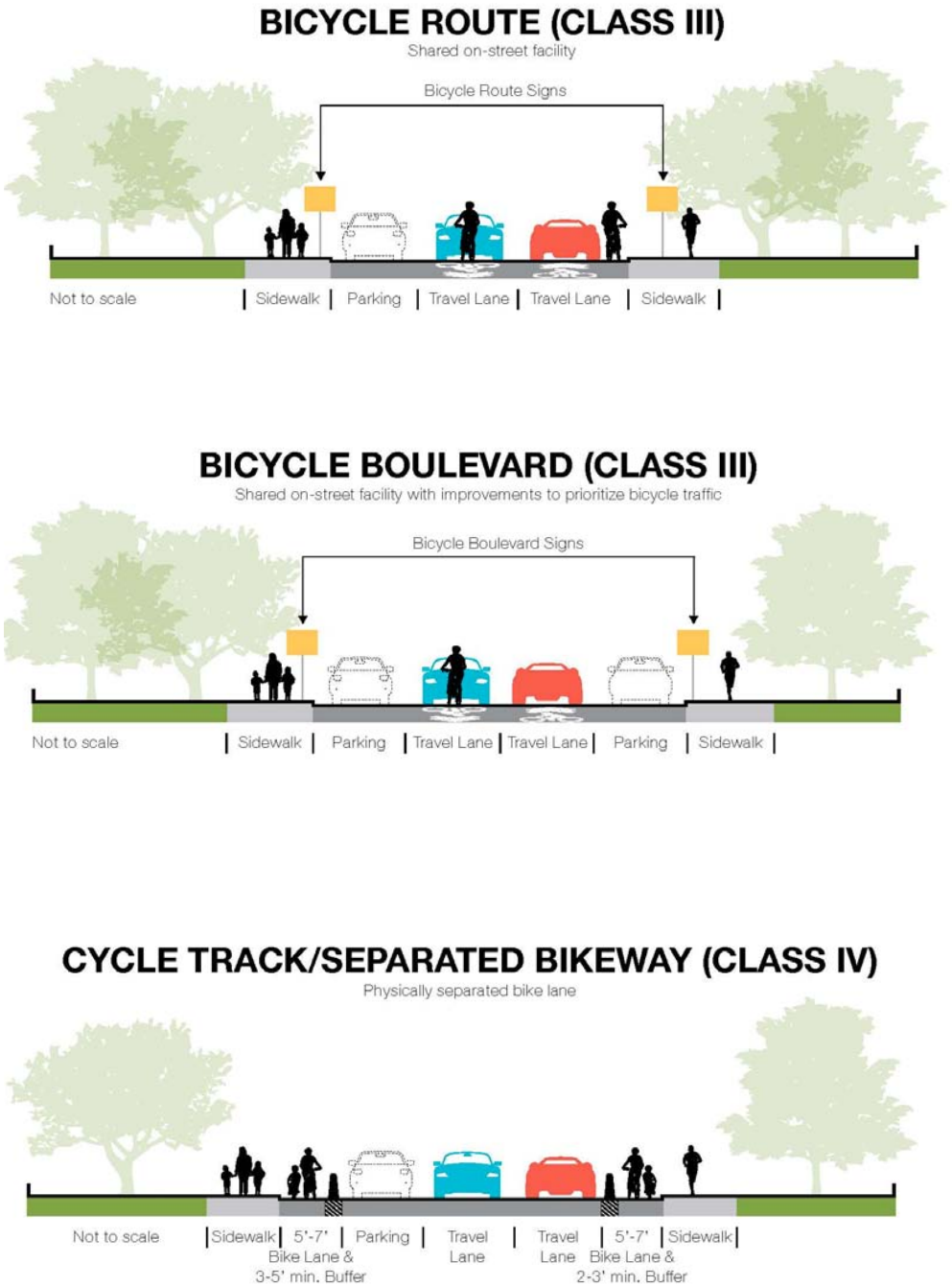


Figure 3.13-7

Class III and Class IV Bicycle Facilities

Pedestrian Facilities

Pedestrian facilities, such as sidewalks and crosswalks, in the Planning Area are present in varying degrees of comprehensiveness. Improved pedestrian facilities typically correspond to recent development, while roads adjacent to agricultural uses or undeveloped lots typically do not provide pedestrian facilities, which is common in urbanizing communities.

Existing pedestrian facilities may have barriers in the form of signposts, utility poles, or overgrown vegetation in the pedestrian realm. Such barriers can also provide challenges for access requirements for those with disabilities, as mandated in the Americans with Disabilities Act (ADA). As parcels are developed and required to install sidewalks, there can also be gaps in the sidewalk system when adjacent parcels remain vacant.

Public Transportation System

Three bus transit operators provide public transportation services in Ceres. Ceres Area Transit (CAT) and Ceres Dial-A-Ride (CDAR) provide most of the local intra-city service, while Modesto Area Express (MAX) and Stanislaus County Regional Transit (StaRT) provide connections to regional destinations in Stanislaus County. Table 3.13-10: Summary of Transit Services in Ceres summarizes the existing transit service in Ceres.

Ceres Area Transit (CAT)

Local fixed-route service in Ceres is provided by Ceres Area Transit (CAT). Planning and administration services for CAT are fulfilled by the City of Ceres Engineering Division. CAT runs service on one line with 60-minute headways. The service can be characterized as providing wide coverage to many city services such as schools and parks, but with low ridership and frequency. In the Fiscal Year 2014-2015, CAT had approximately 40,000 riders.

Ceres Dial-A-Ride (CDAR) is a general public, curb-to-curb demand responsive public transit service operated by CAT. Service is provided to residents and visitors of the City of Ceres and the immediate surrounding unincorporated area. Service is provided seven days a week. Reservations must be made at least 90 minutes in advance or up to 14 days in advance. Seniors and disabled passengers receive a reduced fare.

Modesto Area Express (MAX)

Modesto Area Express (MAX) primarily serves the adjacent City of Modesto. However, two routes provide a connection between Modesto and Ceres. Routes 42 and 29 connect the cities on 30-minute headways Monday-Saturday and every hour on Sundays. In 2015, Route 29 had about 200,000 boardings for the year. Route 42 had about 200,000 boardings.

Stanislaus Regional Transit (StaRT)

Stanislaus County provides public transit service known as the "Stanislaus Regional Transit (StaRT)", which operates long-distance commuter busses that serve multiple cities across the county. These services typically have long headways and few trips per day. Many routes utilize SR 99 for express services. Route 15, Route 40, and the Modesto/Turlock demand-response shuttle serve Ceres. Route 15 runs between Modesto and Turlock with stops in Ceres, and runs every hour Monday through Saturday. There are 11 trips in both directions on weekdays and eight trips on

Saturdays. Route 40 runs between Modesto and Patterson utilizing Crows Landing Road, Grayson Road, and SR 33. There are nine trips per day from Monday to Saturday, approximately every two hours. In Fiscal Year 2014-2015, there were approximately 61,000 boardings on Route 15; 4,800 on the Modesto/Turlock Shuttle; and 41,000 on Route 40.

Passenger Rail

Passenger rail service is not directly provided in Ceres. The closest Amtrak station is located on the eastern edge of the City of Modesto on Held Drive, north of Briggsmore Avenue and west of Santa Fe Avenue, approximately eight miles from Downtown Ceres. A bus transit connection is provided via MAX route 42.

Table 3.13-10: Summary of Transit Services in Ceres

Operator	*Service Type*	*Characteristics*
Ceres Area Transit (CAT)	*One line: T* *Paratransit dial-a-ride.* *Trips within Ceres.*	T: Mon-Fri, 6:15 AM to 6:08 PM No Weekend or Holiday Service. Headways: 60 min.
Modesto Area Express (MAX)	Route 29, Route 42 Trips between Ceres and Modesto, including transfer connection to Amtrak station.	Every day, limited schedule on Sun. 30 min. headways during the week and Sat., 1 hr. on Sun.
Stanislaus Regional Transit (StART)	Route 15, Route 40 Paratransit dial-a-ride. Trips from Ceres to places in Stanislaus County.	Long-distance trips with only 8-11 bus runs per day. 60- to 90-min. headways.

Sources: Ceres Area Transit, 2017; Modesto Area Express, 2017; and Stanislaus Regional Transit, 2017.

Goods Movement

California SR 99 and major freight rail corridors pass through Ceres. Because the size and operational needs of freight vehicles are incompatible with many land uses, the City of Ceres designates a network of truck routes designed to balance the needs of the regional economy with the safety and comfort of residents. The current City of Ceres General Plan designates the following roads as truck routes:

- Service Road from Crows Landing Road to Mitchell Road;
- Don Pedro Avenue, between El Camino Avenue and Mitchell Road;
- Pine Street, between Central Avenue and Railroad Avenue;
- Whitmore Avenue, between Crows Landing Road and Boothe Road;
- Hatch Road, between Herndon Road and Boothe Road;
- Morgan Road, between Service Road and the railroad right of way;
- Central Avenue, between Service Road and Railroad Avenue; and between El Camino Avenue and Hatch Road;

- Mitchell Road, between Service Road and Hatch Road;
- El Camino Avenue/Herndon Road, between Service Road and Hatch Road;
- Railroad Avenue, between Whitmore Avenue and Industrial Way;
- Kinser Road, between Blaker Road and Railroad Avenue; and
- Blaker Road, between Whitmore Avenue and Kinser Road.

Union Pacific Railroad operates two rail lines through the City of Ceres. One generally parallels SR 99, and grade-separated crossings are provided at major roadways, including Hatch Road, Whitmore Avenue, and Service Road. The second line has a north-south orientation and is located equidistant between Crows Landing Road and Morgan Road. At-grade crossings are provided on the local street network. Freight trains operate along these corridors.

Air Transportation

Air travel in the area is provided by the Modesto City-County Airport, a general aviation airport owned jointly by the City of Modesto and the County, and operated by the City of Modesto. The airport is located west of Mitchell Road, north of the Tuolumne River and the City of Ceres boundary. The airport has two runways: a 5,911-foot air carrier runway and a 3,459-foot general aviation runway. The Modesto City-County Airport is the base for approximately 190 general aviation aircraft, including corporate jets. Airport services include a passenger terminal and parking, hangars, aircraft fueling and maintenance, aircraft charters, and flying schools. Commercial air service has been provided in the past but is currently discontinued. Three car rental agencies operate from the airport.

Planned Improvements

Infrastructure improvements are planned for construction within the Planning Area over the planning horizon (through 2035), with major improvements described below.

SR 99

Reconstruction of the Service Road/Mitchell Road interchange at SR 99 (EA 1A690) is in the Caltrans Project Approval and Environmental Document (PA&ED) phase of the project development process, which is expected to be completed in 2017. Once the project has obtained final approvals, it will move to the detailed design phase in preparation for construction, which is expected to commence around 2021. A diverging diamond interchange is currently being contemplated.

The Caltrans State Route 99 Stanislaus County Corridor System Management Plan (April 2011) identifies that a 10-lane cross-section on SR 99 from the Merced County Line to Hatch Road and a 12-lane cross-section from Hatch Road to the San Joaquin County Line is required to maintain acceptable freeway operations through 2030. However, there is insufficient right-of-way and no funding to construct the improvement. Therefore, no improvements to the SR 99 mainline through the Planning Area were included in the analysis.

StanCOG Regional Expressway Study 2010/StanCOG Regional Transportation Plan/Sustainable Communities Strategy

The 2010 StanCOG regional expressway study identified a number of planned expressway facilities within Stanislaus County, including some within the City of Ceres. These planned expressways are generally reflected on the City's current circulation map, including East Service Road, West Hatch Road, and Faith Home Road. Stanislaus County is currently evaluating the construction of the Faith Home Expressway connection between Hatch Road and Finch Road, over the Tuolumne River. The StanCOG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) also identifies construction of the Faith Home Road expressway from Keyes Road in the south to SR 132 in the north, with construction expected to start in in 2024. This improvement is partially funded by the Public Facility Finance Plan – Regional Transportation Impact Fee Program (PFF-RTIP).

A number of other transportation network improvements are identified as Tier 1 improvements in the StanCOG RTP/SCS, as summarized in the StanCOG RTP/SCS Appendix K, including the installation of traffic signals at a number of intersections, roadway widening at select locations, and complete streets improvements along the Hatch Road and Service Road corridors.

Altamont Commuter Express

An extension of the Altamont Commuter Express (ACE) system is planned from Manteca to Merced. ACE commuter rail currently provides four westbound morning trains and four eastbound morning trains from Stockton to San Jose with other Central Valley stops in Lathrop and Tracy. The San Joaquin Regional Rail Commission (SJRRC), which oversees the operations of capital projects for ACE service, is evaluating the extension of ACE service to Downtown Merced, with potential stations in downtown Modesto, Ceres, and Turlock.

REGULATORY SETTING

Federal Regulations

Surface Transportation Assistance Act (STAA)

In 1982, the federal government passed the STAA. This act requires states to allow larger trucks on the "national network," which is composed of the interstate system plus the non-interstate federal-aid primary system. "Larger trucks" includes (1) doubles with 28.5-foot trailers, (2) singles with 48-foot semi-trailers and unlimited kingpin-to-rear axle distance, (3) unlimited length for both vehicle combinations, and (4) widths up to 102 inches. SR 99 is defined as an STAA route.

State Regulations

California Department of Transportation (Caltrans)

Caltrans is the primary state agency responsible for transportation issues. One of its duties is the construction and maintenance of the State highway system. Caltrans has established standards for street traffic flow and has developed procedures to determine if intersections require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of service at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects, which

could include implementation of transportation demand management programs to reduce vehicular travel.

California Transportation Commission (CTC)

The CTC consists of nine members appointed by the California Governor. CTC is responsible for the programming and allocating of funds for the construction of highway, passenger rail, and transit improvements throughout the state. CTC is responsible for adopting the State Transportation Improvement Program and the State Highway Operation and Protection Program.

Assembly Bill (AB) 32

With AB 32, the Global Warming Solutions Act of 2006, the State of California committed itself to reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. The California Air Resources Board (CARB) is coordinating the response to comply with AB 32.

In 2007, CARB adopted a list of early action programs that could be put in place by January 1, 2010. In 2008, CARB defined its 1990 baseline level of emissions, and by 2011 it completed its major rule making for reducing GHG emissions. Rules on emissions, as well as market-based mechanisms like the proposed cap and trade program, took effect in 2012.

On December 11, 2008, CARB adopted its Proposed Scoping Plan for AB 32. This scoping plan included the approval of Senate Bill (SB) 375 as the means for achieving regional transportation related GHG targets. SB 375 provides guidance on how curbing emissions from cars and light trucks can help the state comply with AB 32.

AB 1358 – California Complete Streets Act of 2008

The California Complete Streets Act of 2008 (AB 1358) requires circulation elements as of January 1, 2011, to accommodate the transportation system from a multi-modal perspective, including public transit, walking and biking, which have traditionally been marginalized in comparison to autos in contemporary American urban planning.

SB 375

SB 375 has four key components. First, SB 375 requires regional GHG emissions targets. CARB's Regional Targets Advisory Committee will guide the adoption of targets to be met by 2020 and 2035 for each Metropolitan Planning Organization (MPO) in the state. For Ceres, the MPO is StanCOG (see below). These targets, which MPOs may propose themselves, will be updated every eight years in conjunction with the revision schedule for housing and transportation elements.

Second, MPOs will be required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent with each other, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an alternative planning strategy that details an alternative plan to meet the target.

Third, SB 375 requires that regional housing elements and transportation plans (also prepared by StanCOG as the MPO for Stanislaus County) be synchronized on eight-year schedules. In addition, Regional Housing Needs Assessment allocation numbers must conform to the SCS. If local

jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within three years.

Finally, MPOs must use transportation and air emissions modeling techniques consistent with guidelines prepared by the CTC. Regional transportation planning agencies (such as StanCOG) are encouraged, but not required, to use travel demand models consistent with the CTC guidelines.

SB 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law, building on legislative changes from SB 375, AB 32, and AB 1358, described above. SB 743 began the process to modify how impacts to the transportation system are assessed for purposes of CEQA compliance. These changes include the elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. SB 743 includes amendments that revise the definition of "infill opportunity zones" to allow cities and counties to opt out of traditional LOS standards established by congestion management programs (CMPs) and require the Office of Planning and Research (OPR) to update the CEQA Guidelines and establish criteria for determining the significance of transportation impacts of projects within transit priority areas.

As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." A preliminary discussion draft of alternative metrics was produced in the summer of 2014, with the final draft of changes to the CEQA Guidelines and an accompanying technical advisory document made available for public comment on January 20, 2016. The final guidelines will require certification and adoption by the Secretary for Resources before they go into effect after a two-year opt-in period. As of October 2017, the final guidelines had not yet been submitted for the formal rule-making process.

Local Regulations

StanCOG Regional Transportation Plan/Sustainable Communities Plan

StanCOG is the regional transportation planning agency in Stanislaus County. As such, they are responsible for planning and funding transportation projects throughout the region. The most recent RTP/SCS was adopted in June 2014 and identifies numerous projects in the Ceres area to improve mobility, such as:

- Signalization of intersections;
- Complete Streets improvements;
- Interchange improvements;
- Roadway widening; and
- Intelligent Transportation System Improvements.

An update of the RTP/SCS is currently underway and is expected to be completed in 2018.

StanCOG Congestion Management Process

The 2009 Congestion Management Process (CMP) for the Stanislaus County Region was adopted by StanCOG in January 2010. The CMP is used as a guide for the development of the RTP. The CMP has been developed to improve multi-modal mobility and avoid the creation of deficiencies. One means to this end is the evaluation of multi-modal system performance for the movement of people and goods. The performance measures of the CMP support mobility, air quality, land use, and economic objectives, and are used to determine whether projects are to be included in the CMP Capital Improvement Program for consideration for inclusion in the RTP. The CMP is a performance-based program which is consistent with and assists in the implementation of the Regional Transportation Plan's goals, objectives, and policies. The CMP derives its objectives from the vision, goals and objectives of the StanCOG RTP.

Stanislaus County

The County updated the Circulation Element of its county-wide general plan in 2016. The Circulation Element of the Stanislaus County General Plan identifies the goals, policies, and implementation measures that ensure compatibility between planned land use, infrastructure, and transportation modes. The Circulation Element establishes policies applicable to unincorporated areas of the county. These relate to Ceres in that the City and County jurisdictions share common roads, and County policies in areas adjoining the city may affect city traffic patterns. The County General Plan identifies LOS C as the County's planning goal except within the sphere of influence of a city that has adopted a lower LOS standard, where the city standard shall apply.

City of Ceres Municipal Code

The City's Municipal Code identifies numerous components affecting the transportation system. This includes parking requirements, truck routes, and design guidelines that provides detailed design information for the circulation system of new developments, including parking facilities, driveways, sidewalks, and pedestrian facilities.

The Mitchell Ranch Center Project

The Mitchell Ranch Center project is located at the northwest corner of the intersection of Mitchell Road and Service Road, consisting of five parcels totaling 26.3 acres. The approved uses include a Super Walmart as well as other supporting commercial uses, including junior anchor stores, small-scale retail stores, fast food and other uses.

The EIR prepared for the project identified a number of transportation improvements that would need to be constructed to support full buildout of the project, including improvements such as temporary signal configurations along Mitchell Road near the Service Road/Mitchell Road interchange. Improvements analyzed in the Mitchell Ranch Center EIR did not include the diverging diamond interchange design, but the interchange will be designed to accommodate the projected traffic volumes from the Mitchell Ranch Center.

Downtown Specific Plan

The Downtown Specific plan was adopted in 2011 to guide the development of Downtown Ceres. The plan built upon City investments, including a new community center on 4th Street, which also houses the City Council chambers and the Parks and Recreation department. A number of

transportation system improvements were identified in the plan, including on-street bicycle facilities, enhanced pedestrian crossings and sidewalks, SR 99 ramp improvements, and parking modifications.

West Landing Specific Plan

The West Landing Specific Plan area comprises approximately 960 acres bound by Ustick Road to the west, Whitmore Avenue to the north, Union Pacific Railroad tracks to the east and Service Road to the south. A mixture of land uses is proposed, including residential, commercial, office, business park, industrial, and community facilities, including schools and parks. A maximum of 3,659 dwelling units and up to two million square feet of non-residential uses are permitted under the plan. Development in this area will be subject to policies developed as part of the West Landing Specific Plan and mitigation measures identified as part of the Environmental Impact Report process.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit;**

For the purposes of this EIR, the following thresholds of significance are used to determine if the proposed General Plan has an impact under the terms of Criteria 1:

(a) **Vehicle Traffic:**

(i) *Proposed General Plan*: A significant impact would occur for vehicle traffic if either of the following occur:

1. The level of service (LOS) of the segment degrades from acceptable (LOS D or LOS C or better depending on facility type) under Existing Conditions to Unacceptable under proposed General Plan conditions; or

2. For segments where the LOS is already deficient under existing conditions, the proposed General Plan increases traffic volumes.

Criterion 2: **Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;**

Criterion 3: **Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;**

Criterion 4: **Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);**

Criterion 5: **Result in inadequate emergency access;**

Criterion 6: **Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.**

METHODOLOGY AND ASSUMPTIONS

The transportation impact analysis is focused on potential LOS impacts for vehicles, and conflicts with pedestrians, bicycle, and transit travel modes. The future traffic volumes were developed using a travel demand forecasting model that pivots from the regional StanCOG model. A memorandum detailing the model development, validation and calibration process is provided in Appendix D. This model was used to develop daily roadway segment forecasts that are then evaluated by comparing the resulting volume to volume thresholds by facility type. A VMT analysis was also conducted for informational purposes only, as pending CEQA guidelines that specify the inclusion of a VMT assessment have not yet been adopted. The analysis was conducted considering Faith Home Road as both a four-lane arterial roadway and a six-lane expressway facility. It is expected that the roadway may be constructed in phases, with the initial phase providing a four-lane arterial through Ceres, with the potential to expand to a six-lane arterial.

The forecast model does not take into consideration some foreseeable travel changes, including increased use of transportation network companies, such as Uber and Lyft, nor the potential for autonomous vehicles. Although the technology for autonomous vehicles is expected to be available over the planning horizon, the federal and State legal and policy frameworks are uncertain. Initial modeling of an autonomous future indicates that with automated and connected vehicles, the capacity of the existing transportation system would increase as vehicles can travel closer together; however, these efficiencies are only realized when a high percentage of vehicles on the roadway are automated and connected. There is also the potential for vehicle travel to increase with zero-occupancy vehicles on the roadway. As the technology advances, and the federal and State legal and policy frameworks are developed, future studies may be conducted to assess the implications of autonomous travel on Ceres roadways.

Pedestrians, bicycle, and transit are evaluated with respect to potential conflicts that could preclude the provision of facilities and programs to accommodate those travel demands. Programmatic impacts are discussed in broad, qualitative terms. This assessment does not satisfy the need for project-level CEQA analysis for individual projects. Individual projects under the proposed

General Plan will require a project-level analysis at the time they are proposed based on the details of these projects and the existing conditions at the time such projects are pursued.

SUMMARY OF IMPACTS

Implementation of the Proposed Project could result in a decrease in LOS from Acceptable under existing conditions to Unacceptable under future conditions or increase traffic volumes for segments that are deficient under existing conditions, thereby potentially conflicting with an applicable plan establishing measures of effectiveness for vehicle circulation, resulting in a significant and unavoidable impact. The Planning Area does not have measures of effectiveness for bicycle, pedestrian, or transit operations; however, as the Proposed Project contains policies that would improve the condition of those systems, it would have a less than significant impact on those operations.

Development potential under the Proposed Project would contribute to the need for improvements to the regional transportation system, including development of the expressway system identified by StanCOG and improvements to the freeway system. Therefore, the Proposed Project could conflict with the applicable congestion management program.

With policies included in the proposed General Plan, impacts related to roadway hazards from a design feature or incompatible uses, and emergency access would be less than significant. The Proposed Project also contains policies to ensure that it supports rather than conflicts with adopted plans for bicycles, pedestrians, and transit, for a less-than-significant impact. As the Proposed Project would not affect air traffic, it would have no impact related to air traffic levels or safety.

IMPACTS

Impact 3.13-1 Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. (Significant and Unavoidable)

For the purposes of this EIR, the following thresholds of significance are used to determine if the proposed General Plan has an impact under the terms of Criteria 1:

(b) **Vehicle Traffic:**

(i) *Proposed General Plan*: A significant impact would occur for vehicle traffic if either of the following occur:

1. The level of service (LOS) of the segment degrades from acceptable (LOS D or LOS C or better depending on facility type) under Existing Conditions to Unacceptable under proposed General Plan conditions; or

2. For segments where the LOS is already deficient under existing conditions, the proposed General Plan increases traffic volumes.

To evaluate the effects of the proposed General Plan to the city's transportation system, the following travel modes were evaluated: a) roadway network, b) pedestrians, c) bicycles, and d) transit. The results are summarized below:

a) Roadway Network

Roadway Segments LOS Analysis

Table 3.13-11: Average Weekly Roadway Segment Analysis summarizes the results of the daily roadway segment analysis. The following roadways currently operate at a deficient LOS:

- 1: 7th Street north of River Road (City of Modesto)
- 4: Carpenter Road at Tuolumne River (City of Modesto)
- 7: West Hatch Road west of Crows Landing Road (City of Modesto)
- 19: East Whitmore Road west of Morgan Road
- 34: Mitchell Road south of East Service Road

Development under the Proposed Project with Faith Home Road as a four-lane arterial would improve the operation of some roadway facilities as expanded roadway facilities and parallel capacity would be provided. However, some roadway segments, including segments of SR 99, would continue to operate at deficient service levels and some additional segments are projected to degrade to deficient operations under Proposed Project Conditions:

1: 7th Street north of River Road (City of Modesto)

2: 9th Street north of River Road (City of Modesto)

4: Carpenter Road at Tuolumne River (City of Modesto)

5: Crows Landing Road south of 7th Street (City of Modesto)

7: West Hatch Road west of Crows Landing Road (City of Modesto)

13: Faith Home Road south of East Hatch Road

14: Crows Landing Road north of West Whitmore Avenue

20: East Whitmore Road east of Blaker Road

21: East Whitmore Road west of Central Avenue

23: Faith Home Road south of East Whitmore Avenue

25: Pine Street west of El Camino Avenue (at SR 99 Ramps)

42: SR 99 South of Mitchel Road

43: SR 99 Mitchell Road to Whitmore Avenue

44: SR 99 Whitmore Avenue to Hatch Road

45: SR 99 North of Hatch Road

Peak hour intersection levels of service were not assessed under General Plan conditions as this analysis is intended to provide a general assessment of transportation network capacity as identified in the Circulation Element. More detailed analysis will be required for future development projects to identify project-specific impacts as well as roadway network improvements needed to support those developments, in combination with other planned and pending developments.

With the construction of the Faith Home Road corridor as a six-lane expressway facility through Ceres, operations of Segments 13 and 23 would improve to within the City's level of service standard. No additional deficiencies were identified, a no other deficiencies would be eliminated with Faith Home Road constructed as a six-lane expressway.

Table 3.13-11: Average Weekday Roadway Segment Analysis

Roadway	*Existing Conditions*				*Proposed General Plan – 4 Lane Faith Home Road*				*Proposed General Plan – 6 Lane Faith Home Road*			
	ADT[1]	*Lanes*	*Type*	*LOS*[2]	*ADT*[3]	*Lanes*	*Type*	*LOS*[2]	*ADT*[1]	*Lanes*	*Type*	*LOS*[2]
1. 7th Street north of River Road (Modesto)	16,300	2	Arterial	**E**	38,800	4	Arterial	**E**	38,400	4	Arterial	**E**
2. 9th Street north of River Road (Modesto)	19,500	4	Arterial	D	33,700	4	Arterial	**E**	33,600	4	Arterial	**E**
3. Mitchell Road at Tuolumne River (Modesto)	42,700	4	Expressway	C	47,000	6	Expressway	C	47,000	6	Expressway	C
4. Carpenter Road at Tuolumne River (Modesto)	20,100	2	Rural	**E**	41,600	4	Arterial	**E**	40,500	4	Arterial	**E**
5. Crows Landing Road south of 7th Street (Modesto)	12,700	2	Arterial	D	29,200	4	Arterial	**E**	28,800	4	Arterial	**E**
6. West Hatch Road east of South Carpenter Road (Modesto)	10,500	2	Arterial	D	19,600	4	Arterial	D	20,500	4	Arterial	D
7. West Hatch Road west of Crows Landing Road (Modesto)	18,800	2	Arterial	**E**	26,800	2	Arterial	**F**	26,800	2	Arterial	**F**
8. East Hatch Road east of Central Avenue	30,900	4	Expressway	B	45,900	4	Expressway	D	46,600	4	Expressway	D
9. East Hatch Road west of Faith Home Road	11,000	2	Arterial	C	25,200	4	Expressway	B	26,500	4	Expressway	B

Table 3.13-11: Average Weekday Roadway Segment Analysis

Roadway	*Existing Conditions*				*Proposed General Plan – 4 Lane Faith Home Road*				*Proposed General Plan – 6 Lane Faith Home Road*			
	ADT[1]	*Lanes*	*Type*	*LOS*[2]	*ADT*[3]	*Lanes*	*Type*	*LOS*[2]	*ADT*[1]	*Lanes*	*Type*	*LOS*[2]
10. Herndon Road south of East Hatch Road	6,800	2	Primary Collector	D	9,600	2	Primary Collector	D	9,600	2	Primary Collector	D
11. Central Avenue south of East Hatch Road	7,900	2	Arterial	D	17,100	4	Arterial	D	16,900	4	Arterial	D
12. Moffett Road south of East Hatch Road	5,900	2	Primary Collector	D	6,000	2	Primary Collector	D	6,500	2	Primary Collector	D
13. Faith Home Road south of East Hatch Road	3,600	2	Rural	B	26,400	4	Arterial	**E**	29,800	6	Expressway	A
14. Crows Landing Road north of West Whitmore Avenue	24,600	4	Arterial	D	46,500	4	Arterial	**F**	46,500	4	Arterial	**F**
15. Morgan Road north of East Whitmore Avenue	5,900	2	Arterial	C	11,700	4	Arterial	C	11,600	4	Arterial	C
16a. Central Ave north of E Whitmore Ave	8,500	4	Arterial	C	19,100	4	Arterial	D	19,100	4	Arterial	D
16b. Herndon Road north of E Whitmore Ave	3,600	2	Arterial	C	4,900	2	Arterial	C	4,900	2	Arterial	C
17. Moffett Road north of East Whitmore Avenue	7,000	2	Primary Collector	D	7,400	2	Primary Collector	D	7,400	2	Primary Collector	D
18. West Whitmore Avenue east of South Carpenter Road	6,000	2	Rural	C	6,600	4	Arterial	B	6,600	4	Arterial	B

Table 3.13-11: Average Weekday Roadway Segment Analysis

Roadway	*Existing Conditions*				*Proposed General Plan – 4 Lane Faith Home Road*				*Proposed General Plan – 6 Lane Faith Home Road*			
	ADT[1]	*Lanes*	*Type*	*LOS*[2]	*ADT*[3]	*Lanes*	*Type*	*LOS*[2]	*ADT*[1]	*Lanes*	*Type*	*LOS*[2]
19. East Whitmore Avenue west of Morgan Road	14,500	2	Arterial	**E**	14,500	4	Arterial	C	14,500	4	Arterial	C
20. East Whitmore Avenue east of Blaker Road	24,500	4	Arterial	D	41,800	4	Arterial	**E**	41,700	4	Arterial	**E**
21. East Whitmore Avenue west of Central Avenue	26,600	4	Arterial	D	44,500	4	Arterial	**E**	44,500	4	Arterial	**E**
22. East Whitmore Avenue west of Faith Home Road	6,900	2	Rural	C	9,300	4	Arterial	C	9,500	4	Arterial	C
23. Faith Home Road south of East Whitmore Avenue	4,100	2	Rural	B	26,200	4	Arterial	**E**	29,300	6	Expressway	B
24. Hackett Road west of Morgan Road	2,400	2	Primary Collector	B	2,600	2	Primary Collector	B	2,600	2	Primary Collector	C
25. Pine Street west of El Camino Avenue (at SR 99 Ramps)	9,300	2	Arterial	D	12,800	2	Arterial	**E**	12,900	2	Arterial	**E**
26. West Service Road east of South Carpenter Road	1,800	2	Rural	B	2,000	2	Rural	B	2,000	2	Rural	B
27. East Service Road west of Morgan Road	7,000	2	Arterial	D	10,900	4	Expressway	A	10,900	4	Expressway	A

Table 3.13-11: Average Weekday Roadway Segment Analysis

Roadway	*Existing Conditions*				*Proposed General Plan – 4 Lane Faith Home Road*				*Proposed General Plan – 6 Lane Faith Home Road*			
	ADT[1]	*Lanes*	*Type*	*LOS*[2]	*ADT*[3]	*Lanes*	*Type*	*LOS*[2]	*ADT*[1]	*Lanes*	*Type*	*LOS*[2]
28. East Service Road east of Central Avenue	11,900	2	Arterial	D	19,700	4	Expressway	B	20,000	4	Expressway	B
29. East Service Road west of Faith Home Road	4,100	2	Rural	B	5,900	4	Expressway	A	5,900	4	Expressway	A
30. Ustick Road south of West Service Road	300	2	Rural	A	4,900	2	Rural	C	4,900	2	Rural	C
31. Crows Landing Road south of West Service Road	4,900	2	Rural	C	9,600	4	Arterial	C	9,600	4	Arterial	C
32. Morgan Road south of East Service Road	2,900	2	Arterial	B	3,700	4	Arterial	B	3,700	4	Arterial	B
33. Central Avenue south of East Service Road	5,600	2	Arterial	C	12,900	4	Arterial	D	13,100	4	Arterial	D
34. Mitchell Road south of East Service Road	29,600	4	Arterial	**E**	39,700	6	Arterial	C	39,300	6	Arterial	C
35. Faith Home Road south of East Service Road	4,100	2	Rural	B	15,800	4	Arterial	D	17,900	6	Expressway	A
36. West Grayson Road east of South Carpenter Road	3,300	2	Rural	B	6,700	2	Arterial	D	6,700	2	Arterial	D
37. South Carpenter Road south of West Grayson Road	5,300	2	Rural	C	6,100	4	Arterial	B	6,100	4	Arterial	B

Table 3.13-11: Average Weekday Roadway Segment Analysis

Roadway	*Existing Conditions*				*Proposed General Plan – 4 Lane Faith Home Road*				*Proposed General Plan – 6 Lane Faith Home Road*			
	ADT[1]	*Lanes*	*Type*	*LOS*[2]	*ADT*[3]	*Lanes*	*Type*	*LOS*[2]	*ADT*[1]	*Lanes*	*Type*	*LOS*[2]
38. Crows Landing Road south of East Grayson Road	7,700	2	Rural	D	13,700	4	Arterial	D	13,700	4	Arterial	D
39. Morgan Road south of East Grayson Road	1,300	2	Rural	A	1,700	2	Rural	B	1,700	2	Rural	B
40. Blaker Road south of East Grayson Road	400	2	Rural	A	600	2	Rural	A	600	2	Rural	A
41. Central Avenue south of East Grayson Road	3,500	2	Rural	B	5,000	2	Rural	C	4,900	2	Rural	C
42. SR 99 South of Mitchell Road	101,500	6	Freeway	C	165,800	6	Freeway	**F**	165,400	6	Freeway	**F**
43. SR 99 Mitchell Road to Whitmore Avenue	94,000	6	Freeway	C	158,800	6	Freeway	**F**	158,400	6	Freeway	**F**
44. SR 99 Whitmore Avenue to Hatch Road	105,000	6	Freeway	C	170,350	6	Freeway	**F**	169,950	6	Freeway	**F**
45. SR 499 North of Hatch Road	109,000	6	Freeway	C	174,800	6	Freeway	**F**	174,400	6	Freeway	**F**

Notes: *1. Based on field measurements*
2. LOS based on the existing classification and volume thresholds presented in Table 13-8.
3. Based on the General Plan Update model using the difference method.

Source: Fehr & Peers, 2018.

Vehicle Miles of Travel Analysis

Fehr & Peers used the updated City of Ceres General Plan model to estimate the VMT generated by land uses in the Planning Area. The process that was undertaken to develop the model is detailed in a separate memorandum (see Appendix D). To assess the VMT generated in Ceres, an origin-destination (OD) method was used which tracks all vehicular trips generated by land uses in the Planning Area across the entire regional network. Four types of trips are isolated:

- **Internal-Internal (II) trips.** Include all trips that begin and end within the Planning Area.
- **Internal-External (IX) trips.** Include all trips that begin in within the Planning Area and end outside the Planning Area.
- **External-Internal (XI) trips.** Include all trips that begin outside the Planning Area and end inside the Planning Area.
- **External-External (XX) trips.** Trips that begin and end outside the Planning Area are not included. The City of Ceres assumes no responsibility for External-External trip type VMTs.

Two separate accounting methods were used. The first shares the responsibility of IX or IX trips with the other jurisdiction with IX and XI trip lengths halved. The second method uses the full length of IX and IX trips. Results are presented in Table 3.13-12: Vehicle Miles of Travel Summary in the Planning Area. Trips that have neither an origin nor destination within the Planning Area are not included in the VMT total as the City's General Plan policies cannot appreciably affect the amount of through traffic in a jurisdiction. Estimates were developed for conditions reflecting a four-lane Faith Home Road facility and a six-lane Faith Home Road facility.

As shown in Table 3.13-12: Vehicle Miles of Travel Summary in the Planning Area VMT is expected to increase under the proposed General Plan. Part of the increase is associated with the addition of more employment and retail opportunities within the City that have the potential to import vehicle trips from the surrounding communities. However, the model does not fully capture the potential for some existing and future trips to shift to alternative travel modes as the bicycle, pedestrian and transit systems are enhanced, so actual VMT may be somewhat lower than the model predicts as this mode shift occurs over time.

VMT with a four-lane Faith Home Road is expected to be slightly lower than VMT with a six-lane Faith Home Road. Increased levels of travel could occur with increased capacity on Faith Home Road as it could change travel patterns, reduce travel times, and induce additional travel.

VMT is not currently a CEQA metric used by the City of Ceres to evaluate the transportation impacts of proposed development. Although this analysis was conducted for informational purposes only, there are proposed General Plan policies aimed at reducing vehicle miles of travel.

Table 3.13-12: Vehicle Miles of Travel Summary in Planning Area[1]

	Base Year		*Proposed General Plan – 4 Lane Faith Home*		*Proposed General Plan – 6 Lane Faith Home*	
Households	18,021		25,236		25,236	
Population	60,622		84,449		84,449	
Employment	14,099		34,190		34,190	
VMT	*Shared Accounting*	*Total Accounting*	*Shared Accounting*	*Total Accounting*	*Shared Accounting*	*Total Accounting*
Daily VMT	638,807	1,173,792	1,114,761	2,209,592	1,131,119	2,241,983
Daily VMT per Household	35.45	47.46	44.17	87.56	44.82	88.84
Daily VMT per Service Population	8.55	9.81	9.40	18.62	9.53	18.90

Notes:

1. Planning Area includes city limits, SOI, and unincorporated areas.

Source: Fehr & Peers, 2018.

Proposed General Plan Policies that Reduce the Impact

The following proposed policies would reduce potential impacts by requiring that new developments prepare transportation impact assessments to determine project specific impacts of new development under the proposed General Plan such that impacts can be appropriately mitigated. The City will also coordinate with regional agencies to plan for the construction of the regional transportation network through Ceres. Additionally, City goals and policies strive to develop a multi-modal transportation network that would provide transportation alternatives to the single-occupant vehicle.

Land Use and Community Design Element

2.A.12 **Integrate Transportation and Land Use.** Integrate transportation and land use to plan for well-connected neighborhoods with safe and convenient vehicle, pedestrian, bicycle, and transit accessibility. *See Chapter 3: Transportation and Circulation Element for more information and related goals and policies.*

2.C.1 **Transit Oriented Development.** Encourage high-density, pedestrian-oriented development with managed parking strategies to leverage the development potential and improved accessibility resulting from the development of the ACE train stop.

2.C.2 **Integrated ACE Train Stop.** Integrate the Altamont Corridor Express (ACE) train stop into the Downtown, providing multi-modal mobility options and safe and convenient pedestrian and bicycle access between the train stop and Downtown Ceres.

2.F.4 **Multi-Modal Accessibility.** Maximize accessibility for automobiles, cyclists, and pedestrians.

2.G.2 **Multi-Modal Design.** Ensure commercial facilities are designed for transit, pedestrian, and bicycle access, allowing for pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed solely to serve vehicular circulation.

Transportation and Circulation Element

3.A.1 **Multi-Modal Network.** Provide for a comprehensive, integrated transportation network in accordance with the functional classification system described in this chapter and reflected in the Circulation Diagram with infrastructure and design that allows safe and convenient travel along and across streets for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.

3.A.2 **Level of Service.** Develop and manage the roadway system to maintain Level-of-Service C or better on secondary collectors and local streets and Level-of-Service D or better on primary collectors, arterials, expressways, and freeways. One service level deviation may be permitted at locations where land development or transportation improvement projects supports other goals from the General Plan including transit, active transportation and economic development. Exceptions may also be allowed in areas where the City finds that the improvements or other measures required to achieve the LOS standards are unacceptable because of right-of-way limitations, physical impacts on surrounding properties, adverse effects on other travel modes, and/or the visual aesthetics of the required improvement and its impact on community identity and character.

3.A.3 **Transportation Impact Analysis**. Require transportation analysis to determine the effects of traffic from major development projects (generally those that would generate 100 or more peak-hour trips) or projects that would increase hazards related to the introduction of incompatible land uses. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. Such improvements may include a fair share contribution towards improvements that provide benefits to others.

3.A.4 **Reduce Vehicle Miles Traveled (VMT).** Support statewide efforts to reduce vehicle miles of travel (VMT) from existing and new development by encouraging infill and mixed use development, providing a multi-modal transportation network and incorporating transportation and parking demand management measures into new development by design.

3.A.6 **Development Fees.** Assess fees on new development sufficient to cover the fair share portion of that development's cumulative impacts on the local and regional transportation system, including transit, bicycle and pedestrian systems.

3.A.7 **Expressway System.** Continue to support development of an expressway system to handle regional through traffic in the Modesto-Ceres urban area as conceptually identified in the StanCOG Regional Expressway Study, 2010.

3.A.8 **RTP/SCS Participation.** Continue to participate in the development and implementation of the countywide Regional Transportation Plan and Sustainable Community Strategy, including improvements to the State Highway system.

3.B.1 **Complete Streets Corridors.** Maintain adequate travel flow along Ceres' major corridors while allowing for new or redevelopment development. To this end, the following shall be considered in site plan development for new and redevelopment along Hatch Road, Mitchell Road, and Whitmore Avenue:

- Require consolidation of driveway access to reduce the number of vehicle/pedestrian/bicycle conflicts areas; if necessary, driveway improvements should include relocation of driveway access points on existing sites;
- Require combination of parking lots and access points with joint access and reciprocal parking agreements where possible;
- Require medians within the existing cross-section to limit turning movements and to provide pedestrian refuges at mid-block crossing locations;
- Require site plans to locate entrance and exits to avoid vehicle queue spillback to the public right-of-way; and
- Limit or prohibit drive-up windows where peak vehicle queues cannot be accommodated on-site.

3.B.2 **Direct Expressway Access Restrictions**. Limited direct access to industrial, commercial, and high density residential uses along existing and planned expressways may be approved through site plan review.

3.B.3 **Expressway Roadway Connections.** Access from driveways, secondary collectors, and local streets onto existing and planned Class B expressways is restricted, and right-in/right-out access may be allowed at select locations.

3.D.1 **Off-Street Parking Requirements.** Require new development and redevelopment to provide adequate off-street parking for vehicles and bicycles that considers urban design, economic development, and alternative travel modes, including secure long-term bicycle parking at employment centers and transit centers. Parking shall be landscaped, located convenient to new development, and easily accessible from the street system.

3.D.2 **Context Sensitive Parking Requirements.** Provide parking supplies using a context-sensitive approach that considers the potential for shared parking and reduced parking requirements in walkable mixed-use neighborhoods and transit oriented areas.

3.E.1 **Flexible Transit Service.** Plan and implement additional transit services that are timely, cost-effective, and responsive to growth patterns and existing and future transit demand.

3.E.2 **Community Circulator.** Continue to provide a community circulator and continue to coordinate with Stanislaus County and City of Modesto transit agencies in providing and expanding intercity transit services.

3.E.3 **Transit Right-of-Way.** Consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles. Require new development to reserve space for future public transit stops, with turnouts, where sufficient population or employment concentrations will warrant an existing or future route.

3.E.8 **ACE Train Stop.** Preserve right-of-way to facilitate development of an Altamont Commuter Express (ACE) train stop in Downtown Ceres.

3.F.1 **Non-Motorized Transportation System.** Develop a comprehensive non-motorized transportation system that provides a network of connections between the city's major employment, recreational, educational, and housing areas via existing and planned bikeways and pedestrian facilities, and consider the different needs of recreational bicyclists and commuter bicyclists.

3.F.2 **Funding.** Pursue a variety of sources of funding for the development and improvement of bikeways and pedestrian pathways, including grant funding, Countywide Measure L funds, and Capital Improvement Program funding.

3.F.3 **New Development.** Require developers to finance and install pedestrian pathways, bikeways, and multi-purpose paths within new development, as appropriate.

3.F.4 **Right-of-Way.** Require new development to provide adequate rights-of-way to accommodate bikeways where identified on the bikeways map and as specified in the Bicycle and Pedestrian Master Plan, and to contribute to the development of planned bikeways.

3.F.5 **On-Site Bicycle Facilities.** Require new multi-family residential, commercial and industrial developments to provide bicycle facilities, including bicycle parking. For employment locations with more than 50 employees, other amenities may be required, including showers and changing facilities.

3.F.7 **Roadway Maintenance.** When roadway repaving projects occur, opportunities to provide bicycle facilities consistent with the adopted Alternative Transportation Plan (ATP) shall be considered.

3.F.9 **Interchange Improvements.** When interchanges and overpasses are upgraded, pedestrian and bicycle access shall be provided or enhanced as appropriate, safe, and feasible to do so.

Health and Safety Element Policies

5.B.1 **Safe and Convenient Multi-Modal Options.** Encourage development patterns, urban design, and streetscapes that allow people to safely and conveniently reach destinations

by walking, bicycling, or using transit. *See Chapter: 2 Land Use and Community Design Element and Chapter 3: Transportation and Circulation Element for more information and related goals and policies.*

5.B.2 **Safe Routes to Schools.** Improve the conditions for youth walking and bicycling in the areas surrounding schools by working with the Ceres Unified School District, other local agencies, and nonprofit organizations to implement the Safe Routes to School program.

Mitigation Measures

The City shall implement all policies identified in the Circulation Element to reduce the demand for vehicle travel within and through the Planning Area, as well as work with StanCOG to implement regional transportation improvements that would provide travel capacity on the regional roadway network, including the expressway system. Additionally, new developments would be required the evaluate their project-specific impacts to the transportation system and fund improvements to maintain acceptable levels of service, except where exemptions are identified in the Transportation and Circulation Element of the proposed General Plan. However, even with implementation of these policies, the impact could remain significant and unavoidable.

b) Bicycle Circulation

The City of Ceres does not have a standardized metric by which to evaluate the effectiveness of the bicycle circulation system. For this evaluation, the Proposed Project is considered to have an impact on bicycle facilities if it would adversely affect an existing bicycle facility or preclude the construction of planned facilities.

From a policy perspective, implementation of the Proposed Project would enable to City to improve bicycling programs and infrastructure throughout the City, providing connections to the existing and planned regional bicycle network, resulting in a less than significant impact.

Proposed General Plan Policies that Reduce the Impact

Transportation and Circulation Element

Policies in 2.A.12, 2.F.4, 3.A.1, 3.A.2, 3.A.4, 3.A.5, 3.B.1, 3.D.1, 3.F.1, 3.F.2, 3.F.3, 3.F.4, 3.F.5, 3.F.7, 3.F.9, 5.B.1, and 5.B.2, as listed above, as well as the following policies.

3.C.2 **Pedestrian and Bicycle Connectivity.** Provide pedestrian and bicycle connectivity in residential street patterns. Where cul-de-sacs are permitted, pedestrian and bicycle connections to other streets or community facilities such as parks and schools is required, where feasible.

3.D.5 **Priority Parking.** Where required, reserved employee car pool and bicycle parking should be provided in premium areas close to building entrances.

3.F.6 **Bicycle Safety.** Promote bicycle safety education to children and adults through coordination with the local school district, community groups, and other city sponsored events.

Mitigation Measures

None required.

c) Pedestrian Circulation

The City of Ceres does not have a standardized metric by which to evaluate the effectiveness of the pedestrian circulation system. For this evaluation, the Proposed Project is considered to have an impact on pedestrian facilities if it would adversely affect an existing pedestrian facility or preclude the construction of planned facilities.

From a policy perspective, implementation of the Proposed Project will enable to City to improve pedestrian programs and infrastructure throughout the city, providing connections to existing and planned pedestrian facilities, resulting in a less than significant impact.

Proposed General Plan Policies that Reduce the Impact

Transportation and Circulation Element

Policies 2.A.12, 2.F.4, 2.G.2, 3.A.1, 3.A.2, 3.A.4, 3.A.5, 3.B.1, 3.C.2, 3.F.1, 3.F.9, 5.B.1, and 5.B.2, as listed above, as well as the following policies.

3.B.4 **Sidewalk Network.** Sidewalks are required for all new developments along major corridors.

3.C.3 **Sidewalks**. Sidewalks are required for all new streets in residential developments.

3.D.4 **Parking Lot Design.** Promote parking lot design to minimize vehicle/pedestrian conflict points with appropriate lighting and landscaping provided.

3.F.8 **Pedestrian Facility Design.** Provide safe, continuous and pleasant pedestrian paths of travel, including sidewalk width appropriate for the land use context of the street, enhanced street crossings, landscape and/or parking buffers, and pedestrian scale lighting throughout the city.

Mitigation Measures

None required.

d) Public Transit System

The City of Ceres has no standardized metric to evaluate transit service citywide. The Proposed Project is expected to increase the demand for travel in the Planning Area through development resulting in new residential and employment uses. This could increase the market for public transportation, resulting in increased ridership. Increased overall travel demand is expected to worsen the levels of service on some roadways increasing vehicle delays that could reduce the reliability of transit service. The planned ACE station in downtown Ceres could also increase demand for connecting bus service.

The Proposed Project provides transit supportive policies that are cognizant of the financial constraints of providing fixed-route and dial-a-ride transit service in a suburban setting, and is

supportive of providing ACE rail service to downtown and other supporting transit facilities, resulting in a less than significant impact.

Proposed General Plan Policies that Reduce the Impact

Transportation and Circulation Element

Policies 2.A.12, 2.C.1, 2.C.2, 2.F.4, 3.A.1, 3.A.2, 3.A.3, 3.A.4, 3.A.5, 3.A.6, 3.A.7, 3.A.8, 3.D.2, 3.E.1, 3.E.2, 3.E.3, 3.E.8, and 5.B.1, as listed above, as well as the following policies.

3.E.4 **Farebox Recovery Ratios.** The City of Ceres will not provide transit, either fixed route or demand responsive, in scenarios where it would not be expected to meet the revenue to operating expense ratios or other performance standards required by the State Transportation Development Act or as may be adopted by any other state or regional agency.

3.E.5 **Transit Priority.** Prioritize the transit needs of senior, disabled, minority, low-income, and transit-dependent persons in making decisions regarding transit services and in compliance with the Americans with Disabilities Act.

3.E.6 **Paratransit.** Continue to support efforts to provide demand-responsive service ("paratransit") and other transportation services for those unable to use conventional transit.

3.E.7 **Transit Coverage.** New and existing transit routes shall strive to ensure that routes serve those areas with the greatest need and the largest number of potential users. For areas where fixed-route service is not cost efficient, alternative delivery methods will be considered through the periodic preparation of a short range transit plan (see implementation item under Policy 3.E.2).

Mitigation Measures

None required.

Impact 3.13-2 Implementation of the Proposed Project could conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. (*Significant and Unavoidable*)

StanCOG has integrated the function of the congestion management program into the StanCOG RTP/SCS. StanCOG has established a LOS D standard for regional roadway facilities, but also strives to develop a network of complete streets that accommodate all travel modes. The City of Ceres is supportive of the development of the Expressway System identified in the StanCOG Regional Expressway Study, 2010.

Development potential under the Proposed Project would contribute to the need for improvements to the regional transportation system, including development of the expressway system identified

by StanCOG and improvements to the freeway system. Should Tier I improvements identified in the StanCOG RTP/SCS not be constructed, roadway conditions could be worse than presented in Table 3.13-11: Average Weekly Roadway Segment Analysis.

Proposed General Plan Policies that Reduce the Impact

Policies 2.A.12, 2.F.4, 3.A.1, 3.A.2, 3.A.3, 3.A.4, 3.A.5, 3.A.6, 3.A.7, and 3.A.8, as listed under Impact 3.13-1 above would reduce the severity of impacts to the regional transportation system, but may not reduce impacts to a less-than-significant level.

Mitigation Measures

The City shall implement all policies identified in the Circulation Element to reduce the demand for vehicle travel through Ceres, as well as work with StanCOG to implement regional transportation improvements that would provide travel capacity on the regional roadway network, including the expressway system. Additionally, new developments would be required to evaluate their project specific impacts to the transportation system and fund improvements to maintain acceptable levels of service, except where exempts are identified in the Circulation Element. However, even with implementation of these policies, the potential impact to the regional transportation network could remain significant and unavoidable as the City of Ceres cannot assure the completion of roadway improvement projects in other jurisdictions.

Impact 3.13-3 Implementation of the Proposed Project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. (No Impact)

The Modesto City-County Airport is located north of the city limits. As such, the Proposed Project has the potential to create land uses that may not be compatible with the airport use (see Section 3.10: Land Use, Population, and Housing; and Section 3.7: Hazards and Hazardous Materials). However, given the nature of the proposed General Plan and the nature of services provided at the Modesto City-County Airport, the Proposed Project is not expected to result in any changes to air traffic patterns or safety. Therefore, there is no impact.

Mitigation Measures

None required.

Impact 3.13-4 Implementation of the Proposed Project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less than Significant)

The Proposed Project does not specify design features for the transportation system in the Planning Area, and would thus not substantially increase hazards due to a design feature.

In general, the proposed General Plan land use diagram and policies emphasize transition areas and buffers between land uses of varying intensities, which would serve to reduce potential conflicts between users of the transportation system associated with each land use, including farm equipment, commercial and industrial truck traffic, commute traffic, pedestrians, and cyclists. There is one land use change included in the Proposed Project that would allow for the location of a light industrial use adjacent to an existing school, at the intersection of Roeding Road and McGee Road. If a light industrial use at that location were to increase truck or other heavy vehicle traffic to the area surrounding the school, it could increase hazards for staff and students traveling to school. The specific design and operations of individual future development projects cannot be known at this time; however, policies included in the Proposed Project would serve to reduce potential impacts from future development. The Proposed Project has been developed with an emphasis on Complete Streets, which by their nature, would improve compatibility between different transportation modes as well as between the transportation system and adjacent land uses. Proposed policies that promote bicycle and pedestrian safety as well as the development of safe routes to school, and that require mitigation of traffic-related impacts would help to identify and address potential safety concerns. Therefore, with adherence to policies included in the Proposed Project, impacts increasing hazards due to a design feature or incompatible uses would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies 3.A.1, 3.A.3, 3.F.6, and 5.B.2, as listed under Impact 3.13-1 above, as well as the following policies.

Land Use and Community Design Element

2.E.4 **Mitchell Road Corridor Plan.** Update the Mitchell Road Corridor Specific Plan to:

- Encourage infill development along the corridor;
- Include Complete Streets strategies—*see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;*
- Improve pedestrian and bicycle mobility along the corridor and within and between properties with safe and convenient infrastructure and design;
- Promote development that engages the street, including discouraging parking between the street and new development and encouraging street access into new buildings;
- Differentiate commercial uses intended for the Mitchell Road Corridor from those intended for Downtown Ceres;

- Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design;
- Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land; and
- Include the land designated Regional Commercial south of SR 99.

2.E.5 **Hatch Road Corridor Plan.** Prepare a corridor plan for Hatch Road between SR 99 and Mitchell Road, which includes the following components:

- Infill development;
- Complete Streets strategies—*see Policy 3.B.1 Complete Streets Corridors for more on multi-modal travel flow;*
- Pedestrian and bicycle infrastructure and design to promote safe and convenient access to properties;
- Differentiate commercial uses intended for the Hatch Road Corridor from those intended for Downtown Ceres;
- Address the noise, pollution, safety hazards, and other impacts from truck traffic on walkways and access to buildings through landscaping and design;
- Land use and building location strategies to promote sharing of patronage among businesses;
- Right-size parking and implement parking management strategies such as shared parking to encourage efficient use of land;
- Areawide information and sign program;
- Maintenance plan and safety program;
- Image enhancement and marketing program; and
- Capital improvement projects, including streetscaping, signs, and facade improvements.

2.G.7 **Reduce Impacts from Truck Traffic.** Use site design, including locating parking between the street and buildings, as well as using landscaping as a buffer—especially along expressways—on commercial uses and access to these uses, including along walkways. *See Chapter 3: Transportation and Circulation Element for more on expressways in Ceres.*

Transportation and Circulation Element

3.C.1 **Residential Neighborhood Streets.** Consider the effects of new development on local streets in residential areas and require new development to mitigate significant impacts to existing residential neighborhoods.

3.G.1 **Goods Movement.** Plan for and maintain a roadway system that provides for efficient and safe movement of goods within Ceres.

3.G.2 **Truck Routes**. Maintain a network of truck routes, as shown on Figure 3-3 of the General Plan, within the city and work with Stanislaus County to develop a system of truck routes for the area around Ceres.

Public Facilities and Services Element

6.A.8 **Complete Streets and Safe Routes to Schools.** Implement Complete Streets and Safe Routes to Schools strategies to enable safer access to schools and enhance connectivity for all transportation modes in neighborhoods surrounding schools.

Mitigation Measures

None required.

Impact 3.13-5 Implementation of the Proposed Project would not result in inadequate emergency access. (Less than Significant)

The Proposed Project is presented at a programmatic level. Emergency accessibility typically is assessed at a project level. Implementation of the following proposed General Plan policies will ensure that inadequate emergency access does not occur and will reduce the impact to a less-than-significant level.

Proposed General Plan Policies that Reduce the Impact

Policies 3.A.1, 3.A.3, and 5.F.7, as listed above under Impact 3.13-1.

Mitigation Measures

None required.

Impact 3.13-6 Implementation of the Proposed Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

The Proposed Project is centered on a complete-streets approach, which would improve the performance and safety of transit, bicycle, and transit facilities. Implementation of the proposed General Plan's policies will ensure that impacts to the performance and safety of public transit, bicycle, and pedestrian facilities do not occur and would reduce the impact to a less-than-significant level.

Proposed General Plan Policies that Reduce the Impact

Policies 2.A.12, 2.C.1, 2.C.2, 2.F.4, 3.A.1, 3.A.2, 3.A.3, 3.A.4, 3.A.5, 3.A.6, 3.B.1, 3.B.4, 3.C.2, 3.C.3, 3.D.1, 3.D.2, 3.D.4, 3.D.5, 3.E.1, 3.E.2, 3.E.3, 3.E.4, 3.E.7, 3.E.8, 3.F.1,3.F.2, 3.F.3, 3.F.4, 3.F.5, 3.F.7, 3.F.8, 3.F.9, 5.B.1, and 5.B.2, as listed under Impact 3.13-1 above.

Mitigation Measures

None required.

3.14 Utilities

This section assesses potential environmental impacts from future development under the Proposed Project as related to public utilities, including those related to the water, wastewater, and stormwater systems, and solid waste services. This section describes existing water, wastewater, stormwater, and solid waste infrastructure and services in the Planning Area, as well as relevant federal, State, and local regulations and programs.

There was one comment on the NOP regarding topics addressed in this section. The Stanislaus Local Agency Formation Commission (LAFCO) requested that the EIR discuss what specific measures would be implemented to improve and/or maintain the current level of services prior to expansion of the City's boundaries. This section of the EIR considers water, wastewater, stormwater, and solid waste infrastructure in the Planning Area and discusses potential impacts, existing regulations, and proposed policies that would affect the provision of these utilities. The Proposed Project is not itself an application for the expansion of the City's boundaries. Should the City choose to apply for annexations in the future, it would address specific measures to improve and/or maintain levels of service as part of a Plan for Services as required by LAFCO and Government Code Section 56653.

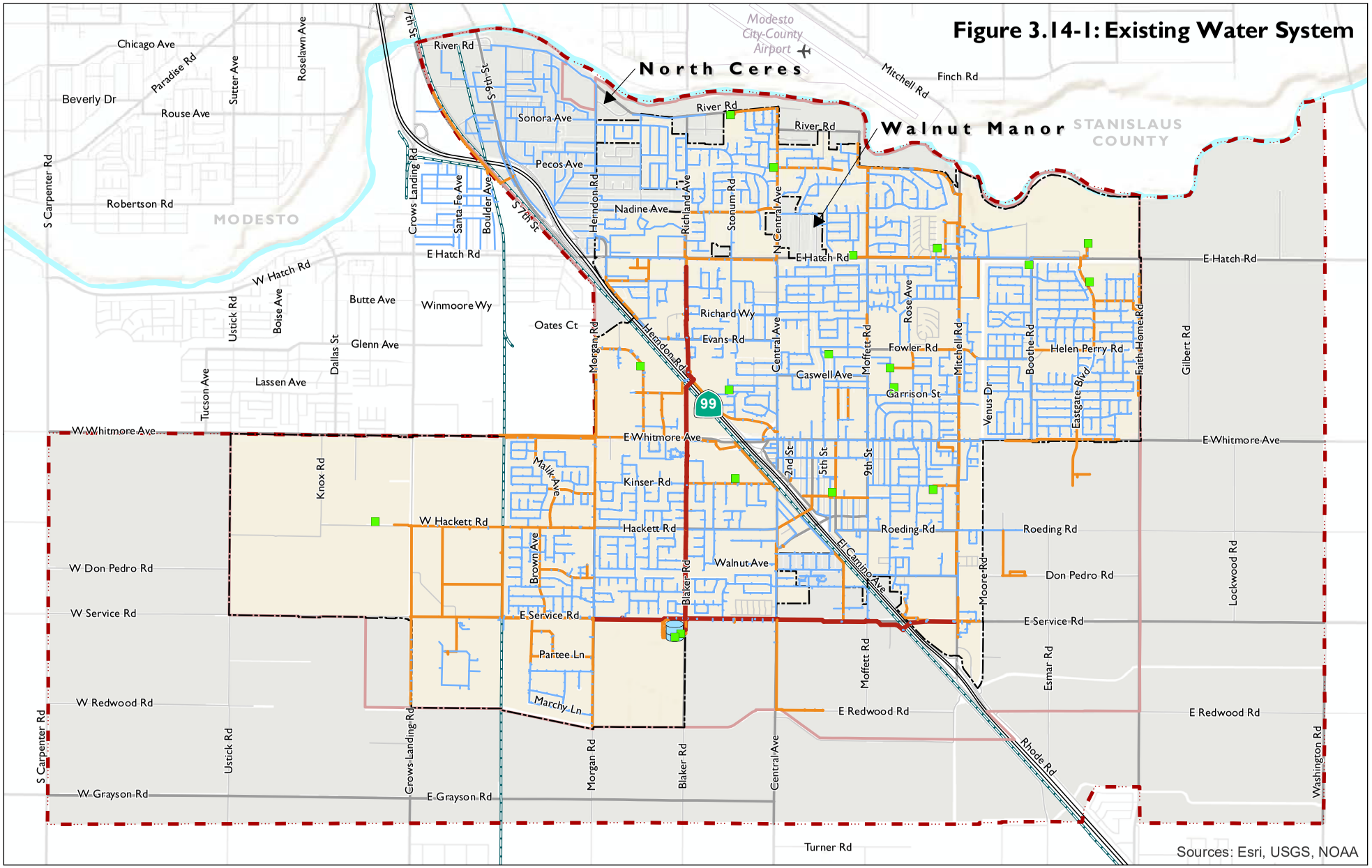
Environmental Setting

PHYSICAL SETTING

Water System

The City of Ceres supplies water to nearly all the residential, municipal, and industrial water users within city limits, with the exception of the northwest portion of the city, where water is provided to around 1,200 people in the North Ceres and Walnut Manor areas by the City of Modesto. In addition, the City of Ceres provides water to a small number of customers outside city limits, including a church, schools, some businesses and residences, and the Monterey Park Tract Community Services District. In the unincorporated Planning Area to the west, south, and east of city limits are various types of developments, such as churches, mobile home parks, and industrial developments served by small water systems with wells, or individual homes with private wells. The Planning Area's existing water system is shown in Figure 3.14-1: Existing Water System.

Figure 3.14-1: Existing Water System



Existing City Water Facilities

- Well
- Tank

Existing City Water Mains

- < 10-inch Diameter
- 10 - 12-inch Diameter
- > 12-inch Diameter

- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Groundwater Facilities

City water is derived exclusively from the Turlock Groundwater Subbasin of the San Joaquin Valley Groundwater Basin through a series of 13 active wells operated by the City. Several of these wells have water quality concerns and are equipped with wellhead treatment systems to ensure that water quality meets federal and State drinking water standards. According to the 2015 Urban Water Management Plan (UWMP), these active wells are capable of producing approximately 15.7 million gallons per day (mgd), but more realistically produce about 13.6 mgd. The City has constructed two new wells, but as of 2017 they are not yet equipped, meaning that the pumps, piping, and treatment systems have not yet been constructed. When equipped, these wells will increase the City's groundwater supply by nearly 2.7 mgd.

Future Surface Water Supply

As a member of the Stanislaus Regional Water Authority (SRWA), the City has entered into a water sales agreement for delivery of 1,825 million gallons per year (5 mgd) of Turlock Irrigation District (TID) surface water. In January 2016, the SRWA contracted with West Yost and Associates for program management services for the construction of a water treatment plant (WTP) and transmission pipelines to provide treated surface water from TID to the cities of Ceres and Turlock. Water would be released from the Don Pedro Reservoir, diverted from the Tuolumne River at an existing infiltration gallery, and pumped to the WTP by TID. It is currently anticipated that the TID water will be available to the City by 2020.

The planned improvements would include the following regional facilities: an infiltration gallery beneath the Tuolumne River (previously constructed between 2001 and 2003 by TID), a wet well and raw water pump station, a raw water transmission main (RWTM), water treatment plant (WTP), a finished water transmission main (FWTM) to Ceres, and a FWTM to Turlock. Local facilities for Ceres and Turlock include terminal storage tanks, pump stations, and transmission/distribution system upgrades and infrastructure modifications specific to each city which will allow the integration of this new supply source of drinking water into each distribution system.

SRWA is developing the surface water supply project in coordination with TID. TID owns the existing infiltration gallery, and currently owns most of the land upon which the wet well, raw water pump station, RWTM, and WTP would be constructed. However, as specified in the Water Sales Agreement between SRWA and TID, SRWA will be purchasing the WTP site from TID. TID will retain ownership of the infiltration gallery, raw water pump station and raw water transmission to allow TID to supplement/enhance flow in the Tuolumne River downstream of Don Pedro Reservoir to the infiltration gallery, but still allow use of this water by TID's agricultural customers.

Current plans are to provide an initial WTP capacity of 15 mgd, with 5 mgd capacity for the City of Ceres. The WTP will be expandable, with plans for potential future expansion up to 45 mgd. The City of Ceres local improvements will include a City-owned 2-million gallon storage tank, located in Ceres River Bluff Regional Park, a booster pump station, and pipelines to complete gaps in the transmission pipeline in East Hatch Road, between Faith Home Road and Richland Avenue.

The WTP will include treatment processes to meet state and federal drinking water standards. Several water treatment processes have been evaluated by SRWA. The current plan is to provide ozone for primary disinfection, granular media filtration, and free chlorine for final disinfection.

Non-Potable Water Facilities

Raw water, from non-potable, shallow, park wells are utilized for some irrigation uses because they do not require the same standards as drinking water.

Distribution System Facilities

The City operates approximately 154 miles of water system pipelines. There are two ground-level water storage tanks (reservoirs) with a combined storage capacity of 3.8 million gallons (mg) that currently serve the city. The reservoirs have an associated booster pump station to pump water from the reservoirs into the distribution system. During periods of high demand, water is pumped from the tanks into the distribution system to supplement well supplies. The tanks have a pressure regulating altitude valve. This allows refilling of the tanks during low demand times without lowering the system pressure to unacceptable levels.

Infrastructure for the portion of the Planning Area served by the City of Modesto is owned by the City of Modesto and is part of the Modesto Contiguous System that serves Modesto, South Modesto, and North Ceres. Local infrastructure within the North Ceres portion of the system includes four groundwater wells and pipelines to distribute water. A transmission pipeline also connects the North Ceres area to South Modesto. Depending on demand conditions, and the status of the local wells, demands are either served locally from the wells, or from a combination of the wells and the transmission pipeline from South Modesto.

Walnut Manor is a standalone system with one private well and a pipeline that serves customers on Wallin Way north of East Hatch Road. The City of Ceres also has a four-inch emergency connection with this system.

Water Demand

As shown in Table 3.14-1: City of Ceres Water Supply and Demand in 2016, Ceres met all of its water customer's demands by pumping groundwater from the active wells. Historically, when more water was needed (demanded), the City pumped (supplied) more water. When less water was needed (demanded), the City pumped (supplied) less water. Consequently, the historical water demands and supplies have exactly matched each other.

Table 3.14-1: City of Ceres Water Supply and Demand (mg/year)[1]

	Year					
	2011	*2012*	*2013*	*2014*	*2015*	*2016[2]*
Demand[3]	2,675	2,625	2,605	2,441	2,105	*1,975*
Supply	2,675	2,625	2,605	2,441	2,105	*1,975*
Groundwater Supplies[4]	2,675	2,625	2,605	2,441	2,105	*1,975*
Surface Water Supplies[5]	*0*	*0*	*0*	*0*	*0*	*0*

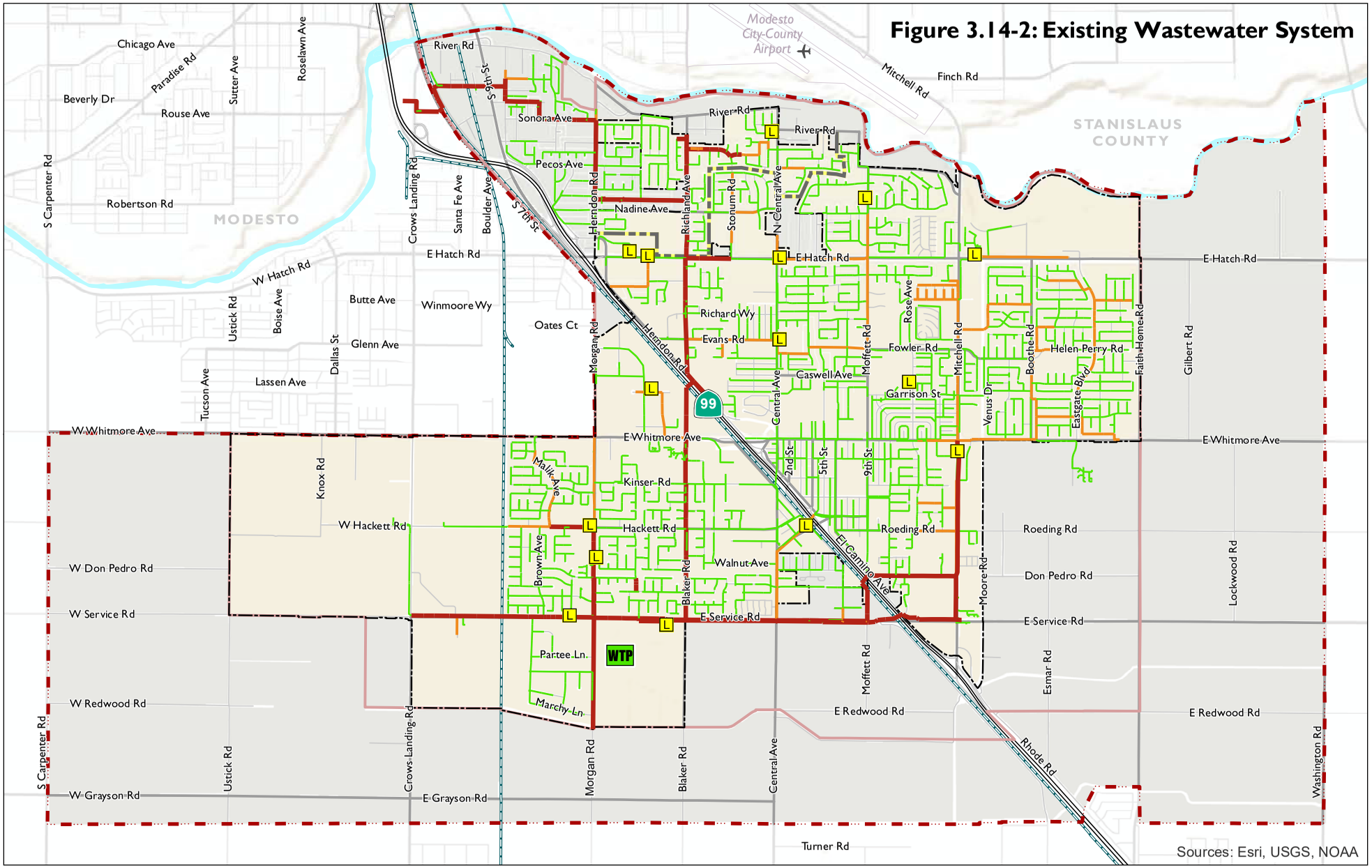
Notes:

1. Table accounts for water demand in the City of Ceres water service area, and excludes areas in Walnut Manor and North Ceres served by the City of Modesto.
2. 2016 water demand based on actual 2016 service area water usage, according to the City of Ceres.
3. Average yearly water demand.
4. Assumes projected groundwater usage based on historical 10-year average computed by West Yost, 2011.
5. Based on current Regional Surface Water Supply Project agreement (SRWA, 2011), 1,825 mg/year of surface water supply will be available for use beginning in 2020.

Sources: City of Ceres Urban Water Management Plan, 2015; West Yost Associates, 2017; City of Ceres, 2017.

Wastewater

The Ceres Sewer Service Area (CSSA) consists of approximately 4,100 acres of land with about 13,800 sewer connections. Except for areas designated for agriculture, the CSSA serves all portions of the Planning Area, including customers outside of city limits. Approximately 280 developed parcels between Herndon Road and Mitchell Road do not have wastewater services provided by the City; these areas have on-site septic tanks and leach field systems. The wastewater generated from residential, commercial, institutional, and industrial users in the City's sewer service area is received at the City's Wastewater Treatment Plant (WWTP), which is then either sent to the City's percolation ponds or to the City of Turlock's WWTP. Wastewater that is not delivered to the City's WWTP is delivered to the City of Modesto's treatment plant. The area that delivers its wastewater to Modesto's WWTP is called the North Ceres Sewer Service Area (NCSSA). The Ceres WWTP treats wastewater through a variety of processes and facilities, including headworks, aerated treatment ponds, filters, and percolation ponds. Table 3.14-2: Wastewater Flows in Ceres (mgd) shows average and peak wastewater flows in the Planning Area. The Ceres WWTP location and the existing wastewater system is shown on Figure 3.14-2: Existing Wastewater System.



Existing City Sewer Facilities

- L — Lift Station
- WTP — Wastewater Treatment Plant

Existing City Sewer Mains

- < 10-inch Diameter
- 10 to 12-inch Diameter
- > 12-inch Diameter

- North Sewer Boundary Line
- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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Table 3.14-2: Wastewater Flows in Ceres (mgd)

	Average Sanitary Flow (ASF)[1] 2016	*Peak Hour Flow (PHF)[2] 2016*
To Ceres WWTP[3]	2.4	9.6
To Modesto WWTP (from North Ceres Sewer Service Area)	1.3	3.3
Total	**3.7**	**13.2**

Notes:

1. Average Sanitary Flow (ASF) is "spent water" entering the sewer not including infiltration or inflow. Because little summer infiltration is experienced in Ceres due to porous soils and low groundwater levels, ASF is similar to Average Dry Weather Flow (ADWF).
2. Peak Hour Flow (PHF) represents the maximum flow in any hour during the year due to storm events.
3. Includes 1.0 mgd that flows to the WWTP but is subsequently sent to the City of Turlock's WWTP.

Source: City of Ceres, 2017; West Yost Associates, 2017.

Stormwater System

Ceres' storm drain system, as shown in Figure 3.14-3: Existing Stormwater Infrastructure, includes over 1,541 drain inlets, over 80 miles of storm drain pipe, 40 retention/detention ponds, 40 pump stations, 25 French drains, and 80 rock (dry) wells. There is not a single citywide storm drainage system, but rather several individual smaller storm drainage systems.

Stormwater runoff is disposed of by percolation ponds at the City's WWTP, discharge to four TID canals at a total of 25 locations, and discharge in four locations to the Tuolumne River. The majority of stormwater runoff flows into detention basins, with only a limited number of neighborhoods discharging directly to a TID canal or to the river. Discharge to the TID canals from detention basins occurs only after the basins have filled.

Discharge to TID facilities is permitted under the 1996 Master Storm Drain Agreement between TID and the City. Based on this agreement, TID can require the City to discontinue discharging stormwater runoff into the TID canals if necessary to limit the flow in the canal to the canal's capacity or for canal maintenance. There is no secondary or back-up stormwater runoff disposal option. In some past storm events, the requirement to stop the stormwater discharge has led to flooding within the city. Typically, the most vulnerable areas to flooding include the area bordered by Fowler Road, Mitchell Road, Whitmore Avenue, and Moffett Road, as well as the area roughly defined by Acorn Lane/Fowler Road, 10th Street/Rose Avenue, Don Pedro Road, and North Central Avenue/SR 99. See Section 3.9 of this EIR, Hydrology and Water Quality, for more information on flood hazards.

The City's stormwater system design is based on a 50-year, 24-hour storm, in accordance with Stanislaus County's Storm Drain Design Manual and City improvement standards. Nevertheless, significant storm events (10-year events and above) have the potential to cause widespread overflows of the City's drainage system. In particular, some older areas of the city may experience flooding in storms that exceed a half-inch per hour of rainfall. Street flooding due to storm-clogged storm drain inlets is generally cleared within half a day. In recent years, new

development projects have been required to use on-site percolation systems to dispose of the stormwater runoff.

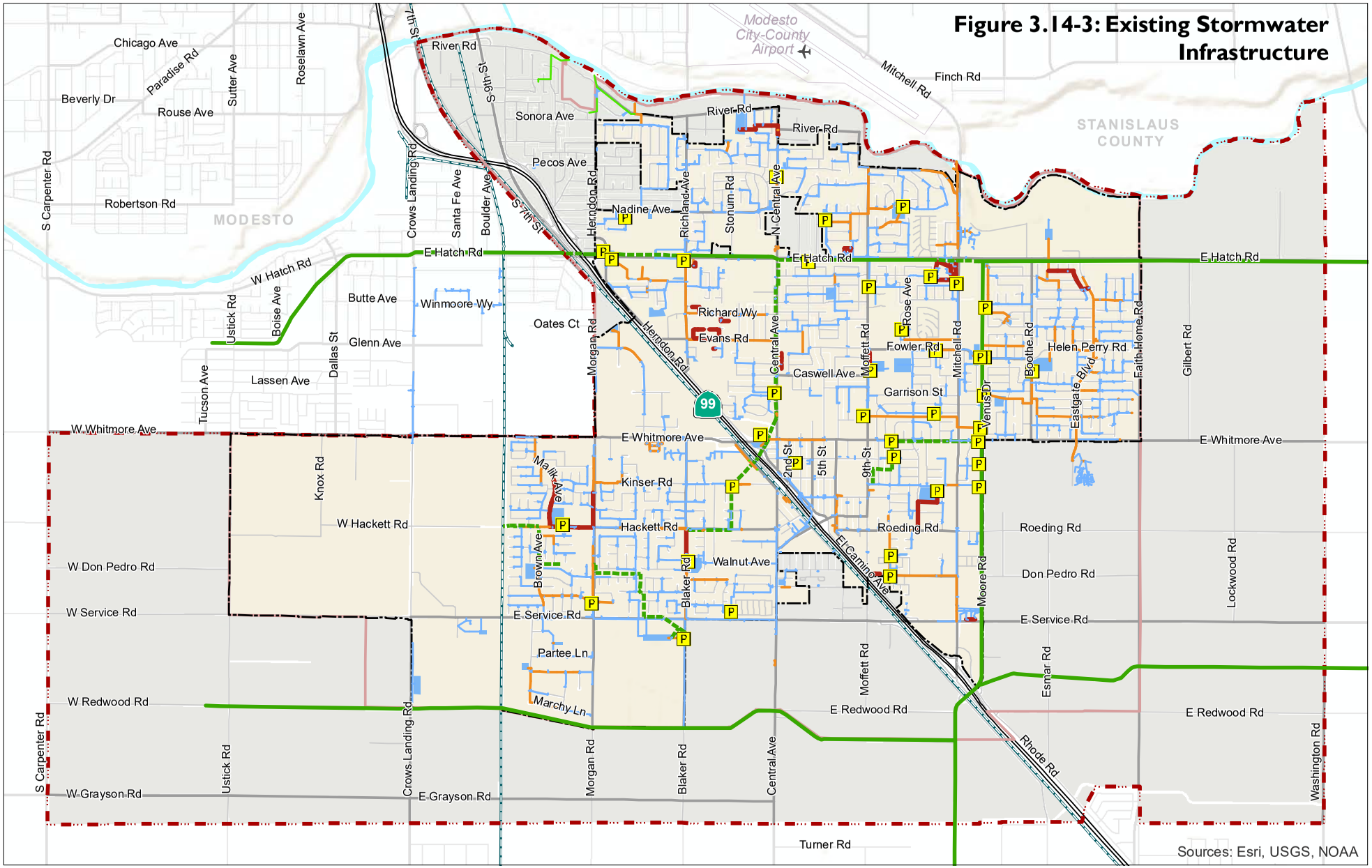
Solid Waste

Ceres is currently contracted with Bertolotti Disposal for solid waste and recycling collection, bulky item pick-up, and leaf and limb pick-up. Ceres residents can dispose of hazardous waste, including batteries, herbicides, pesticides, pool cleaners, batteries, electronics, and automotive facilities at Stanislaus County facilities. Bertolotti Disposal sends solid waste to the Fink Road Landfill and the Stanislaus Resource Recovery Facility (SRRF), a waste to energy facility. SRFF is a solid waste disposal, resource recovery, and electric generating facility capable of burning 800 tons of trash per day. The facility was developed pursuant to a service agreement with the City of Modesto and the County of Stanislaus. Since beginning operation in 1989, SRRF has processed over 4.9 million tons of garbage and generated over 2.4 billion kilowatt-hours of electricity.

Trash can be diverted away from landfills through strategies such as recycling, composting, reuse, and waste reduction. Waste reduction and diversion reduce greenhouse gas emissions, methane production, and the burden on landfills to accommodate waste. In order to meet or exceed the State mandates for solid waste reduction or diversion, Ceres partners with Stanislaus County and participates in the countywide Integrated Waste Management Plan.

For purposes of reporting solid waste management to CalRecycle, cities and counties may join together to form "regional agencies." Regional agencies may prepare a single set of waste management planning documents and jointly implement diversion programs. Ceres is a member of the Stanislaus County Regional Solid Waste Planning Agency.

Figure 3.14-3: Existing Stormwater Infrastructure



Existing City Storm Facilities

- P — Storm Water Pump Station
- Storm Water Basin

Existing City Storm Drains

- < 24-inch Diameter
- 24 - 36-inch Diameter
- > 36-inch Diameter

Other Existing Storm Conveyance System

- County Owned Storm Drain
- Turlock Irrigation District Irrigation Canal
- Turlock Irrigation District Pipeline

- City of Ceres
- Ceres Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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REGULATORY SETTING

Federal Regulations

Federal Safe Drinking Water Act

See Section 3.9: Hydrology and Water Quality.

United States Environmental Protection Agency

The 1986 amendments to the Safe Drinking Water Act and the 1987 amendments to the Clean Water Act established the Environmental Protection Agency (EPA) as the primary authority for water programs. The EPA is the federal agency responsible for providing clean and safe surface water, groundwater, and drinking water, and protecting and restoring aquatic ecosystems. The Planning Area is in EPA Region 9 (Pacific Southwest), which includes Arizona, California, Hawaii, Nevada, Pacific Islands, and Tribal Nations.

Federal Water Pollution Control Act of 1972 (Clean Water Act)

See Section 3.9: Hydrology and Water Quality.

Senate Bills 610 and 221

Enacted in 2002, SB 610, which was codified in the Water Code beginning with section 10910, requires the preparation of a water supply assessment (WSA) for projects within cities and counties that propose to construct 500 or more residential units or the equivalent. SB 610 stipulates that when environmental review of certain large development projects is required, the water agency that is to serve the development must complete a WSA to evaluate water supplies that are or will be available during normal, single-dry, and multiple-dry years during a 20-year projection to meet existing and planned future demands, including the demand associated with a Proposed Project.

Enacted in 2001, SB 221, which was codified in the Water Code beginning with section 10910, requires that the legislative body of a city or county, which is empowered to approve, disapprove, or conditionally approve a subdivision map, must condition such approval upon proof of sufficient water supply. The term "sufficient water supply" is defined in SB 221 as the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that would meet the projected demand associated with the proposed subdivision. The definition of sufficient water supply also includes the requirement that sufficient water encompass not only the proposed subdivision, but also existing and planned future uses, including agricultural and industrial uses.

National Pollutant Discharge Elimination System

The Clean Water Act was amended in 1987 to include urban and stormwater runoff, which required many cities to obtain a National Pollution Discharge Elimination System (NPDES) permit for stormwater conveyance system discharges. Section 402(p) of the Clean Water Act prohibits discharges of pollutants contained in stormwater runoff, except in compliance with a NPDES permit.

State Regulations

California Department of Public Health

See Chapter 3.9: Hydrology and Water Quality.

California State Water Resources Control Board

The State Water Resources Control Board (SWRCB) and nine regional water quality control boards address water quality and rights regulation. Created by the California Legislature in 1967, the five-member SWRCB protects water quality by setting statewide policy, coordinating and supporting the Regional Water Quality Control Board (RWQCB) efforts, and reviewing petitions that contest RWQCB actions. The SWRCB is also solely responsible for allocating surface water rights. Each RWQCB makes critical water quality decisions for its region, including setting standards, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions. The Planning Area lies within the jurisdiction of the Central Valley RWQCB.

California Department of Water Resources

The California Department of Water Resources (DWR) is responsible for the operation and maintenance of the California SWP. DWR is also responsible for overseeing the statewide process of developing and updating the California Water Plan (Bulletin 160 series); protecting and restoring the Sacramento–San Joaquin Delta; regulating dams, providing flood protection, and assisting in emergency management; educating the public about the importance of water and its proper use; and providing technical assistance to service local water needs.

California Porter–Cologne Water Quality Control Act

See Chapter 3.9: Hydrology and Water Quality.

The Water Conservation Act of 2009 (SB X7-7)

California legislation enacted in 2009 as SB 7 of the 7th Special Legislative Session (SB X7-7) instituted a new set of urban water conservation requirements known as "20 Percent By 2020." These requirements stipulate that urban water agencies reduce per-capita water use within their service areas by 20 percent relative to their use over the previous 10 to 15 years. The City of Ceres plans to comply with the SB X7-7 requirements through a combination of ongoing water conservation measures. Calculations for the 2015 UWMP determined that as of 2015, Ceres had met the obligations of SB X7-7 (see Local Regulations below) and surpassed the 2015 and 2020 water usage reduction targets.

State Updated Model Landscape Ordinance (Assembly Bill 1881 (2006))

The State's updated Model Water Efficient Landscape Ordinance requires cities and counties to adopt landscape water conservation ordinances by July 15, 2015. If a jurisdiction does not adopt a local water efficient landscape ordinance, as was the case for Stanislaus County and the City of Ceres, the standards defer to the California Model Water Ordinance, which was updated in September 2015.

California Urban Water Management Planning Act

The California Legislature enacted the Urban Water Management Planning Act of 1983 (California Water Code Sections 10610 through 10656) to support conservation and efficient use of urban water supplies at the local level. The act requires that every urban water supplier that provides water to 3,000 or more customers, or over 3,000 acre-feet (af) of water annually, to make every effort to ensure the appropriate level of reliability in its water service to meet the needs of its customers during normal, dry, and multiple-dry years. The act requires that total projected water use be compared to water supply sources over the next 20 years in five-year increments, that planning occur for single- and multiple-dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency's service area along with current and potential recycled water uses.

Applicable urban water suppliers within California are required by the Water Code to prepare and adopt an Urban Water Management Plan (UWMP) and update it every five years. A UWMP is required in order for a water supplier to be eligible for the DWR-administered state grants, loans, and drought assistance. A UWMP provides information on water use, water resources, recycled water, water quality, reliability planning, demand management measures, best management practices (BMPs), and water shortage contingency planning for a specified service area or territory.

California Emergency Graywater Regulations

In 2009, as part of the Governor's declared State of Emergency, Chapter 16A "Nonpotable Water Reuse Systems" was incorporated into the 2007 California Plumbing Code. Chapter 16A establishes minimum requirements for the installation of graywater systems in residential occupancies regulated by the California Department of Housing and Community Development, providing guidance and flexibility designed to encourage the use of graywater. The standards allow small graywater systems to be installed in homes without a construction permit, substantially reducing the barriers to installing small residential graywater systems in California. The purpose of the regulations is to conserve water by facilitating greater reuse of laundry, shower, sink, and similar sources of discharge for irrigation and/or indoor use; to reduce the number of noncompliant graywater systems by making legal compliance easily achievable; to provide guidance for avoiding potentially unhealthful conditions; and to provide an alternative way to relieve stress on private sewage disposal systems.

State Water Resources Control Board

On May 2, 2006, the SWRCB adopted a General Waste Discharge Requirement (WDR) (Order No. 2006-0003) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipe. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSOs) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a sewer system management plan. The City of Ceres Sewer System Management Plan (SSMP) was approved by City Council in 2009 and includes an overflow emergency response plan; operation and maintenance program; fats, oils, and grease plan; design and performance standards; system capacity plan; and communications program.

California's Department of Resources Recycling and Recovery

California Department of Resources Recycling and Recovery (CalRecycle) is the State's leading authority on recycling, waste reduction, and product reuse. CalRecycle plays an important role in the stewardship of California's vast resources and promotes innovation in technology to encourage economic and environmental sustainability. CalRecycle brings together the State's recycling and waste management programs and continues a tradition of environmental stewardship. Mandated responsibilities of CalRecycle are to reduce waste, promote the management of all materials to their highest and best use, and protect public health and safety and the environment.

California Integrated Waste Management Act (AB 939)

AB 939, California's Integrated Waste Management Act of 1989, mandates that 50 percent of solid waste be diverted by the year 2000 through source reduction, recycling, and composting. AB 939 also establishes a goal for all California counties to provide at least 15 years of ongoing landfill capacity. This requires each region to prepare a source reduction and recycling element to be submitted to CalRecycle, which administers programs formerly managed by the state's Integrated Waste Management Board and Division of Recycling.

California Solid Waste Reuse and Recycling Access Act of 1991 (AB 1327)

AB 1327 was established in 1991, which required CalRecycle to develop a model ordinance for the adoption of recyclable materials in development projects. Local agencies were then required to adopt the model, or an ordinance of their own, governing adequate areas for collection and loading of recyclable materials in development projects.

Disposal Measurement System Act of 2008 (SB 1016)

SB 1016 maintains the 50 percent diversion rate requirement established by AB 939, while establishing revised calculations for those entitles who did not meet the 50 percent diversion rate. SB 1016 also established a per capita disposal measurement system to make the process of goal measurement, as established by AB 939, simpler, timelier, and more accurate. The new disposal-based indicator—the per capita disposal rate—uses only two factors: a jurisdiction's population (or in some cases employment) and its disposal as reported by disposal facilities.

Solid Waste Diversion (AB 341)

Effective July 1, 2012, AB 341 requires that commercial enterprises that generate four cubic yards or more of solid waste weekly participate in recycling programs. This requirement also includes multifamily housing complexes of five units or more, regardless of the amount of solid waste generated each week.

Local Regulations

City of Ceres 2015 Urban Water Management Plan

The 2015 UWMP is a document that provides a summary of anticipated supplies and demands for the years 2015 to 2035. The UWMP was prepared consistent with the California Urban Water Management Planning Act, SBX7-7, and the 2015 DWR Guidebook for Urban Water Suppliers.

California Plumbing Code (2016)

The City of Ceres has adopted the 2016 California Building Standards Code, including the California Plumbing Code (California Code of Regulations, Title 24, Part 5). The code includes provisions for the design, materials, and installation of water supply and distribution fixtures, sanitary drainage, indirect waste, storm drainage, and non-potable water sources for individual projects.

Municipal Regional Stormwater Permit

The City of Ceres is subject to the SWRCB's National Pollution Discharge Elimination System Water Quality Order No. 2013-0001-DWQ for Small Municipal Separate Storm Sewer Systems (Phase II MS4 Permit). The MS4 Permit requires local agencies to incorporate reduction in surface water drainage pollution runoff and establish control measures in development projects, which provide specific guidelines on design measures for runoff of pollutants of concern, source controls, stormwater treatment measures, hydromodification management, and construction site controls. The Permit also requires the City to develop and implement a comprehensive education and outreach program to effectively strategize and roadmap the implementation of the Education and Outreach Program requirements as described in Section E.7 of the Permit. For this purpose, the City created the Comprehensive Storm Water Education and Outreach Plan in 2015.

City of Ceres Stormwater Management and Discharge Control Ordinance

City of Ceres Municipal Code Chapter 13.18 establishes regulations to ensure that the City's storm drain system would only be used for drainage of rainwater, landscape and irrigation runoff, regulated discharges, and other types of uncontaminated or unpolluted water runoff.

City of Ceres Garbage Ordinance

Chapter 6.04 of the Ceres Municipal Code establishes requirements for solid waste receptacles for residential and non-residential land uses; collection contracts, schedules, charges, and consent; and recycling.

Stanislaus County General Plan

The 2015 Stanislaus County General Plan contains a Land Use Element that includes policies ensuring development would be prefaced by inclusion in a district that provides urban services (i.e. sanitary sewer district, domestic water district, or community service district) and mitigation of that development's significant impacts on solid waste management. Additionally, the County General Plan requires the County to coordinate development with existing irrigation, water, and utility systems by referring projects to appropriate agencies and organizations for review and comment. The County General Plan also contains a Conservation and Open Space Element with policies that seek to protect water quality. The County General Plan applies to unincorporated Stanislaus County portions of the Planning Area.

Stanislaus County Water Conservation Ordinance

Stanislaus County Code Chapter 14.12 establishes regulations to conserve water such as prohibiting outdoor water use between 9:00 a.m. and 7:00 p.m. on any day and within 48 hours following measurable rainfall. This chapter also restricts outdoor water use to certain days and

requires new landscaping to comply with SWRCB regulations (see State Updated Model Landscape Ordinance above).

Stanislaus County Stormwater Management and Discharge Control Ordinance

Stanislaus County Code Chapter 14.14 established regulations to control non-stormwater discharges to the stormwater conveyance system from spills, dumping, or disposal of materials other than stormwater, thereby reducing pollutants in urban stormwater discharges to the maximum extent practicable.

Stanislaus County Health and Safety Code

Title 9 of the Stanislaus County Code includes provisions for solid waste management in the unincorporated county. Chapters 9.02 through 9.12 contain requirements for refuse removal, containers, collection, and franchising.

Impact Analysis

SIGNIFICANCE CRITERIA

For the purposes of this EIR, a significant adverse impact would occur if implementation of the Proposed Project would:

Criterion 1: **Violate wastewater treatment requirements of the applicable Regional Water Quality Control Board;**

Criterion 2: **Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;**

Criterion 3: **Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;**

Criterion 4: **Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;**

Criterion 5: **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;**

Criterion 6: **Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs;**

Criterion 7: **Comply with federal, State, and local statutes and regulations related to solid waste.**

METHODOLOGY AND ASSUMPTIONS

The analysis for this section addresses impacts on public utilities and City infrastructure due to projected growth arising from the Proposed Project. Subsequent California Environmental Quality Act (CEQA) review at the project level may be required to determine whether significant environmental effects would result from the construction of water distribution lines, wastewater collection system components, storm drainage conveyance pipes or facilities, and any onsite storage or pumping facilities on development sites, or other utilities improvements. Project-level review will occur when proposed development plans are prepared. This analysis is based on a review of relevant local and regional plans and background information, consultation with relevant utilities, and spatial analysis using geographic information system (GIS) mapping.

Wastewater

As part of the development of the Proposed Project, the City prepared the City of Ceres General Plan Update, Land Use Alternatives – Wastewater Evaluation Technical Memorandum (West Yost Associates, 2017b), which is included as Appendix E. The Wastewater Evaluation Technical Memorandum analyzed the "preferred land use plan" for the General Plan Update. The land use diagram of the "preferred land use plan" is almost identical to the Land Use Diagram of the Proposed Project, except for a few marginal differences. The analysis of the "preferred land use plan" in the Wastewater Evaluation Technical Memorandum was based on different buildout assumptions than those used for the Proposed Project – the buildout population for the "preferred land use plan" is 96,000 people, compared to 79,000 for the Proposed Project. Given the similarity in the land use diagrams and that the capacity of facilities that could serve buildout of the "preferred land use plan" would be more than adequate to serve the Proposed Project, the analysis in the Wastewater Evaluation Technical Memorandum is used in this EIR to assess the Proposed Project.

Water

As part of the development of the Proposed Project, the City prepared the City of Ceres General Plan Update, Land Use Alternatives – Water Evaluation Technical Memorandum (West Yost Associates, 2017c), which is included as Appendix F. The Water Evaluation Technical Memorandum analyzed the "preferred land use plan" for the General Plan Update. The land use diagram of the "preferred land use plan" is almost identical to the Land Use Diagram of the Proposed Project, except for a few marginal differences. The analysis of the "preferred land use plan" in the Water Evaluation Technical Memorandum was based on different buildout assumptions than those used for the Proposed Project – the buildout population for the "preferred land use plan" is 96,000 people, compared to 79,000 for the Proposed Project. Given the similarity in the land use diagrams and that the capacity of facilities that could serve buildout of the "preferred land use plan" would be more than adequate to serve the Proposed Project, the analysis in the Water Evaluation Technical Memorandum is used in this EIR to assess the Proposed Project.

Stormwater

As part of the development of the Proposed Project, the City prepared the City of Ceres General Plan Update, Land Use Alternatives – Stormwater Evaluation Technical Memorandum (West Yost Associates, 2017a), which is included as Appendix G. The Stormwater Evaluation Technical Memorandum analyzed the "preferred land use plan" for the General Plan Update. The land use diagram of the "preferred land use plan" is almost identical to the Land Use Diagram of the Proposed Project, except for a few marginal differences. The analysis of the "preferred land use plan" in the Stormwater Evaluation Technical Memorandum was based on different buildout assumptions than those used for the Proposed Project—the buildout population for the "preferred land use plan" is 96,000 people, compared to 79,000 for the Proposed Project. Given the similarity in the land use diagrams and that the capacity of facilities that could serve buildout of the "preferred land use plan" would be more than adequate to serve the Proposed Project, the analysis in the Stormwater Evaluation Technical Memorandum is used in this EIR to assess the Proposed Project.

Solid Waste

Potential solid waste impacts resulting from implementation of the Proposed Project were evaluated based on relevant information from CalRecycle, Stanislaus County, and the City of Ceres. The analysis below estimates that residential waste will increase from existing conditions to buildout (2035) proportionally with population, and commercial and industrial waste will increase proportionally with the number of jobs. The total waste generated is then compared with Fink Road Landfill's capacity. Additionally, Stanislaus County Regional Solid Waste Planning Agency's solid waste disposal is compared to targets found in the CalRecycle Disposal Reporting System.

SUMMARY OF IMPACTS

Future development under the Proposed Project would generate additional demand for water, wastewater, stormwater, and solid waste services in the Planning Area. However, compliance with federal, State, and local regulations; policies in the proposed General Plan and implementation of existing plans such as the SSMP would ensure that impacts of the Proposed Project would be less than significant. New development under the Proposed Project will rely on new groundwater treatment facilities at existing wells, as well as new surface water supplies and treatment facilities; however, these supplies and treatment facilities would be developed regardless of implementation of the Proposed Project. Compliance with the City's current grading, drainage, and stormwater regulations would ensure any new facilities required to provide water or wastewater treatment or to manage stormwater in the Planning Area would have a less than significant impact on the environment. There is sufficient capacity at the existing landfill to accommodate solid waste disposal under the Proposed Project, thus impacts related to solid waste would also be less than significant.

IMPACTS

Impact 3.14-1 Development under the Proposed Project would not violate wastewater treatment requirements of the applicable Regional Water Quality Control Board. (*Less than Significant*)

The potential to exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board is associated with potential increases in wastewater effluent and a decrease in quality of wastewater effluent. Implementation of the Proposed Project would result in future residential, commercial, office, and industrial uses in the Planning Area, causing increases in population and use that would generate additional wastewater. Therefore, demand for wastewater treatment would be expected to increase over current levels and the quality of wastewater effluent could change.

In July 2013, the City prepared the City of Ceres SSMP. This document identified the sewer system improvements and wastewater treatment improvements needed for the buildout of the 1997 General Plan while complying with the collection and treatment requirements of the Central Valley RWQCB. The SSMP projected an average sanitary flow (ASF) of 10.2 mgd at the City's WWTP, with an additional 1.3 mgd from the NCSSA going to the City of Modesto. Average sanitary flow is "spent water" entering the sewer system. Implementation of the Proposed Project is projected to result in an ASF of 8.1 mgd at the City's WWTP. Since the ASF) for the Proposed Project is lower than the flow projected in the SSMP, implementation of the SSMP will ensure that the City complies with the collection and treatment requirements of the Central Valley RWQCB.

Additionally, the proposed General Plan includes policies that would further reduce potential impacts by ensuring adequate wastewater treatment facility capacity to serve planned development and reducing wastewater system demand through efficient water use. With implementation of the SSMP and the proposed General Plan policies, the impact on violating the RWQCB's wastewater treatment requirements would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Public Facilities and Services Element

6.E.1 **Wastewater Treatment Facility Capacity.** Ensure wastewater treatment facility capacity is available to serve planned urban development within Ceres.

6.E.2 **Wastewater System Demand Reduction.** Promote reduced wastewater system demand through efficient water use by:

- Requiring water-conserving design and equipment in new construction;
- Providing information about water-conserving devices to property owners and residents; and
- Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible.

6.E.3 **On-Site Wastewater Treatment and Disposal.** Prohibit new on-site wastewater treatment and disposal facilities within the City's service area, except where such systems are deemed appropriate and will not pose health risks or risks to groundwater, and where soil conditions, percolation qualities, and topography would support the use of such facilities.

6.E.5 **Financing Wastewater System Improvements.** Finance repairs to existing and new wastewater collection, treatment, and disposal systems and facilities using transparent and fair strategies, such as development impact fees and monthly service charges.

6.E.6 **Treated Wastewater.** Assess the possibility of utilizing treated wastewater with each update to the City's Sewer System Master Plan and Urban Water Management Plan.

Mitigation Measures

None required.

Impact 3.14-2 Development under the Proposed Project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (*Less than Significant*)

Potable Water Facilities

As of 2017, water provided by the City of Ceres is derived exclusively from the Turlock Groundwater Subbasin of the San Joaquin Valley Groundwater Basin through a series of 12 active wells operated by the City. Several of these wells have water quality concerns and are equipped with wellhead treatment systems to ensure that water quality meets federal and State drinking water standards. To supplement the supply from the existing wells, the City has also constructed two new wells. As of 2017 they are not yet equipped, meaning that the pumps, piping, and treatment systems have not yet been constructed. When equipped, these wells will increase the City's groundwater supply by nearly 2.7 mgd to a reliable supply of 16.3 mgd. When the surface water supply is available (in about 2020), the City will have an additional 5 mgd of supply for a total of 21.3 mgd.

The average day demand at buildout of the Proposed Project is projected to be 10.7 mgd and the maximum day demand to be 19.3 mgd. The groundwater and surface water supplies of 21.3 mgd exceed the maximum day demand of 19.3 mgd, therefore equipping the two existing wells and constructing the surface water treatment plant are the only water treatment facility improvements needed for implementation of the Proposed Project.

- **Well Equipping.** Equipping the wells entails installing the well pumps, installing the treatment systems to treat the well water, and constructing piping to connect the wells to the existing distribution system. All of this work will be performed within the existing well site or in existing streets. Standard construction procedures would be used for all ground disturbing activities. Standard water system operating and maintenance procedures would be used to prevent impacts to the water system from the connection work. Use of standard procedures would result in no significant impacts from the

equipping of the wells. These wells would be equipped regardless of whether the Proposed Project is implemented. Thus, adoption and implementation of the proposed General Plan would not create the need for these wells to be equipped.

- **Surface Water Treatment Facilities.** Water treatment facilities are planned as part of the SRWA surface water project, including terminal storage tanks, pump stations, and transmission/distribution system upgrades and infrastructure modifications specific to Ceres which will allow the integration of this new supply source of drinking water into the City's distribution system. This project will be constructed regardless of whether the Proposed Project is implemented. Impacts from the surface water project will be addressed through that project's EIR.

Generally, North Ceres and Walnut Manor are fully developed; therefore, implementation of the Proposed Project is not expected to affect the demand for water treatment in North Ceres and Walnut Manor. No new water treatment facilities are needed to serve North Ceres and Walnut Manor.

Therefore, although development under the Proposed Project would use water from the wells and surface water project, the Proposed Project does not create the need for construction of those water treatment facilities and would not create a need for additional facilities. Additionally, the proposed General Plan includes policies that would further reduce potential impacts by promoting water efficiency to reduce the demand for water treatment. Therefore, the impact from implementation of the Proposed Project from new water treatment facilities would be less than significant.

Wastewater Facilities

In July 2013, the City prepared the City of Ceres SSMP. This document identified the sewer system improvements and wastewater treatment improvements needed for the buildout of the 1997 General Plan while complying with the collection and treatment requirements of the Central Valley RWQCB. The SSMP projected an ASF of 10.2 mgd at the City's WWTP, with an additional 1.3 mgd from the NCSSA going to the City of Modesto. The projected ASF for the Project is 8.1 mgd. Therefore, the wastewater treatment facilities planned in the SSMP would adequately serve the Proposed Project.

Generally, North Ceres and Walnut Manor are fully developed; therefore, implementation of the Proposed Project is not expected to affect the demand for wastewater treatment in North Ceres and Walnut Manor. No new wastewater treatment facilities are needed to serve North Ceres and Walnut Manor.

The proposed General Plan includes policies that would further reduce potential impacts by supporting the use of non-potable water and reclaimed wastewater, as well as water efficiency to reduce the demand for wastewater treatment. Therefore, the impact from implementation of the Proposed Project from new wastewater treatment facilities would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Policies 6.E.1, 6.E.2, 6.E.3, 6.E.5, and 6.E.6, as listed under Impact 3.14-1 above, as well as the following policies.

Health and Safety Element

5.F.8 **Non-Potable Water Sources.** Permit and support the use of non-potable water sources as appropriate, including residential graywater, collected rainwater, and recycled water for landscape irrigation and commercial and industrial processes. Support efforts to develop a system for the treatment and delivery of recycled water.

Public Facilities and Services Element

6.D.2 **Efficient Water Use.** Promote efficient water use and reduced water demand by:

- Requiring water-conserving design and equipment in new construction, encouraging water-conserving landscaping and other conservation measures, and encouraging retrofitting existing development with water-conserving devices;
- Developing public education programs targeted to residents of all ages;
- Distributing outdoor lawn watering guidelines;
- Continuing metering and conservation efforts and assessing the effectiveness of these programs;
- Promoting water audit and leak detection programs;
- Enforcing water conservation programs, including the City's Water Efficient Landscape Ordinance; and
- Limiting a percentage of hardscape in favor of landscaping in front yard areas of residential lots.

6.D.3 **Reclaimed Wastewater.** Investigate and promote, to the extent feasible, the use of reclaimed wastewater to offset the demand for new water supplies. Such programs may include: dual water systems for potable and non-potable water; reuse of grey water in homes or businesses for irrigation; and reuse of sewage effluent for irrigation of crops, golf courses, or City irrigation.

Mitigation Measures

None required.

Impact 3.14-3 Development under the Proposed Project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (*Less than Significant*)

Implementation of the Proposed Project would require maintenance of the existing storm water drainage facilities, as well as construction of new storm drainage systems to serve new development; however, the construction of these new facilities would not cause significant environmental effects. Based on the stormwater analysis by West Yost Associates described in the Methodology and Assumptions section above, new required facilities would include a storm drain system and three retention basins in the West Landing Specific Plan area; a trunk storm drain, detention basin, and a pump station in the Whitmore Ranch Specific Plan area; and trunk storm

drains, detention basins, and pump stations to serve new development in the eastern and southern portions of the Planning Area. An environmental impact report (EIR) per CEQA was prepared for both West Landing Specific Plan in April 2011 and an EIR is being prepared for the Whitmore Ranch Specific Plan as of November 2017; any significant impacts from implementation of these plans are analyzed and mitigated in the respective EIR. In total, implementation of the Proposed Project could require a total of approximately 27,000 feet of new trunk storm drain, 336 acre-feet of detention storage volume, and 159 cubic feet per second (cfs) of pumping capacity, in addition to new facilities in the West Landing Specific Plan (West Yost Associates, 2017a).[1]

Generally, North Ceres and Walnut Manor are fully developed; therefore, implementation of the Proposed Project is not expected to affect the demand for stormwater drainage in North Ceres and Walnut Manor. No new stormwater drainage facilities are needed to serve North Ceres and Walnut Manor.

Policies in the proposed General Plan seek to minimize the volume of stormwater entering the stormwater system, reduce the need for large system expansions, and limit the impacts system expansion could have on the environment. Proposed policies would require that new development provide landscaping, maximize pervious surfaces, promote on-site stormwater management solutions such as low-impact development and utilizing BMPs, promote stormwater capture and reuse, and ensure that post-development peak stormwater runoff discharge rates do not exceed the estimated pre-development rate.

The construction of any new stormwater drainage facilities required to serve future development would be developed within the urban footprint analyzed in this EIR, therefore the construction would not result in impacts to environmental resources that are not already analyzed in other sections of this EIR. In addition, the construction of new facilities would be subject to policies in the proposed General Plan that would further reduce potential impacts of siting, construction, and operation of new facilities to the extent assessed in other sections of this EIR. Proposed policies include those requiring construction BMPs to limit land disturbance, development review to protect significant biological resources, and management of archaeological materials found during development.

Due to the minimal effects that the development of new facilities would have on the environment with compliance with existing regulations and proposed General Plan policies, the impact from new storm water drainage facilities would be less than significant.

Proposed General Plan Policies that Reduce the Impact

Public Facilities and Services Element

6.F.1 **Storm Drainage Capacity**. Ensure that increased storm drainage system capacity is sufficient to serve the existing Ceres community and planned urban development within the Planning Area.

[1] Infrastructure sizing is based on peak runoff rates and maximum detention storage volumes. See Appendix G for further information.

6.F.2 **Reducing Stormwater Runoff.** Encourage project designs that minimize drainage concentrations, minimize impervious coverage, utilize pervious paving materials, utilize low impact development (LID) strategies, and utilize Best Management Practices (BMPs) to reduce stormwater runoff.

6.F.3 **Low Impact Development.** Promote the use of low impact development (LID) strategies in new development and redevelopment projects, including but not limited to the use of canopy trees and shrubs, vegetated swales, and permeable paving.

6.F.4 **New Development Stormwater Mitigation.** Require new development to mitigate increases in stormwater peak flows and/or volume. Mitigation measures, such as low impact development (LID) strategies, should take into consideration impacts on adjoining lands in the City and immediately adjacent to the City in unincorporated Stanislaus County.

6.F.5 **Drainage System Design.** Design all drainage systems to be in accordance with the accepted principles of civil engineering, adopted Storm Drainage Master Plan, and adopted storm drainage design standards and specifications.

6.F.6 **Surface Drainage Disposal.** Require that new development have surface drainage disposal accommodated in one of the following ways:

- Positive drainage. Positive drainage to a river, stream, creek, or other natural water course;
- Irrigation facility. Drainage into an irrigation district facility, either by gravity or pumping, pursuant to the City of Ceres – Turlock Irrigation District agreement;
- Drainage ponds. Ponds, either in individual lots within a subdivision or in the case of larger developments, within a drainage basin;
- Drainage unit. Use of French drains within depressed areas of the street right-of-way for those subdivisions or portions of subdivisions of such size that positive drainage, irrigation into a facility, or drainage ponds is not feasible, as determined by the City Engineer; or
- On-site drainage. Drainage retained on-site within the development.
- Commercial development must accommodate drainage on-site unless positive drainage or irrigation facility methods described above are available and the development participates in a system to address on-site drainage as approved by the City Engineer. All on-site industrial drainage must remain on-site and require full paving improvements. Encourage commercial and industrial development to integrate on-site storm drainage facilities with landscaping.

6.F.7 **Grading.** Require appropriate mitigation, such as temporary mulch or revegetation, for grading activities during the rainy season to avoid sedimentation of storm drainage facilities. See Municipal Code Chapter 13.18.120.

6.F.10 **Storm Drainage System Operation and Maintenance.** Minimize operational complexities and maintenance requirements of the storm drainage system.

Mitigation Measures

None required.

Impact 3.14-4 Development under the Proposed Project would have sufficient water supplies available to serve the project from existing entitlements and resources. (*Less than Significant*)

According to the 2015 UWMP, existing active wells operated by the City of Ceres are capable of producing approximately 15.7 mgd, but more realistically produce about 13.6 mgd. The City has constructed two new wells that, when equipped, will increase the City's groundwater supply by nearly 2.7 mgd to a reliable supply of 16.3 mgd. When the surface water supply planned by the SRWA is available (in about 2020), the City will have an additional 5 mgd of supply for a total of 21.3 mgd.

The average day demand at buildout of the Proposed Project is projected to be 10.7 mgd and the maximum day demand to be 19.3 mgd. The existing and planned groundwater and surface water supplies of 21.3 mgd would exceed the projected maximum day demand of 19.3 mgd, thus no additional water entitlements would be needed.

Generally, North Ceres and Walnut Manor are fully developed; therefore, implementation of the Proposed Project is not expected to affect the demand for water in those areas and no new water supplies would be needed to serve them.

Based on a comparison of existing entitlements and projected demand, development under the Proposed Project would have sufficient water supplies available to serve the project from existing entitlements and resources, and no expanded entitlements would be needed. Therefore, the impact would be less than significant.

Mitigation Measures

None required.

Impact 3.14-5 Development under the Proposed 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*)

As described under Impact 3.14-1 and 3.14-2, the City's existing and planned wastewater collection and treatment facilities could treat up to 10.2 mgd ASF. Implementation of the Proposed Project is projected to result in an an ASF of 8.1 mgd. Therefore, development under the Proposed Project could be served by existing facilities and would not require further wastewater treatment facilities.

Generally, North Ceres and Walnut Manor are fully developed; therefore, implementation of the Proposed Project is not expected to affect the demand for wastewater treatment in these areas and no new wastewater treatment facilities are needed to serve North Ceres and Walnut Manor.

Based on a comparison of existing wastewater treatment capacity and projected wastewater flows, future development under the Proposed Project could be adequately served by existing facilities. Therefore, the impact would be less than significant.

Mitigation Measures

None required.

Impact 3.14-6 Development under the Proposed Project could be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs. (*Less than Significant)*

Ceres is currently contracted with Bertolotti Disposal for solid waste and recycling collection, bulky item pick-up, and leaf and limb pick-up. Solid waste from the Planning Area is primarily disposed of at the Fink Road Landfill and the SRRF, a waste to energy facility. The Fink Road Landfill has a maximum permitted throughput of 2,400 tons per day. Its maximum permitted capacity is 15 million cubic yards, of which 7.2 million cubic yards remain. The SRRF has a capacity of 800 tons of trash per day.

Table 3.14-3: Stanislaus County Regional Solid Waste Planning Agency Disposal Tonnage Trend for Fink Road Landfill shows landfill-destined solid waste generation for the Planning Area in 2015. The table also shows projected solid waste generation at buildout. Residential waste was assumed to increase proportionally with population, and commercial waste was assumed to increase proportionally with the number of jobs. This is a conservative projection because it assumes that no additional waste diversion efforts will be implemented in the next 20 years to reduce solid waste generation per person. Fink Road Landfill has the capacity to accommodate about 11 million additional tons.[2] Even if the Planning Area produced 55,740 tons of disposal per year, the estimated amount of disposal in 2035, for the next 20 years, it would only fill about 10 percent of the remaining space in Fink Road Landfill.

Table 3.14-3: Stanislaus County Regional Solid Waste Planning Agency Disposal Tonnage Trend for Fink Road Landfill

Year	*Population*	*Tons of Residential Waste*	*Jobs*	*Tons of Commercial Waste*	*Total Waste (tons)*
Existing (2015)[1]	54,881	17,386[2]	9,991	9,996[2]	27,382[2]
Buildout (2035)[1]	78,705	24,933	30,791	30,806	55,740
% Difference	43%	43%	208%	208%	104%

Notes:
1. Includes the entire Planning Area, including the area within city limits, the SOI, and the unincorporated area.

[2] Based on a density of in-landfill mixed solid waste of 0.75 tons per cubic yard (CalRecycle, 2013).

2. Data on solid waste was provided by the City of Ceres for the year 2014.

Source: City of Ceres, 2017; Dyett & Bhatia, 2017.

Table 3.14-4: Stanislaus County Regional Solid Waste Planning Agency Per Capita Disposal Rates Compared to Target Rates shows disposal rates for waste management in the Stanislaus County Regional Solid Waste Planning Agency. Disposal targets were met for both residential and employment disposal from the years 2011 through 2016.

Table 3.14-4: Stanislaus County Regional Solid Waste Planning Agency Per Capita Disposal Rates Compared to Target Rates

	Population Disposal (PPD)[1,2]		*Employment Disposal (PPD)*	
Year	*Target*	*Annual*	*Target*	*Annual*
2011	6.3	3.5	21.2	12.5
2012	6.3	3.4	21.2	12.0
2013	6.3	3.5	21.2	12.3
2014	6.3	3.8	21.2	12.4
2015	6.3	4.5	21.2	14.4
2016	6.3	4.4	21.2	13.9

Notes

1. In 2007, California Department of Resources Recycling and Recovery (CalRecycle) introduced a new system of measuring diversion rates based on a per capita disposal measurement system equivalent to the 50 percent diversion requirement. The previous system is no longer used. The new per capita disposal measurement system is one of several "factors" in determining a jurisdiction's compliance with the intent of AB 939, and allows CalRecycle and jurisdictions to set their primary focus on successful implementation of diversion programs.
2. PPD = Pound per person per day.

Source: CalRecycle Disposal Reporting System, 2017.

Given the Stanislaus County Regional Solid Waste Planning Agency's ability to meet its disposal targets, as well as the remaining capacity in area landfills, meeting the collection, transfer, recycling, and disposal needs of the projected population of the Proposed Project would not result in adverse impacts on landfill facilities. It is also likely that changes in regulations will occur that will decrease the need for landfill capacity through new recycling measures. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Impact 3.14-7 Development under the Proposed Project would comply with federal, State, and local statutes and regulations related to solid waste. (*Less than Significant)*

Federal, State, and local statutes and regulations related to solid waste include AB 939, AB 1327, SB 1016, and AB 341, as well as Chapter 6.04 of the Ceres Municipal Code and Title 9 of the Stanislaus County Code. The Proposed Project does not contain any policies that would conflict with any of the requirements for adequate waste receptacles, contracts, or schedules in the local ordinances or the goals of the State regulations. In fact, policies included in the Proposed Project would support the diversion goals and recycling requirements of the State regulations by requiring recycling collection in all new development, promoting waste reduction, and pursuing development of a composting program. Further, any development of future land uses under the Proposed Project would be required to comply with federal, State, and local statutes and regulations related to solid waste. Therefore, the impact would be less than significant.

Proposed Policies that Reduce the Impact

6.G.1 **Waste and Recycling at New Development.** Require waste and recycling collection in all new development, and require that all new development complies with applicable provisions of the City of Ceres Source Reduction and Recycling Element and the Stanislaus County Integrated Waste Management Plan.

6.G.2 **Promote Waste Reduction.** Promote maximum use of solid waste source reduction, recycling, composting, and environmentally-safe transformation of wastes to residents and businesses via educational flyers, public outreach events, information on the City website, and other appropriate methods.

6.G.3 **Recycling Facilities.** Encourage development of regional and community-based recycling facilities in heavy commercial and industrial areas.

6.G.6 **Waste Reduction and Diversion.** Meet State standards for waste reduction and diversion.

6.G.7 **Solid Waste Reduction.** Ensure 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020 and beyond, per Assembly Bill 341.

6.G.8 **Composting Facility.** Pursue development of a composting facility within Ceres.

Mitigation Measures

None required.

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3.15 Impacts Not Potentially Significant

Some of the detailed analysis of the environmental issues normally required by CEQA is excluded from this EIR because only those environmental issues that were potentially impacted by the Proposed Project are analyzed. CEQA requires that an EIR provide a statement indicating why environmental issues normally requiring analysis by CEQA were determined to be not significant and therefore not discussed in detail. Forestry and Mineral Resources are the only issue areas not addressed in detail in the setting and impacts sections.

Forestry Resources

A significant impact would occur if implementation of the Proposed Project would result in one or more of the following:

Criterion 1: **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)); or**

Criterion 2: **Result in the loss of forest land or conversion of forest land to non-forest use; or**

Criterion 3: **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use.**

The Planning Area does not have forest resources or land zoned for forest use. Therefore, the Proposed Project would have no impact on forest resources. The topic is not analyzed further.

Mineral Resources

A significant impact would occur if implementation of the Proposed Project would result in one or more of the following:

Criterion 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?**

Criterion 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?

The Planning Area does not have known mineral resources of regional or statewide value, or locally-important mineral resource recovery sites that are delineated on a land use plan. Therefore, the Proposed Project would have no impact on mineral resources. The topic is not analyzed further.

4 Alternatives Analysis

The California Environmental Quality Act (CEQA) mandates consideration and analysis of alternatives to the Proposed Project. According to CEQA Guidelines, the range of alternatives "shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant impacts" (CEQA Guidelines Section 15126.6 (d) (2)). The discussion must also include an evaluation of the No Project Alternative to allow decision-makers to compare the impacts of approving the Proposed Project against the impacts of not approving it.

Case law suggests that the discussion of alternatives need not be exhaustive and that alternatives be subject to a construction of reasonableness. The impacts of the alternatives may be discussed "in less detail than the significant effects of the project proposed" (CEQA Guidelines Section 15126.6 (d)). Additionally, the CEQA Guidelines permit analysis of alternatives at a less detailed level for general plans and other program EIRs than what is required for project EIRs. The CEQA Guidelines do not specify what constitutes an adequate level of detail, though they require that an EIR provide sufficient information to allow meaningful evaluation, analysis, and comparison of each alternative. CEQA Guidelines require that this analysis identify the environmentally superior alternative among those analyzed. Quantified information on the alternatives is presented where available; however, in some cases only partial quantification can be provided because of data or analytical limitations.

4.1 Background on Development of Alternatives

The Alternatives evaluated in this EIR include the Southern Industrial Cluster (SIC) Alternative and the No Project Alternative. The SIC Alternative was developed as part of the General Plan update Alternatives phase. In the fall of 2016, City staff and consultants developed the SIC Alternative as one of three possible land use alternatives for consideration by the City of Ceres Planning Commission and City Council. The three possible alternatives were designed to represent a range of potential scenarios to be further analyzed and were carefully informed by the General Plan Vision Statement and Guiding Principles; technical existing conditions research; community feedback from the stakeholder interviews, two community workshops, and a community-wide survey; and direction from the Planning Commission and City Council.

At a joint meeting of the Planning Commission and City Council on November 15, 2016, the SIC Alternative and the other two possible alternatives were recommended for further analysis as General Plan Alternatives in terms of potential impacts related to housing, population, jobs, transportation, fiscal conditions, and utilities. Findings from the analysis were presented at a public workshop on January 25, 2017 to solicit public feedback on the General Plan Alternatives.

On March 6, 2017, the Planning Commission reviewed the results of the analysis as well as comments from the public, and recommended that the SIC Alternative, then called Alternative 2: Southern Industrial Cluster Alternative, be carried forward as the Preferred Plan to act as the framework for the updated General Plan. On March 27, 2017, the City Council ultimately moved to carry forward one of the other General Plan Alternatives, Alternative 1: Modified Existing General Plan, which subsequently formed the basis of the Proposed Project.

As the SIC Alternative was considered a feasible approach to land use development in the Planning Area by the Ceres community, it is an appropriate Alternative to evaluate in this EIR. The remaining General Plan Alternative, Alternative 3: Eastern Industrial Corridor, is not considered here due to an overall unfavorable reaction from the community and decision-makers related to negative environmental impacts, specifically regarding traffic generation, roadway expansion, and the placement of industrial uses near existing residential areas; however, it can be referenced in the 2017 Ceres Alternatives Evaluation. Analysis of the No Project Alternative is required by CEQA. The No Project Alternative maintains the 1997 City of Ceres General Plan unchanged.

4.2 Description of Alternatives

The Alternatives differ in their visions for the form and location of future development within the Planning Area. While the No Project Alternative assumes development will continue to occur according to the 1997 General Plan, the SIC Alternative would allow for new commercial and industrial clusters in the southern portion of the Planning Area. Table 4.2-1: Comparison of Key Characteristics, compares key characteristics of the No Project Alternative, the SIC Alternative, the Proposed Project, and existing conditions.

Table 4.2-1: Comparison of Key Characteristics

	City of Ceres			*Unincorporated County*			*Planning Area Total*		
	Population	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*	*Population*	*Housing*	*Jobs*
Existing (2015)[1,2,3]	47,000	13,800	8,700	8,000	2,400	1,300	55,000	16,200	10,000
Proposed Project (2035)	59,000	17,500	22,100	20,000	5,900	8,700	79,000	23,400	30,800
Southern Industrial Cluster Alternative (2035)	59,000	17,500	22,200	18,000	5,400	9,500	77,000	22,900	31,700
No Project Alternative (2035)	60,000	17,900	22,100	19,000	5,900	6,300	80,000	23,700	28,500

Notes:

1. Existing population in Ceres is from the California Department of Finance, January 2015 estimate. Existing population in the unincorporated county is derived from Stanislaus County Assessor's data from 2014 and an assumed 3.3 persons per housing unit.
2. Existing development in Ceres is from Economic & Planning Systems, Inc, 2016. Existing development in the unincorporated county is derived from Stanislaus County Assessor's data from 2014.
3. Existing jobs in Ceres is from the 2015 Q2 California Employment Development Department. Existing jobs in the unincorporated county is derived from Stanislaus County Assessor's data from 2014 and job density assumptions.

Source: Dyett & Bhatia, 2017.

SOUTHERN INDUSTRIAL CLUSTER ALTERNATIVE

The SIC Alternative proposes land use changes in the area south of the planned Service Road interchange, including a new Regional Commercial designation that would replace some of the existing Business Park and Commercial Recreation designations, and the redesignation of some Business Park, Medium Density Residential, and Commercial Recreation areas as Service Commercial. Industrial uses are proposed to the southwest of the new commercial cluster. This Alternative seeks to shift Industrial-designated areas onto larger parcels closer to SR-99 in order to create a more attractive environment for industrial developers. The SIC Alternative differs from the Proposed Project primarily in terms of land use designations in this southern area; while the Proposed Project also redesignates a large area of Business Park and Commercial Recreation as Regional Commercial, it would not introduce new Service Commercial or Industrial designations there. In general, policies for the SIC Alternative can be assumed to be the same as in the Proposed Project, to the extent that the policies would be supported by the SIC Alternative's proposed land use configuration.

Table 4.2-1: Comparison of Key Characteristics presents a summary of the residential capacity and reasonably anticipated non-residential development on opportunity sites in the SIC Alternative. Figure 4.2-1: Southern Industrial Cluster Alternative, shows the proposed land use map under this alternative.

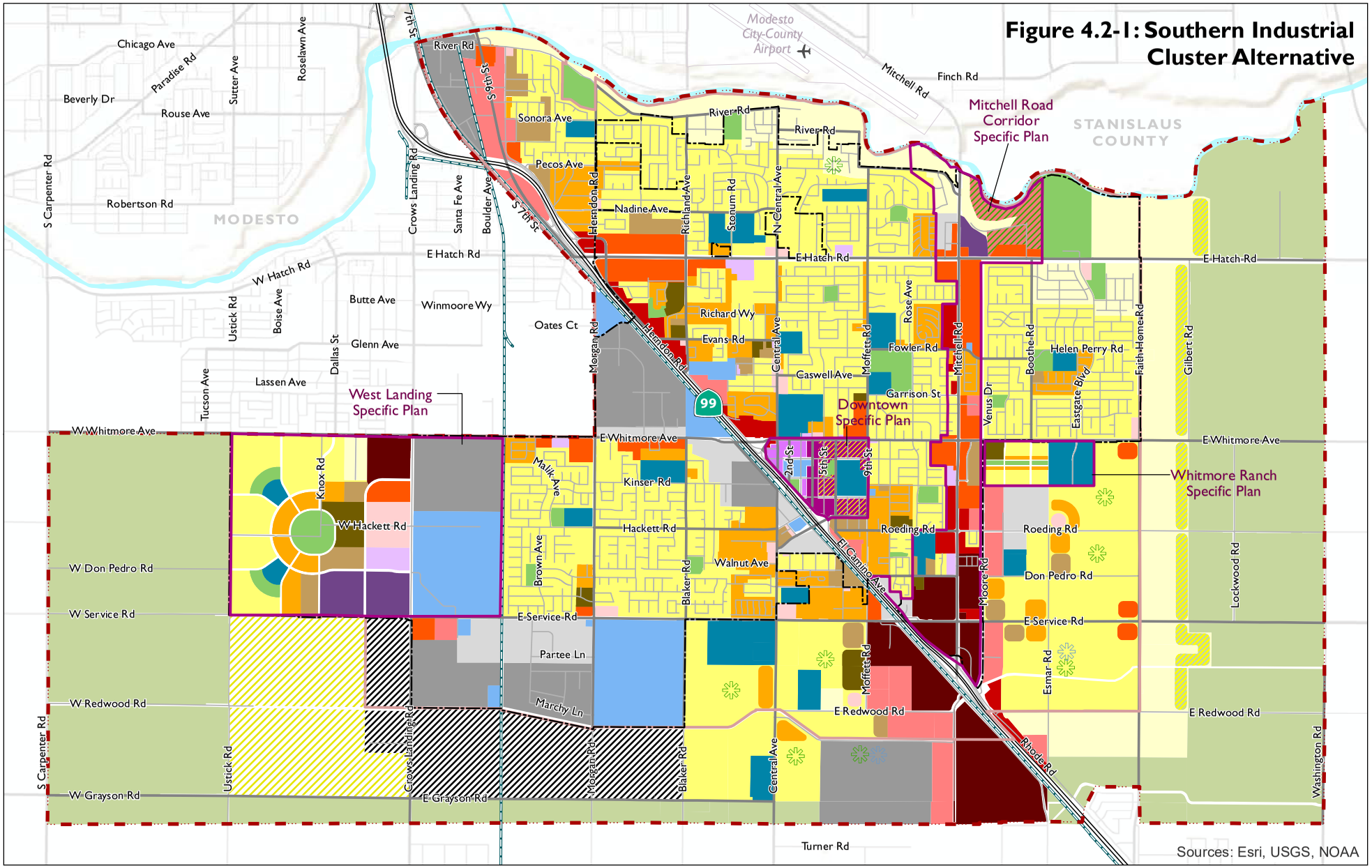
NO PROJECT ALTERNATIVE

The purpose of evaluating the No Project Alternative is to allow decision-makers to compare the potential impacts of approving the project with the potential impacts of not approving the project. The No Project analysis represents what would be reasonably expected to occur in the foreseeable future if the project were not approved. The No Project Alternative is depicted in Figure 4.2-2: No Project Alternative.

The No Project Alternative would leave the 1997 General Plan unchanged and in effect. This Alternative would keep all current land use designations and definitions from the 1997 General Plan as amended to date. Policies concerning topics such as transportation, economic development, parks, open space, the environment, health, and housing would also remain unchanged.

Table 4.2-1: Comparison of Key Characteristics presents a summary of the residential capacity and reasonably anticipated non-residential development on the opportunity sites for the No Project Alternative. Figure 4.2-2: No Project Alternative shows the proposed land use under this alternative.

Figure 4.2-1: Southern Industrial Cluster Alternative

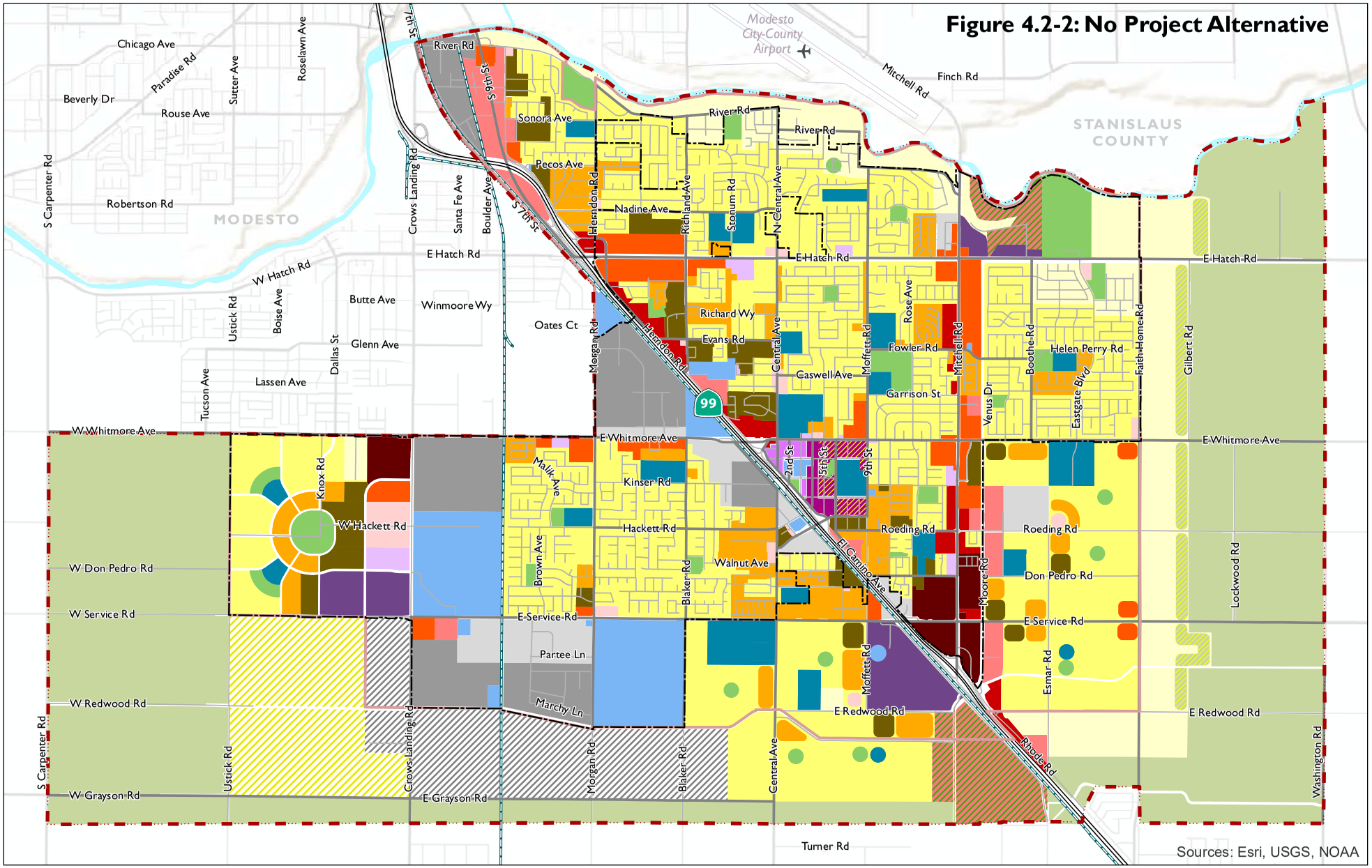


- VLDR, Very Low Density Residential
- LDR, Low Density Residential
- MDR, Medium Density Residential
- HDR, High Density Residential
- DR, Downtown Residential
- NC, Neighborhood Commercial
- SC, Service Commercial
- CC, Community Commercial
- HC, Highway Commercial
- RC, Regional Commercial
- CR, Commercial Recreation
- O, Office
- DO, Downtown Office
- DMU, Downtown Mixed Use
- BP, Business Park
- LI, Light Industrial
- GI, General Industrial
- CF, Community Facilities
- P, Parks
- Schools
- A, Agriculture
- RA, Residential Agriculture
- RR, Residential Reserve
- IR, Industrial Reserve
- Potential Parks
- Potential School
- Specific Plan Boundary
- City of Ceres
- Sphere of Influence
- General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2016; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2016.

Figure 4.2-2: No Project Alternative



VLDR, Very Low Density Residential
LDR, Low Density Residential
MDR, Medium Density Residential
HDR, High Density Residential
DR, Downtown Residential
NC, Neighborhood Commercial
SC, Service Commercial
CC, Community Commercial
HC, Highway Commercial
RC, Regional Commercial
CR, Commercial Recreation
O, Office
DO, Downtown Office
DMU, Downtown Mixed Use
BP, Business Park
LI, Light Industrial
GI, General Industrial
CF, Community Facilities
P, Parks
Schools
A, Agriculture
RA, Residential Agriculture
RR, Residential Reserve
IR, Industrial Reserve
City of Ceres
Sphere of Influence
Planning Area

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2016; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2016.

4.3 Comparative Impact Analysis of Alternatives

This section provides a qualitative analysis of the potential environmental impacts of each Alternative relative to existing conditions, and compares their performances with that of the Proposed Project. The discussions are arranged by resource topic and address the same significance criteria used to evaluate the Proposed Project in Chapter 3 of this EIR. It is assumed that the SIC Alternative would generally include the same policies as the Proposed Project, with the exception of site-specific policies that would not apply due to differences in planned land use.

AESTHETICS

The Planning Area's scenic views consist mainly of farmland. As with the Proposed Project, the two Alternatives designate urban uses in areas currently used for agriculture or that are vacant (providing views to agriculture), which could lead to obstruction of farmland views. In general, potential obstructions would be similar among the Alternatives and the Proposed Project, as proposed land uses in the three scenarios are largely the same. The exception would be the southeast portion of the Planning Area near SR 99, where the SIC Alternative would propose Regional Commercial Service Commercial, and General Industrial uses where the No Project Alternative would propose Business Park, Commercial Recreation, and residential (mainly Low Density Residential) uses, and the Proposed Project would propose Regional Commercial and residential (mainly Low Density Residential) uses. Thus, while both Alternatives and the Proposed Project would allow new development to obstruct views in localized areas, the higher intensity of potential development under the SIC Alternative has a greater likelihood of substantially affecting vistas in that area than the No Project Alternative or the Proposed Project, both of which would allow for similar intensities of development in similar footprints. As with the Proposed Project, while views may be obstructed in localized areas due to proposed new development under the Alternatives, there would continue to be views of agricultural areas at the expanded urban edge. Thus, the impact of each of the Alternatives on scenic views would be less than significant.

Implementation of the Alternatives could substantially degrade the existing visual character or quality of the Planning Area if new development introduced built elements that were significantly out of character with existing development in terms of height and massing, or of low quality of design or materials. As with the Propose Project, existing regulations in the Stanislaus County Code and the City of Ceres Historic Preservation Ordinance would serve to ensure that any historically significant structures or districts would adequately maintain their character. Land use designations are similar between each Alternative and the Proposed Project, and would similarly limit visually incompatible development in terms of density and intensity. However, the higher intensity of allowable development under the SIC Alternative in the southern portion of the Planning Area could alter the visual character in that area to a greater degree compared to the No Project Alternative and the Proposed Project. The No Project Alternative includes policies that would serve to preserve the Planning Area's visual character, while the SIC Alternative and Proposed Project would expand upon those by including design guidelines to improve the quality of new development. Thus, while the SIC Alternative could alter visual character in the Planning Area to a greater degree, each of the Alternative's impacts on the existing visual character of the Planning Area would still be less than significant.

Each of the Alternatives would accommodate new development in both undeveloped areas and infill locations. New development, especially commercial development, could generate additional light and glare in the Planning Area. The City's existing Green Building Standards (which adopt the Californa Green Building Standards Code [CALGreen] by reference), include light and glare standards for new non-residential development, which would reduce the amount of new light from development; and provisions of the Subdivisions and Zoning ordinances would limit light pollution from street lights, signs, and off-street loading facilities. As with the Proposed Project, the SIC Alternative would include a policy to further minimize light pollution from exterior lighting from new development; however, this policy would not be included in the No Project Alternative. However, the SIC Alternative would also allow for greater amounts of commercial and industrial development in the southern portion of the Planning Area than the No Project Alternative or the Proposed Project. If future development under the SIC Alternative in that area included features such as lighted signs or parking lots, it could generate more light and glare than the residential development that would be allowed under the No Project Alternative or the Proposed Project in that area. Thus, while the SIC Alternative would, with the same policies as the Proposed Project, have a less than significant impact regarding light and glare, it could have a greater impact than the Proposed Project. As No Project Alternative would allow for similar intensities of development in the same footprint as the Proposed Project, but would not include the proposed policy to establish standards for outdoor lighting, it could have a greater impact regarding light and glare than the Proposed Project and could also result in new sources of substantial light and glare that could have a significant and unavoidable impact.

AGRICULTURAL RESOURCES

As with the Proposed Project, development of either of the Alternatives would require some conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural uses. Table 4.3-1: Acres of Farmland converted in Each Alternative, shows the acres of farmland that could be expected to convert under each Alternative, compared to the Proposed Project. The values in Table 4.3-1 are estimates, as the exact footprint of future development and the amount of farmland that would actually be converted cannot be known at this time. However, for the purpose of this analysis, it is assumed that existing farmland located in an area designated by either Alternative for a non-agricultural use would be converted to urban uses by the planning horizon year.

Table 4.3-1 Acres of Farmland Converted in Each Alternative

	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Prime Farmland	3,340	3,374	3,331
Farmland of Statewide Importance	71	77	70
Unique Farmland	97	97	97
Total	**3,508**	**3,548**	**3,498**

Notes:
Totals may not sum precisely due to rounding.

Source: FMMP, 2014; Dyett & Bhatia, 2017.

The SIC Alternative could result in the conversion of 3,548 acres of existing agricultural land, which is 40 acres more than would be expected to convert under the Proposed Project. The No Project Alternative would result in the conversion of 3,498 acres of agricultural land, which would be 10 acres less than the under the Proposed Project. These differences are due to variations in land use designations along the southeastern border of the Planning Area between each Alternative and the Proposed Project. Each Alternative would have a significant and unavoidable impact regarding farmland conversion. Compared to the Proposed Project, the SIC Alternative would have a slightly greater impact and the No Project Alternative would have a slightly lesser impact.

As with the Proposed Project, both Alternatives propose non-agricultural land use designations for land located in the unincorporated area of the county that are zoned by Stanislaus County for agricultural uses. Until such a time when annexation of the land in question to the City of Ceres would resolve any inconsistencies between the City's proposed land use designations and the County's agricultural zoning (as City zoning consistent with the General Plan would then go into effect), these conflicts would persist, resulting in a significant and unavoidable impact related to existing zoning for agricultural uses. Given the similarity between the urban footprints of the Alternatives and the Proposed Project the impact is expected to be similar between the three.

Both Alternatives propose non-agricultural land use designations on lands currently under Williamson Act contracts. However, neither of the Alternatives propose individual projects or affect private property owners' ability to enter or renew Williamson Act contracts and would have a less than significant impact on Williamson Act contracts, similar to the Proposed Project.

As with the Proposed Project, implementation of the Alternatives could lead to changes in the environment that could indirectly result in the conversion of farmland to non-agricultural uses. Future development under the Alternatives would be subject to policies such as the Stanislaus Local Agency Formation Commission (LAFCO) Agricultural Preservation Policy and the Stanislaus County Farmland Mitigation Program, as well as policies included in the Alternatives themselves, which could reduce some potential impacts. However, these could not completely eliminate the indirect impacts that would be expected, such as development pressures from the expansion of non-agricultural uses to adjacent lands, reductions in the connectivity of agricultural lands along the southern portion of the Planning Area, and potential traffic conflicts along roadways used by agricultural vehicles. Therefore, the impact of both Alternatives would be considered significant and unavoidable. While both Alternatives would prioritize infill development over greenfield development in order to limit development pressures on agricultural lands, and would support the County's Right-to-Farm Ordinance to reduce the likelihood of conflicts between agricultural operations and adjacent uses, only the SIC Alternative would include additional policies from the Proposed Project that would further promote land use compatibility and the continued viability of agricultural operations outside of the urban core. Thus, while the SIC Alternative would have a similar impact as the Proposed Project, the No Project Alternative would be expected to have a greater impact than either.

AIR QUALITY

Air quality impacts are evaluated on a Planning Area-wide basis due to the regional, cumulative characteristics of air quality and air pollution problems. Table 4.3-2: Comparison of Change in VMT and Population under the Alternatives compares the rate of increase in vehicle miles traveled (VMT) to the rate of increase in service population for the Alternatives and the Proposed Project. For a discussion of VMT, see the Transportation section below. As shown, the SIC Alternative would result in the greatest increase in VMT compared to the No Project Alternative and the Proposed Project, which suggests that it would have the highest air pollutant emissions from mobile sources of the three. The No Project Alternative would result in the lowest increase in VMT, and thus the lowest air pollutant emissions from mobile sources. The SIC Alternative and No Project Alternative would both result in approximately the same size service populations, thus similar impacts on air quality from natural gas use and area source emissions would be expected. Compared to the Alternatives, the Proposed Project would result in the greatest increase in service population, and thus the highest air pollutant emissions from natural gas use and area sources of the three.

Table 4.3-2: Comparison of Change in VMT and Population under the Alternatives

Year	*Service Population*	*Service Population % Change from Baseline*	*Daily VMT[1]*	*VMT % Change from Baseline*
Existing (2015 Baseline)	65,000	n/a	638,807	n/a
Proposed Project (2035)	110,000	69%	1,114,761	75%
Southern Industrial Cluster Alternative (2035)	108,000	66%	1,173,792	84%
No Project Alternative (2035)	108,000	66%	1,050,782	64%

Notes:

1. For trips that originate or end in the Planning Area, VMT for the entire trip, not just for the miles traveled within the Planning Area, are included. Additionally, trips that only pass through the Planning Area, originating or ending outside of the Planning Area, are not included.

Source: Dyett & Bhatia, 2017; Fehr & Peers, 2017; City of Ceres, 2017.

Impacts under the SIC Alternative are expected to be similar to those under the Proposed Project as the two share policies that would protect or improve air quality. Due to these, the SIC Alternative would be expected to result in similar less than significant impacts regarding implementation of the San Joaquin Valley Air Pollution Control District (SJVAPCD) air quality plans and objectionable odors, as well as similar significant and unavoidable impacts related to the violation of air quality standards and the cumulatively considerable increase of criteria pollutants. As noted in Impact 3.3-2, the Proposed Project would result in an increase in operational emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$), and the SIC Alternative would be expected to perform similarly.

The SIC Alternative could have a greater impact than the Proposed Project regarding the exposure of sensitive receptors to substantial pollutant concentrations. In addition to the redesignation of a

Low Density Residential site as Light Industrial near Roeding Road, the SIC Alternative would also redesignate a Low Density Residential area at Gondring Road as General Industrial, which is in the vicinity of Joel J. Hidahl Elementary School and residentially designated land. As there can be no guarantee at this time that future industrial development on these sites would not expose existing sensitive receptors to increased pollutant concentrations, there would be a significant and unavoidable impact.

The No Project Alternative would not include the air quality policies of the Proposed General Plan, though many of the No Project Alternative's policies would be similar to the proposed General Plan. As with the SIC Alternative, the No Project Alternative would be expected to result in similar less than significant impacts regarding implementation of the SJVAPCD air quality plans and objectionable odors. Similarly, although the No Project Alternative would result in the lowest emissions of the three, the overall scale of growth expected through the Planning Horizon is so great compared to existing air quality standards that the No Project Alternative would still be expected to have a significant and unavoidable impact related to the violation of air quality standards and the cumulatively considerable increase of criteria pollutants, if slightly less than the SIC Alternative or Proposed Project.

Under the No Project Alternative, there would be no new Light Industrial or General Industrial designations at Roeding Road or Gondring Road. Therefore, the No Project Alternative impact related to the exposure of sensitive receptors to substantial pollutant concentrations would be expected to be less than significant.

BIOLOGICAL RESOURCES

Both the SIC and No Project Alternatives have development footprints similar to the Proposed Project. Any differences in potential impacts to biological resources would result primarily from differences in policies. The SIC Alternative would include the same policies for the protection of special-status species, sensitive habitats, wetlands, and wildlife corridors; for cooperating with other agencies to protect biological resources; and for supporting any relevant Habitat Conservation Plans. Therefore, impacts from implementation of the SIC Alternative on special-status species, sensitive habitats (including riparian habitats), wetlands, wildlife corridors, and compatibility with the Pacific Gas & Electric (PG&E) Habitat Conservation Plan (HCP) would all be similar to those of the Proposed Project and thus less than significant. As there are currently no policies or ordinances protecting biological resources in the City or the County, there would be no impact from the SIC Alternative, similar to the Proposed Project.

The No Project Alternative includes some policies to protect biological resources, but not the full range included in the Proposed Project and SIC Alternative. In particular, it would not include the proposed General Plan Policy 4.C.4, which establishes riparian buffer along the Tuolumne River to ensure that sensitive species and habitats, and wildlife corridors are not impacted by future development; policies 4.D.5 and 4.D.6 addressing the treatment of Swainson's hawk, a special-status species; or Policy 4.D.3, which specifically mentions supporting the implementation of HCPs. The No Project Alternative also would not include all of the Proposed Project's implementation actions to achieve policy goals.

As the No Project Alternative would not include policies to ensure the protection of riparian habitat along the Tuolumne River or to ensure that future development mitigate impacts to Swainson's Hawk, this Alternative could result in significant and unavoidable impacts to special-status species and sensitive habitats, and could have a greater impact than the Proposed Project or SIC Alternative. The No Project Alternative would include a number of policies designed to protect wetlands to the extent feasible; however, these policies would not guarantee that potential impacts to wetlands from future development would be avoided or mitigated. Therefore, impacts related to wetlands would also be considered significant and unavoidable, and greater than those of the Proposed Project or SIC Alternative. The No Project Alternative includes policies that would protect wildlife corridors in the Planning Area, thus related impacts would be less than significant. However, because the Proposed Project and SIC Alternative would go farther in protecting riparian habitats around the Tuolumne River, they would likely have less of an impact than the No Project Alternative. As with the Proposed Project and SIC Alternative, the No Project Alternative would have no impact regarding policies and ordinances protecting biological resources, and a less than significant impact regarding HCPs. However, because the No Project Alternative would not specifically state that the City should support HCP implementation, it can be considered to have a greater impact than the Proposed Project or SIC Alternative.

ENERGY, GREENHOUSE GASES, AND CLIMATE CHANGE

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere and consist of, but are not limited to, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). These three gases are the most common GHGs that result from human activity. The global warming potential of GHGs is expressed in terms of CO_2 equivalents (CO_2e) and is typically quantified in metric tons (MT) or millions of metric tons (MMT).

The largest single source of GHG emissions in the Planning Area is the transportation sector, representing 35 percent of total emissions. The two Alternatives were evaluated based on the GHG emissions resulting from travel operations within the Planning Area. Vehicle Miles Traveled (VMT) is used as a key factor to calculate GHG emissions in the transportation sector. Utilizing the total VMT for each alternative, CO_2 emissions from motor vehicle trips were quantified using the EMFAC2014 model, which is the Air Resources Board's tool for estimating emissions from on-road vehicles (CARB, 2015). The United States Environmental Protection Agency's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015* was used to find national CH_4 and N_2O emission factors (EPA, 2017).

Table 4.3-3: Transportation GHG Emission Estimates Comparison shows the projected transportation GHG emissions for each Alternative. The effect of the proposed General Plan policies that reduce transportation emissions was included for the SIC Alternative, but would not apply to the No Project Alternative. (See Chapter 3.5 for details on how the GHG reduction from the Proposed Project was quantified).

As shown, the No Project Alternative would result in lower VMT than the SIC Alternative and the resulting GHG emissions would also be lower. For a discussion of VMT, see the Transportation section below. However, because it would better accommodate growth without as much GHG impact compared to the No Project Alternative, the Proposed Project would have the lowest emissions per service population. Both of the Alternatives and the Proposed Project would all result

in lower emissions per service population than existing conditions due to increasingly stringent State policies regulating transportation emissions.

Table 4.3-3: Transportation GHG Emission Estimates Comparison

	2014 Baseline	*Proposed Project (2035)*	*Southern Industrial Cluster Alternative (2035)*	*No Project Alternative (2035)*
Annual VMT[1]	209,047,624	386,822,067	407,305,824	364,621,354
Total Yearly Transportation Emissions[2] (MTCO2e per year)	118,007	129,381	136,232	134,428
Service Population (Jobs + Population)	65,000	110,000	108,000	108,000
Yearly Transportation Emissions (MTCO2e) Per Service Population	1.82	1.18	1.26	1.24

Notes:

1. For trips that originate or end in the Planning Area, VMT for half of the entire trip, not just for the miles traveled within the Planning Area, are included. Additionally, trips that only pass through the Planning Area, originating or ending outside of the Planning Area, are not included.
2. Proposed General Plan policies that reduce transportation emissions are incorporated in Proposed Project and SIC Alternative but not the No Project Alternative. See Chapter 3.5 for details on how General Plan policies reduce VMT.

Source: StanCOG and Fehr & Peers, 2017; Dyett and Bhatia, 2017.

Overall, emissions for both Alternatives would be in compliance with the California Air Resources Board (CARB) 2017 Scoping Plan GHG emissions targets. Considering reductions from proposed policies and State actions, the Proposed Project's projected emissions are far below this threshold, with an increment of 0.8 $MTCO_2e$ per capita per year between the target of 5.0 $MTCO_2e$ per capita per year and the Planning Area forecast of 4.2 $MTCO_2e$ per capita per year in 2035. As the SIC Alternative would contain the same policies as the Proposed Project and similar land uses, the main difference in emissions between the SIC Alternative and the Proposed Project would likely be from transportation. As shown in Table 4.3-3: Transportation GHG Emission Estimates Comparison, the difference in transportation emissions between the SIC Alternative and the Proposed Project is projected to be only 0.08 $MTCO_2e$ per capita per year in 2035. Thus, the SIC Alternative would be considered to have a less than significant impact regarding GHG emissions that may have a significant impact on the environment.

Although the No Project Alternative does not include the same transportation and emissions reduction policies as the Proposed Project, projected emissions for the Proposed Project (including State actions but not proposed General Plan policies) are 4.8 $MTCO_2e$ per capita per year in 2035 – still less than the 5.0 $MTCO_2e$ per capita per year in 2035 State target. As the No Project Alternative would have similar land uses as the Proposed Project, the main difference in emissions would likely be from transportation. As transportation emissions under the No Project Alternative are projected to be only 0.08 $MTCO_2e$ per capita per year higher than the Proposed Project in 2035, the No Project Alternative would also be considered to have a less than significant impact regarding GHG emissions that may have a significant impact on the environment.

The SIC Alternative would include the same policies aimed at reducing GHG emissions and promoting sustainability and multi-modal transportation, and would similarly complement the goals and policies of the Stanislaus County Council of Governments (StanCOG) Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS), a regional plan to reduce GHG emissions. The proposed policies would also serve to implement State policies and regulations to reduce GHG emissions. Therefore, the SIC Alternative would have a less than significant impact related to plans, policies, or regulations to reduce GHG emissions, similar to the Proposed Project. As the No Project Alternative does not include a full range of similar policies, it could have a significant and unavoidable impact.

The SIC Alternative would include the same policies promoting energy efficiency as the Proposed Project. Therefore, despite the overall increase in future energy use under the Alternative, impacts related to energy efficiency would be expected to be less than significant, similar to the Proposed Project. The No Project Alternative does not include any policies promoting energy efficiency and would generally have the least efficient energy consumption when compared to the Proposed Project and SIC Alternative, and could allow for wasteful, inefficient, or unnecessary use of energy in construction, operation, or maintenance. Although the No Project Alternative would have a greater potential to impact energy efficiency than the other Alternatives, it would still be expected to have a less than significant impact due to State actions that would increase energy efficiency from existing conditions.

Similar to the Proposed Project, neither of the Alternatives would conflict with the CBC Energy Efficiency Standards, the CARB passenger vehicle GHG emission reduction targets for 2020 and 2035, or any other applicable energy conservation regulations.

GEOLOGY, SOILS, AND SEISMICITY

As discussed in Section 3.6: Geology, Soils, and Seismicity, the potential for exposure of people or structures to fault rupture and liquefaction are low. Any potential risk from seismic hazards would be related to groundshaking or—in the Planning Area's few sloped areas—landslides. As with the Proposed Project, development under both the SIC Alternative and the No Project Alternative would be subject to the requirements of the California Building Code (CBC), which would minimize potential impacts related to groundshaking and landslides. However, as it does not include the same range of policies as the Proposed Project or SIC Alternative, the No Project Alternative does not specifically state that critical facilities should be designed and sited to avoid damage from seismic hazards, and may not fully guarantee that future development would not occur along the Tuolumne River, where there is a greater potential for landslides. Additionally, as the No Project Alternative is projected to result in the highest residential buildout population compared to the SIC Alternative and Proposed Project, it can be assumed to expose the greatest number of people to any potential seismic hazards. Therefore, although potential adverse effects related to landslides along the Tuolumne are unlikely to be substantial given practical constraints and CBC requirements and impacts related to exposure to seismic hazards could be considered less than significant, the No Project Alternative would have a greater impact than the Proposed Project.

The SIC Alternative would include the Proposed Project's Policy 4.C.4 to prevent development within 50 feet of the top of the riverbank and would thus have similar risks related to landslides as the Proposed Project. Because the SIC Alternative would have the lowest residential population at

buildout of the three, it can be assumed to expose the least amount of people to potential seismic hazards. Therefore, impacts related to exposure to seismic hazards would be less than significant under the SIC Alternative, and would be less than the Proposed Project.

As with the Proposed Project, new development under the SIC or No Project Alternatives would likely include earthwork activities that could lead to erosion or topsoil loss. In general, development under either Alternative would be subject to the same regulations—such as the National Pollutant Discharge Elimination System (NPDES) permit and local storm water pollution prevention plan requirements. The SIC Alternative would include the same construction erosion prevention policy, seismic and geologic hazard assessment policy, and riparian buffer policy as the Proposed Plan, which would similarly reduce any potential impacts to less than significant. The No Project Alternative would not include these policies; because it could not ensure that future development would not result in erosion or topsoil loss, the No Project Alternative could have a significant and unavoidable impact.

Both the SIC Alternative and No Project Alternative contain policies that would avoid development on expansive or unstable soils; therefore, potential impacts would be less than significant, similar to the Proposed Project. The SIC Alternative would contain the same policy as the Proposed Project regarding on-site wastewater treatment, ensuring that septic systems would not be installed in soil incapable of supporting their use and reducing related impacts to less than significant. The No Project Alternative does not contain a similar policy, and could therefore have a significant and unavoidable impact related to septic systems.

HAZARDS AND HAZARDOUS MATERIALS

For much of the Planning Area, the SIC and No Project Alternatives would propose the same land use designations as the Proposed Project. The intensity of land uses would generally be similar as well. Exceptions include the site at Roeding Road designated as Light Industrial under the Proposed Project and SIC Alternative (Low Density Residential under the No Project Alternative) and the area designated for General Industrial in the southeastern portion of the Planning Area under the SIC Alternative (Low Density Residential under the Proposed Project and No Project Alternative). In both cases, the industrial uses would represent more intense uses that could be assumed to have a higher incidence of hazardous materials transport, use, and/or disposal needs than residential development.

As with the Proposed Project, existing regulations regarding the management of hazardous materials would apply to all future development and land use activities in the Planning Area. With such regulations, and the inclusion of the Proposed Project's policies to reduce risks associated with hazardous materials, the SIC Alternative would have a less than significant impact related to the routine transport, use, disposal, and potential upset of hazardous materials. The No Project Alternative includes similar policies as the Proposed Project, although some of the policies related to hazardous materials are out of date. Nevertheless, with existing regulations and policies addressing management of hazardous materials and response to hazardous materials incidents, the No Project Alternative would also have a less than significant impact related to the routine transport, use, disposal, and potential upset of hazardous materials.

Both Alternatives would allow for the development of land uses within a quarter-mile of existing schools that could be reasonably expected to handle hazardous materials or generate hazardous emissions. For example, under either Alternative, light industrial uses would be allowed within a quarter-mile of existing schools. The No Project Alternative would allow the fewest instances of an industrial use within a quarter-mile of a school, with some industrial areas near Blaker-Kinser Junior High, Cesar Chavez Junior High, and Whitmore Charter High. The Proposed Project and SIC Alternative would allow an additional Light Industrial site within a quarter-mile of Whitmore Charter High. Both Alternatives would have significant and unavoidable impacts, although the No Project Alternative may have less of an impact than the SIC Alternative, which would have a similar impact to the Proposed Project.

As with the Proposed Project, existing regulations and programs would help to reduce potential impacts of development on Cortese List sites. The SIC Alternative would include the same policies as the Proposed Project and the No Project Alternative would include similar policies requiring soil investigations and hazardous materials management that would further reduce potential impacts to less than significant, similar to the Proposed Project.

Neither the SIC Alternative nor the No Project Alternative would result in a safety hazard for people residing or working within the Modesto City-County Airport land use plan area. As land use designations in both Alternatives are similar to the Proposed Project in terms of compatibility with the established airport compatibility zones, both Alternatives would have a less than significant impact similar to the Proposed Project.

Neither the SIC Alternative nor the No Project Alternative would physically interfere with an adopted emergency response or evacuation plan. Both Alternatives would include policies promoting emergency preparedness and as well as facilitating emergency access throughout the Planning Area. Therefore, both Alternatives would have a less than significant impact regarding emergency response or evacuation plans. However, because the No Project Alternative would not include the full range of policies included in the Proposed Project and SIC Alternative, it could potentially have a greater impact.

As discussed in Chapter 3.7, there is only one small area mapped as Moderate Fire Hazard near Morgan Road, and the rest of the Planning Area is classified as Unzoned. Both of the Alternatives and the Proposed Project include similar policies requiring all development to adhere to safety standards provided in the CBC and California Fire Code. They also promote close coordination with emergency services to ensure the safety of new development and increase fire safety awareness. Therefore, impacts related to the exposure of people or structures to wildland fire under the Alternatives would be less than significant, similar to the Proposed Project.

HISTORIC AND CULTURAL RESOURCES

The comparison of impacts to historic, archaeological, paleontological, and Native American tribal cultural resources as well as human remains from the alternatives is based on the degree and location of new development proposed within each Alternative. Each Alternative encourages infill development while also allowing for development in new growth areas. In addition, the Alternatives have almost identical urban footprints. The only difference in the urban footprint is that the SIC Alternative would designate 58 acres of Industrial and Service Commercial along the southern

border of the Planning Area that the No Project Alternative and the Proposed Project would designate as Agriculture.

Policies in the Proposed Project that are also present in the SIC Alternative would ensure that any potential impacts are similarly less than significant. The No Project Alternative includes policies to preserve historic sites and archaeological resources, but it does not include policies pertaining to paleontological resources. In addition, although the No Project Alternative does include a goal specific to protecting Native American heritage and policies protecting archaeological sites, it does not include policies specific to protecting Native American tribal cultural resources. Therefore, while the No Project Alternative's impacts on historical and archaeological resources would be less than significant, similar to the Proposed Project, it could not guarantee that impacts on paleontological and tribal cultural resources could be reduced below a level of significance. Therefore, the No Project Alternative would be considered to have significant and unavoidable impacts on paleontological and tribal cultural resources.

State regulations would be sufficient to reduce the potential impacts to human remains both Alternatives to less than significant, similar to the Proposed Project.

HYDROLOGY AND WATER QUALITY

Urban development can bring about an increase in impervious surfaces that could lead to increased run-off rates and flooding in downstream areas, as well as a deterioration in water quality. As with the Proposed Project, development under both the SIC Alternative and the No Project Alternative would be subject to local plans, existing State and federal regulations, and the applicable NPDES permit requirements, and thus would not violate any federal, State, or local water quality standards or waste discharge requirements. Related impacts would be less than significant and similar to the Proposed Project.

The Alternatives would be considered to have a significant impact regarding groundwater depletion if they would require groundwater supplies in excess of the historically stable annual groundwater use of 2,980 million gallons per year (mg/y) (see Section 3.9: Hydrology and Water Quality for further details on this threshold). Projected water demand for the Alternatives and the Proposed Project are shown in Table 4.3-4: Projected Demand for Groundwater (2035). Groundwater demand is determined by assuming that 1,825 mg/y of total demand would be accommodated by planned surface water supplies. As shown, both Alternatives would have less than significant impacts on groundwater supplies. The No Project Alternative, with the same average day demand as the Proposed Project, would be expected to have a similar impact as the Proposed Project, while the SIC Alternative, with higher demand than the others, would be expected to have a slightly greater impact.

Similar to the Proposed Project, the SIC and No Project Alternatives would allow for additional development that would increase the amount of impervious surface in the Planning Area, and could therefore increase the amount of runoff and associated pollutants during both construction and operation. The SIC Alternative designates General Industrial land uses in the southern portion of the Planning Area between Central Avenue and Mitchell Road where the Proposed Project and No Project Alternative designate Agriculture and Low Density Residential land uses. Industrial development would be likely to increase the amount of impervious surfaces more than Agriculture or Very Low Density Residential would, so the SIC Alternative is assumed to have the greatest potential impact on surface runoff. The No Project Alternative would result in the least amount of

development compared to the SIC Alternative and the Proposed Project, and would likely result in less impervious surface area and lower levels of construction activity associated with development. The SIC Alternative would also include Proposed Project policies that would prevent stormwater from exceeding capacity in the Planning Area, promote continued compliance with federal, State, and local water quality regulations, and reduce polluted runoff to the maximum extent practicable. Impacts related to drainage and surface runoff would be less than significant for both Alternatives, similar to the Proposed Project.

Table 4.3-4: Projected Demand for Groundwater (2035)

	Proposed Project	Southern Industrial Cluster Alternative	No Project Alternative
Average Day Demand (mg/y)	3,924	3,935	3,924
Average Day Demand for Groundwater (mg/y)[1]	2,099	2,110	2,098

Notes:

1. Assumes that 1,825 mg/y of demand can be met through planned surface water supplies.

Source: West Yost Associates, "Technical Memorandum City of Ceres General Plan Update, Land Use Alternatives—Water," February 22, 2017; Dyett & Bhatia, 2017.

With compliance with existing federal, State, and local water quality regulations, including the NPDES program, as well as policies included in each Alternative, impacts related to water quality would be less than significant. However, because the Proposed Project and SIC Alternative would include a wider range of policies that are worded more specifically to address different aspects of water quality protection than the No Project Alternative, they would likely have less of an impact than the No Project Alternative.

Both of the Alternatives and the Proposed Project would designate Very Low Density Residential land uses in the Planning Area's 100-year flood hazard area in a small area along the Tuolumne River. This area currently contains either vacant parcels or lower-density residential, commercial, or industrial land uses. The Very Low Density Residential land use designation could allow for single-family housing on vacant land and redevelopment of existing residences. Ceres and Stanislaus County require a special use permit for any development proposed in areas of special flood hazards (Ceres Municipal Code Chapter 18.100 and Stanislaus County Code Chapter 16.50). The ordinances also restrict or prohibit land uses considered unsafe in a floodplain. Thus, impacts under the Alternatives related to locating housing or other structures in flood zones would be expected to be less than significant, similar to the Proposed Project.

As with the Proposed Project, there is no risk of inundation by seiche or tsunami for either Alternative, but mudflow hazards could be present along slopes near the Tuolumne River. Compliance with the CBC and existing regulations related to flooding and geologic hazards would serve to reduce impacts under either Alternative to less than significant. Additionally, the SIC

Alternative would contain the same riparian setback policy as the Proposed Project, which would further reduce the potential for impacts for that Alternative.

LAND USE, POPULATION, AND HOUSING

Due to similarities in the urban footprints, land use designations, and policies, the Alternatives and Proposed Project would likely have similar impacts related to land use. For example, given their footprints and that neither of the Alternatives proposes any new linear projects likely to have the effect of physically dividing an established community, the Alternatives would have less than significant impacts related to this issue, similar to the Proposed Project.

Additionally, the Alternatives would have similar less than significant impacts as the Proposed Project related to the Stanislaus County General Plan, the Modesto City-County Airport Land Use Compatibility Plan (ALUCP), and the Pacific Gas & Electric's (PG&E's) Habitat Conservation Plan (HCP). Although each Alternative proposes land use designations in conflict with the Stanislaus County General Plan, these conflicts would be resolved during the master planning and annexation process. The SIC Alternative would include the Proposed Project's policies promoting compatibility with the ALUCP and while the No Project Alternative does not include policies specifically referencing the ALUCP, it would not conflict with any of the provisions of the ALUCP. Moreover, each Alternative includes policies that would support other agencies' and entities' efforts and protect biological resources, and would thus not conflict with the PG&E HCP.

The Alternatives would perform differently regarding induced growth and displacement. Table 4.2-1: Comparison of Key Characteristics, compares estimates of housing units and population growth at full buildout under the Proposed Project, SIC Alternative, and the No Project Alternative. As discussed in Section 3.10: Land Use, Population, and Housing, StanCOG projected a population of 61,290 people for Ceres in 2035. Estimates based on the Stanislaus County Department of Transportation and the California Department of Finance project a population of 67,671 people and 60,543 people, respectively, for Ceres in 2035. While these projected populations could be accommodated between the City of Ceres and unincorporated county portion of the Planning Area under either Alternative or the Proposed Project, both of the Alternatives and the Proposed Project would allow for additional population growth beyond the agencies' projections in unincorporated county, much of which is currently used for agriculture.

The jobs-to-housing ratio would be 1.38 in 2035 under the SIC Alternative and 1.20 in 2035 under the No Project Alternative (compared to 1.32 under the Proposed Project). As with the Proposed Project, the jobs-to-housing ratios for the Alternatives would be less than 2.0, and would thus not be expected to induce population growth. However, more job opportunities under the SIC Alternative and Proposed Project in addition to proposed policies supporting growth and economic development could attract more residents to the area than the No Project Alternative would. Therefore, while both of the Alternatives and the Proposed Project would have a significant and unavoidable impact regarding induced growth, the SIC Alternative and the Proposed Project would be expected to have greater impacts due to their combinations of greater economic opportunities and greater population growth outside of current city limits.

The majority of developed land in the Planning Area is composed of residential uses, which are not anticipated to undergo substantial land use changes under either of the Alternatives. Neither of the

Alternatives proposes converting established residential areas to non-residential land uses or changing the land use or development character of existing developed residential areas. As shown in Table 4.2-1: Comparison of Key Characteristics, each of the Alternatives could accommodate an increase in the overall number of dwelling units. However, increasing the supply of housing may not prevent displacement if housing costs exceed residents' ability to pay. Although each Alternative would be consistent with the City's Housing Element's policies intended meet the Regional Housing Needs Assessment goals for Ceres, the Proposed Project and the SIC Alternative include additional policies to provide a range of housing types to accommodate new growth, including multi-family housing, affordable housing, and senior housing, that the No Project Alternative would not. Therefore, while SIC Alternative would have a less than significant impact regarding displacement similar to the Proposed Project, the No Project Alternative could have a significant and unavoidable impact.

NOISE

Since the type, amount, and location of future development under the SIC Alternative and No Project Alternative would be similar to the Proposed Project, noise and vibrational impacts would be expected to be similar.

As shown in Tables 4.3-2: Comparison of Change in VMT and Population under the Alternatives and 4.3-5: Planning Area Daily Vehicle Miles Traveled (VMT) Per Service, the SIC Alternative would result in higher traffic on local roadways compared to the Proposed Project, and the No Project Alternative would result in lower traffic compared to the Proposed Project. However, these incremental differences would not be expected to result in substantial differences in the level of traffic noise impacts between the scenarios. Since the type, amount, and location of future development under each Alternative and the Proposed Project would be similar, the extent and duration of construction activities for future development would be similar under all three scenarios as well. Therefore, traffic and construction noise impacts under the SIC Alternative and No Project Alternative can be assumed to be similar to those of the Proposed Project.

The development of an Altamont Commuter Express (ACE) stop in Ceres could expose more people to noise from railway operations. However, neither the Proposed Project nor the SIC Alternative would affect the operation of existing rail lines in a manner that would result in a substantial permanent increase in ambient noise levels above levels that would exist in the No Project Alternative. Moreover, for all future developments within the city that fall within the required noise screening distances as specified in the Federal Transit Administration Noise and Vibration Manual, a detailed noise analysis would be required.

The development of new industrial uses in the Planning Area could generate increased noise levels. The Proposed Project redesignates an area of Low Density Residential to Light Industrial south of Roeding Road and east of McGee Road. The SIC Alternative also proposes this land use designation, as well as redesignates a larger area of Low Density Residential and Agriculture to General Industrial southwest of SR 99. Therefore, the SIC Alternative has the potential to result in the greatest impacts due to industrial noise levels, followed by the Proposed Project and the No Project Alternative.

The SIC Alternative would include the same noise standards as the Proposed Project, while the No Project Alternative would include the same performance standards for stationary sources, similar standards for noise exposure to transportation sources with slight differences. The No Project Alternative would not include community noise compatibility standards. Noise impacts relative to noise standards in each Alternative would be similar to those expected under the Proposed Project—less than significant impacts related to construction, rail, and stationary noise, but significant and unavoidable impacts related to traffic noise.

As traffic and construction activities would be expected to be similar under the Alternatives and the Proposed Project, vibration impacts would also be expected to be similar, and thus less than significant. Although existing train operations generate vibration levels, the Alternatives would not change vibration levels generated from trains.

In terms of permanent increases in ambient noise levels, both of the Alternatives and the Proposed Project would be considered to have a significant and unavoidable impact for traffic noise levels, as there would be no guarantee that existing development would not be significantly affected by noise level increases. The SIC Alternative could also have a slightly greater impact than the No Project Alternative or the Proposed Project as it would introduce a large area of industrial land use in the southeast portion of the Planning Area.

Potential impacts related to temporary or periodic increases in ambient noise levels would primarily be related to construction activities, which would likely be similar among the Alternatives and the Proposed Project. Noise from temporary events would be addressed through a policy in the SIC Alternative and Proposed Project, but not the No Project Alternative. Therefore, while impacts from the Alternatives would be expected to be less than significant, there may be a slightly greater impact under the No Project Alternative.

None of the Alternatives would change the land use of the existing low-density residences located within the 60 to 65 dBA Community Noise Equivalent Level (CNEL) and 65 to 70 dB CNEL contours for the Modesto City-County Airport. Under the Proposed Project and the SIC Alternative, future residences would include noise attenuation consistent with the noise policies in the proposed General Plan and the ALUCP for the Modesto City-County Airport. The No Project Alternative would not include the noise policies of the Proposed Project, though many of the No Project Alternative's noise policies would be similar to the Proposed Project's policies. Additionally, the ALUCP would also apply to the No Project Alternative. Thus, impacts due to aircraft noise would be similar and less than significant under all three scenarios.

PUBLIC SERVICES AND RECREATION

As with the Proposed Project, development under both the SIC and No Project Alternatives would likely require the development of new or expanded public facilities, including schools, public service facilities, and parks. The number and size of new facilities would differ slightly due to differences in the buildout population. Existing regulations, such as the City's Green Building Standards, State standards regarding site selection for educational facilities, and water quality regulations, would apply to both Alternatives. Additional policies in each Alternative would serve to reduce potential impacts of new development on environmental resources. Impacts would be less than significant for both Alternatives; however, with a wider range of policies protecting

various resources, the SIC Alternative and Proposed Project would be expected to have less of an impact than the No Project Alternative.

Similarly, although parks and recreational facilities would have different levels of use under each of the two Alternatives, policies in each would ensure that the use would not result in substantial physical deterioration. The SIC Alternative would include the same policies as the Proposed Project. The No Project Alternative would include policies to meet 1.4 acres of neighborhood parks and 2.6 acres of community parks per 1,000 residents, as well as a policy that supports joint use agreements. The impact would be less than significant for the Alternatives, similar to the Proposed Project.

Implementation of the Alternatives would require the construction or expansion of recreational facilities. Based on the estimated buildout population shown in Table 4.2-1: Comparison of Key Characteristics, the SIC Alternative would require slightly fewer park and recreation facilities to serve the smaller population, and the No Project Alternative would require slightly more park and recreation facilities to serve the greater buildout population. However, these differences are marginal, and the precise amount, type, and location of new facilities would be determined during the planning process for individual projects or specific plans. Policies in the Proposed Project and existing regulations would reduce the impact of constructing or expanding recreational facilities. Each of the Alternatives would less than significant impacts similar to the Proposed Project.

TRANSPORTATION

To compare the Alternatives, the expected land use development under the No Project and Southern Industrial Cluster Alternatives was incorporated into the City of Ceres General Plan travel model; each Alternative has the same circulation network as the Proposed Project. The comparison of alternatives considered Faith Home Road as a four-lane arterial roadway.

For each Alternative, the projected amount of VMT was analyzed to evaluate how often and how far people would drive on average in each Alternative. To assess the VMT generated in the Ceres Planning Area, two accounting methods were used. The Total Accounting method accounts for the full length of all trips that begin and end in the Planning Area, as well as the full trip length of all trips that begin *or* end in the Planning Area. The Shared Accounting method accounts for the full trip length of all trips that begin and end in the Planning Area, as well as *half* of the trip length of all trips that begin or end in the Planning Area. Results are presented in Table 4.3-5: Planning Area Daily Vehicle Miles Traveled (VMT) Per Service Population.

Although the estimated daily VMT per service population of each Alternative is similar, according to the Total Accounting method, the No Project Alternative would have the lowest daily VMT per service population, and the SIC Alternative would have the highest. The SIC Alternative is expected to result in daily VMT per service population approximately 4 percent higher than the Proposed Project, and the No Project Alternative is expected to result in VMT approximately 6 percent lower than the Proposed Project. The higher projected VMT under the Proposed Project and the SIC Alternative is largely due to increases in the level of assumed employment and regional retail centers in the Planning Area that would provide for increased employment and shopping/recreational opportunity for existing residents, while also attracting employees and patrons from outside the Planning Area limits.

Table 4.3-5: Planning Area Daily Vehicle Miles Traveled (VMT) Per Service Population

	Proposed Project		*Southern Industrial Cluster Alternative*		*No Project Alternative*	
	Shared Accounting	*Total Accounting*	*Shared Accounting*	*Total Accounting*	*Shared Accounting*	*Total Accounting*
Daily VMT	1,114,761	2,209,592	1,173,792	2,324,309	1,050,782	2,084,995
Service Population (Population + Jobs)	118,639		119,602		119,041	
Total Population	84,449		82,780		85,443	
Total Jobs	34,190		36,822		33,598	
Daily VMT per Service Population	**9.40**	**18.62**	**8.83**	**19.43**	**9.81**	**17.51**

Source: Dyett & Bhatia, 2017; Fehr & Peers, 2017

According to the Shared Accounting method, the SIC Alternative would have the lowest daily VMT per service population, and the No Project Alternative would have the highest. The SIC Alternative has the lowest VMT according to the Shared Accounting method because more trips under the SIC Alternative are projected to originate outside of the Planning Area than under the Project and No Project Alternative. There are more projected jobs under the SIC Alternative, and commute trips would tend to have a higher likelihood of originating outside of the Planning Area. As the Shared Accounting method only accounts for half the length of these trips, the SIC Alternative is estimated to have the lowest daily VMT per service population.

Section 3.13: Transportation uses traffic level of service (LOS) rather than VMT as a significance criterion for impact assessment. The LOS analysis identifies locations in the Planning Area where traffic congestion may result under each of the Alternatives. A number of roadway segments would potentially operate beyond their planned capacity under both the SIC and No Project Alternatives. Poor operations on some roadway segments would occur largely due to regional growth creating congestion on SR 99, which is expected to result in additional through-traffic on the arterial and collector street network within the Planning Area, including the Mitchell Road and Faith Home Road corridors. The Proposed Project is expected to have congestion in similar locations. Based on the location of planned development under the SIC and No Project alternatives, the resulting levels of service are expected to be similar to the levels of service under the Proposed Project. Each Alternative would have a significant and unavoidable impact related to LOS, similar to the Proposed Project.

Both the SIC and No Project Alternatives would contribute to the need for improvements to the regional transportation system, including development of the expressway system identified by StanCOG and improvements to the freeway system. As with the Proposed Project, each Alternative would have significant and unavoidable impacts related to conflicting with the congestion management program in the StanCOG RTP/SCS. The SIC Alternative could result in slightly greater overall VMT (as shown in Table 4.3-5: Planning Area Daily Vehicle Miles Traveled (VMT)

management program in the StanCOG RTP/SCS. The SIC Alternative could result in slightly greater overall VMT (as shown in Table 4.3-5: Planning Area Daily Vehicle Miles Traveled (VMT) Per Service Population) and more truck traffic from the increase in industrial uses, both of which could place a greater burden on some portions of the regional roadway network. Therefore, the impacts to the regional transportation network are expected to be greater under the SIC Alternative compared to the Proposed Project. The No Project Alternative could have less of an impact than the Proposed Project, as it is expected to have the least amount of daily VMT, but it would still contribute to the need for transportation improvements.

Neither the SIC Alternative nor the No Project Alternative is expected to result in any changes to air traffic patterns or safety and would have no impact, similar to the Proposed Project.

Similar to the Project, the SIC Alternative emphasizes Complete Streets, which, by their nature, would help ensure that the city's transportation system is compatible with adjacent land uses. Additionally, the City's truck route designations would ensure that those streets are designed to serve those vehicles. Implementation of the SIC Alternative would minimize the potential for design hazards. The No Project Alternative does not emphasize complete streets; however, it does promote land use compatibility and safe transportation infrastructure. Therefore, implementation of the No Project Alternative would minimize the potential for design hazards. Each Alternative would have a less than significant impact related to design hazards, although the Proposed Project and SIC Alternative, with their focus on Complete Streets, may have less of an impact.

With similar circulation systems, both of the Alternatives and the Proposed Project would have less than significant impacts related to emergency access. However, because the SIC Alternative and Proposed Project would include a policy to ensure adequate emergency access, they may have less of an impact than the No Project Alternative, which does not.

Each Alternative promotes pedestrian, bicycle, and transit access and would have a less than significant impact related to multi-modal mobility. However, given the wider range of multi-modal and Complete Streets policies in the SIC Alternative and Proposed Project, they may have less of an impact than the No Project Alternative.

UTILITIES

As shown in Table 4.2-1: Comparison of Key Characteristics, the SIC Alternative is expected to result in about 2.5 percent fewer residents, 2.2 percent fewer dwelling units, and 2.9 percent more jobs than the Proposed Project in 2035. The No Project Alternative is expected to result in about 1.3 percent more residents, 1.3 percent more dwelling units, and 8.2 percent fewer jobs than the Proposed Project.

In terms of water demands, projected differences in development would be marginal. The water demands of each Alternative were estimated in the City of Ceres General Plan Update, Land Use Alternatives – Water Evaluation Technical Memorandum (West Yost Associates, 2017)[1] (Appendix F) and are shown in Table 4.3-6: Projected Water Demand of Each Alternative.

[1] This technical memo analyzed alternatives developed in the General Plan update process, that are marginally different from the EIR Alternatives. The alternative named "Current General Plan" in the memo corresponds to the "No Project

Table 4.3-6: Projected Water Demand of Each Alternative (2035)

	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Average Day Demand (mgd)	10.75	10.78	10.75
Maximum Day Demand (mgd)	19.35	19.41	19.35

Note: The water demand projections for each Alternative are based on a buildout population of 96,000 people. The buildout population of 96,000 is from the 2011 Water Master Plan and is greater than the estimated buildout of the Project, SIC Alternative, and No Project Alternative.

Source: West Yost Associates, "Technical Memorandum City of Ceres General Plan Update, Land Use Alternatives—Water," February 22, 2017.

The projected water demands of each Alternative and the Proposed Project differ from each other by less than one percent. Thus, the conclusion that the Proposed Project would have less than significant impacts on potable water, including water supply and treatment facilities, is also valid for the SIC and the No Project Alternatives.

The wastewater Average Sanitary Flows (ASF) for each Alternative were estimated in the City of Ceres General Plan Update, Land Use Alternatives – Wastewater Evaluation Technical Memorandum (West Yost Associates, 2017)[2] (Appendix E) and are shown in Table 4.3-7: Projected Wastewater from Each Alternative (2035).

Table 4.3-7: Projected Wastewater from Each Alternative (2035)

	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Average Sanitary Flows (mgd)	8.01	8.04	9.31

Notes:

The water demand projections for each Alternative are based on a buildout population of 96,000 people. The buildout population of 96,000 is from the 2011 Water Master Plan and is greater than the estimated buildout of the Project, SIC Alternative, and No Project Alternative.

Source: West Yost Associates, "Technical Memorandum City of Ceres General Plan Update, Land Use Alternatives—Wastewater," February 22, 2017.

The projected ASF from each Alternative and the Proposed Project differs by less than about 16 percent. In July 2013, the City prepared the City of Ceres Sewer System Master Plan (SSMP). The SSMP identified the sewer system improvements and wastewater treatment improvements needed for an ASF of 10.2 mgd at the City's wastewater treatment plant. The planned sewer system and wastewater treatment facilities would be adequate to serve each Alternative. Thus, the conclusion

Alternative" in this EIR; the alternative named "Alternative 1" corresponds to the "Project" in this EIR; and the alternative named "Alternative 2" corresponds to the "Southern Industrial Cluster" Alternative in this EIR.

[2] This technical memo analyzed alternatives developed in the General Plan update process, that are marginally different from the EIR Alternatives. The alternative named "Current General Plan" in the memo corresponds to the "No Project Alternative" in this EIR; the alternative named "Alternative 1" corresponds to the "Project" in this EIR; and the alternative named "Alternative 2" corresponds to the "Southern Industrial Cluster" Alternative in this EIR.

that the wastewater impacts related to treatment requirements, treatment facilities, and treatment capacity would be less than significant for the Proposed Project is also valid for the SIC and the No Project Alternatives.

The City of Ceres General Plan Update, Land Use Alternatives – Stormwater Evaluation Technical Memorandum (West Yost Associates, 2017)[3] (Appendix G) identified trunk storm drains, detention basins, and pump stations for nine stormwater sub areas of the Proposed Project's proposed land uses. The stormwater improvements included a total of about 27,000 feet of new trunk storm drain, 336 acre-feet of detention storage volume, and 159 cubic feet per second (cfs) of pumping capacity. With slight variations in facility sizing, these proposed facilities would be appropriate for both the SIC and the No Project Alternatives. Thus, the conclusion that the stormwater impacts would be less than significant for the Proposed Project is also valid for the SIC and the No Project alternatives.

Table 4.3-8: Projected Annual Solid Waste for Each Alternative (2035) shows the projected landfill-destined solid waste generation for the Planning Area in 2035 under both Alternatives compared to the Proposed Plan. Fink Road Landfill has the capacity to accommodate about 11 million additional tons of waste.[4] The difference in the projected solid waste generation between each Alternative is marginal in the context of the Fink Road Landfill's capacity. The SIC Alternative is projected to generate the most solid waste through 2035 at 56,109 tons of disposal per year, which would only fill about 10 percent of the remaining space in Fink Road Landfill. Thus, the conclusion that the impacts related to landfill capacity are less than significant for the Proposed Project is also valid for the SIC and the No Project Alternatives.

Table 4.3-8: Projected Annual Solid Waste for Each Alternative (2035)

	Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Population (2035)	79,000	77,000	80,000
Tons of Residential Waste (2035)[1]	24,933	24,393	25,344
Jobs (2035)	30,800	31,700	28,500
Tons of Commercial Waste (2035)[1]	30,806	31,716	28,514
Total Waste (2035)	**55,740**	**56,109**	**53,858**

Notes:

1. With implementation of the Proposed Project, the ratio in 2035 of tons of residential waste per resident is assumed to be 0.32 and the ratio of tons of commercial waste per job is assumed to be 1.0, according to Table 3.14-4. The projected residential and commercial waste in 2035 for the SIC and No Project alternatives is based on the same ratios.

Source: Dyett & Bhatia, 2017.

[3] This technical memo analyzed alternatives developed in the General Plan update process, that are marginally different from the EIR Alternatives. The alternative named "Current General Plan" in the memo corresponds to the "No Project Alternative" in this EIR; the alternative named "Alternative 1" corresponds to the "Project" in this EIR; and the alternative named "Alternative 2" corresponds to the "Southern Industrial Cluster" Alternative in this EIR.

[4] Based on a density of in-landfill mixed solid waste of 0.75 tons per cubic yard (CalRecycle, 2013).

As the SIC Alternative would have the same policies as the Proposed Project, it would have the same less than significant impact regarding compliance with federal, State, and local solid waste statutes and regulations. The No Project Alternative has similar policies to reduce waste and promote waste diversion, and would also have a less than significant impact regarding compliance.

4.4 Environmentally Superior Alternative

CEQA Guidelines (Section 15126.6) require the identification or an environmentally superior alternative among the alternatives analyzed. Table 4.4-1: Summary of Impacts for Alternatives summarizes the Alternatives' overall environmental impacts for each topic presented in Section 4.3. For the SIC Alternative, 12 impacts were expected to be significant and unavoidable, 58 impacts were expected to be less than significant, and two were found to be no impact, the same as the Proposed Project. For the No Project Alternative, 21 impacts were expected to be significant and unavoidable, 49 impacts were expected to be less than significant, and two were found to be no impact. Because the SIC Alternative was found to have fewer potentially significant and unavoidable impacts than the No Project Alternative, the SIC Alternative is considered environmentally superior. While the proposed land use diagrams of the two Alternatives are similar, the policies included in the No Project Alternative in many cases do not address the broad range of environmental topics covered by the SIC Alternative and Proposed Project, and are not up to date with current laws and practices concerning environmental impacts.

Nevertheless, the SIC Alternative has the potential to perform worse than the Proposed Project on several impacts, despite having the same number of less than significant and significant and unavoidable impacts as the Proposed Project. The SIC Alternative has the potential for greater impacts than the Proposed Project on aesthetics, conversion of farmland, air quality and sensitive receptors, groundwater usage, permanent ambient noise levels, and regional traffic; it would only be expected to have lesser impacts in relation to exposure of residents to seismic hazards. The land uses designated by the Proposed Project in the southeastern portion of the Planning Area were generally found to be more compatible with both the surrounding environment and with promoting lower VMT in and around the Planning Area. Therefore, the Proposed Project is environmentally superior to the SIC Alternative.

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Aesthetics			
Scenic Vistas	LTS	LTS	LTS
Visual Character	LTS	LTS	LTS
Light and Glare	LTS	LTS	SU
Agriculture			
Farmland Conversion	SU	SU	SU
Agricultural Zoning/Williamson Act	SU	SU	SU

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Indirect Impacts	SU	SU	SU
Air Quality			
Air Quality Plan	LTS	LTS	LTS
Air Quality Standard	SU	SU	SU
Criteria Pollutants	SU	SU	SU
Sensitive Receptors	SU	SU	LTS
Odors	LTS	LTS	LTS
Biological Resources			
Special-Status Species	LTS	LTS	SU
Sensitive Habitat	LTS	LTS	SU
Wetlands	LTS	LTS	SU
Wildlife Corridors	LTS	LTS	LTS
Policies and Ordinances	NI	NI	NI
HCPs	LTS	LTS	LTS
Energy, Greenhouse Gases, and Climate Change			
Impact on Environment	LTS	LTS	LTS
Plan, Policy, or Regulation	LTS	LTS	SU
Wasteful Energy Consumption	LTS	LTS	LTS
Energy Efficiency Standards	LTS	LTS	LTS
Geology, Soils, and Seismicity			
Seismic Hazards	LTS	LTS	LTS
Soil Erosion	LTS	LTS	SU
Expansive or Unstable Soils	LTS	LTS	LTS
Septic Systems	LTS	LTS	SU
Hazards and Hazardous Materials			
Transport, Use, or Disposal	LTS	LTS	LTS
Accidental Upset	LTS	LTS	LTS
Quarter-Mile of Schools	SU	SU	SU
Cortese List	LTS	LTS	LTS
Airport Hazards	LTS	LTS	LTS
Emergency Response	LTS	LTS	LTS
Wildland Fires	LTS	LTS	LTS
Historic and Cultural Resources			
Historical Resources	LTS	LTS	LTS

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Archaeological Resources	LTS	LTS	LTS
Paleontological Resources	LTS	LTS	SU
Human Remains	LTS	LTS	LTS
Tribal Cultural Resources	LTS	LTS	SU
Hydrology and Water Quality			
Water Quality Standards	LTS	LTS	LTS
Groundwater	LTS	LTS	LTS
Drainage	LTS	LTS	LTS
Runoff	LTS	LTS	LTS
Water Quality Degradation	LTS	LTS	LTS
Housing in Flood Zones	LTS	LTS	LTS
Structures in Flood Zone	LTS	LTS	LTS
Flood Hazards	LTS	LTS	LTS
Seiche, Tsunami, and Mudflows	LTS	LTS	LTS
Land Use, Population, and Housing			
Division of a Community	LTS	LTS	LTS
Conflict with Land Use Plan	LTS	LTS	LTS
HCPs	LTS	LTS	LTS
Growth Inducement	SU	SU	SU
Displacement	LTS	LTS	SU
Noise			
Noise Standards	SU	SU	SU
Vibration	LTS	LTS	LTS
Permanent Ambient Noise Increase	SU	SU	SU
Temporary Ambient Noise Increase	LTS	LTS	LTS
Airport Noise	LTS	LTS	LTS
Public Services			
Fire, Police, Schools, Parks, and Public Facilities	LTS	LTS	LTS
Degradation of Parks	LTS	LTS	LTS
Construction or Expansion of Parks	LTS	LTS	LTS
Transportation			
Levels of Service	SU	SU	SU
Congestion Management Plan	SU	SU	SU
Air Traffic	NI	NI	NI

Table 4.4-1: Summary of Impacts for Alternatives

Impact	*Level of Significance*		
	Proposed Project	*Southern Industrial Cluster Alternative*	*No Project Alternative*
Traffic Hazards	LTS	LTS	LTS
Emergency Access	LTS	LTS	LTS
Transit, Bike, and Pedestrian Facilities	LTS	LTS	LTS
Utilities			
Wastewater Requirements	LTS	LTS	LTS
Water or Wastewater Facilities	LTS	LTS	LTS
Stormwater Capacity	LTS	LTS	LTS
Water Supply	LTS	LTS	LTS
Wastewater Capacity	LTS	LTS	LTS
Landfill Capacity	LTS	LTS	LTS
Solid Waste Regulations	LTS	LTS	LTS

Notes:
LTS = Less than Significant
NI = No Impact
SU = Significant and Unavoidable

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5 CEQA Required Conclusions

This section presents a summary of the impacts of the Proposed Project in several subject areas specifically required by the California Environmental Quality Act (CEQA), including growth-inducing impacts, cumulative impacts, significant and unavoidable impacts, significant irreversible environmental changes, and impacts found not to be significant. These findings are based, in part, on the analysis provided in Chapter 3: Environmental Settings and Impacts.

5.1 Growth-Inducing Impacts

CEQA Guidelines require that an environmental impact report (EIR) "discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly" (CEQA Guidelines Section 15126.2(d)). This analysis must also consider the removal of obstacles to population growth, such as improvements in the regional transportation system.

Growth-inducing impacts, such as those associated with job increases that might affect housing and retail demand in other jurisdictions over an extended time period, are difficult to assess with precision, since future economic and population trends may be influenced by unforeseeable events such as natural disasters and business development cycles. Moreover, long-term changes in economic and population growth are often regional in scope; they are not influenced solely by changes or policies related to a single city or development project. Business trends are influenced by economic conditions throughout the state and country, as well as around the world.

Another consideration is that the creation of growth-inducing potential does not automatically lead to growth. Growth occurs through capital investment in new economic opportunities by the private or public sector. These investment patterns reflect, in turn, the desires of investors to mobilize and allocate their resources to development in particular localities and regions. These and other pressures serve to create policy. These factors, combined with the regulatory authority of local governments, mediate the growth-inducing potential or pressure created by a proposed plan. Despite these limitations on the analysis, it is still possible to qualitatively assess the general potential growth-inducing impacts of the Proposed Project.

PROJECTED GROWTH

The Proposed Project allows for new residential and non-residential development that could result in an increase in population, housing, and jobs.

Population

According to the California Department of Finance, the population of the City of Ceres was estimated to be about 47,000 as of 2015, constituting about 8.7 percent of Stanislaus County's total population of 538,000. Under the Proposed Project, as shown in Table 5.1-1: Projected Residential Population at Buildout (2035), the Planning Area (including the city, the SOI, and unincorporated areas), will accommodate a population of approximately 79,000 people at buildout, an increase of about 43 percent over the current population of 55,000. This represents an average annual growth rate of about 2.2 percent. In comparison, the average annual growth rate of the Ceres population between 2005 and 2015 was 1.8 percent.

The Stanislaus County Council of Governments (StanCOG), the California Department of Transportation (Caltrans), and the California Department of Finance (DOF) have prepared projections for growth in population and housing units between 2015 and 2035 (DOF, 2017; Caltrans, 2013; University of the Pacific, 2016). The projected population in the city of Ceres (excluding the unincorporated areas of the Planning Area) in 2035 ranges between 61,000 and 68,000, depending on the data source, corresponding with an average annual population growth rate between 1.38 percent and 1.83 percent. Under the Proposed Project, the Planning Area could accommodate more population growth than is projected by these sources.

Table 5.1-1: Projected Residential Population at Buildout (2035)

	Ceres		*Unincorporated County*		*Planning Area Total*	
	Housing Units[1]	*Population*[2]	*Housing Units*[1]	*Population*[2]	*Housing Units*[1]	*Population*[2]
Existing (2015)[3,4]	13,800	47,000	2,400	8,000	16,200	55,000
Future Development[5]	3,700	12,000	3,500	12,000	7,200	24,000
Total at Buildout	**17,500**	**59,000**	**5,900**	**20,000**	**23,400**	**79,000**

Notes:

1. Housing unit numbers have been rounded to the nearest hundred.
2. Population numbers have been rounded to the nearest thousand.
3. Existing residential units within the city of Ceres is from the California Department of Finance, January 2015 estimate; and existing residential units within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and unit type assumptions.
4. Existing population within the city of Ceres is from the California Department of Finance, January 2015 estimate; and existing population within the unincorporated County is derived from Stanislaus County Assessor's data from 2014 and an assumption of 3.3 persons per housing unit.
5. Future population was calculated assuming 3.3 persons per housing unit.

Sources: CA Department of Finance, 2015; City of Ceres, 2017; Dyett & Bhatia, 2017.

Public Facilities

Based on the buildout of the Proposed Project, new water, wastewater, and stormwater facilities will be required to service new residential and non-residential development. For example, the water infrastructure required to serve the Proposed Project would include new wells, storage reservoirs, and water distribution system transmission pipelines; and the wastewater infrastructure needed would include facility upgrades at the Ceres wastewater treatment plant and the purchase of additional capacity at the Turlock and Modesto treatment plants. The City of Ceres has existing master plans guiding the development of water and wastewater facilities, both of which already plan for these new water and wastewater facilities. Therefore, although both of the master plans will be updated upon adoption of the proposed General Plan, the new water and wastewater facilities needed to serve development under the Proposed Project would be built regardless of whether the Proposed Project is implemented. The Proposed Project would also require new stormwater infrastructure, including new trunk storm drains, detention basins, and pump station capacity. This infrastructure would be sized to meet the needs of the population growth estimated in the Proposed Project's buildout, as shown previously in Table 5.1-1: Projected Residential Population at Buildout (2035).

Increase in Regional Housing Demand

As shown in Table 5.1-2: Projected Non-Residential Growth at Buildout (2035), implementation of the Proposed Project could accommodate 13,900,000 square feet of new non-residential development in the Planning Area. As of 2015, there were 12,100,000 square feet of non-residential development in the entire Planning Area. Thus, the buildout of the Proposed Project estimates an average annual non-residential development growth rate of 5.7 percent.

The development of non-residential uses could support job growth in the Planning Area. The buildout of the Proposed Project estimates an increase of 20,800 jobs in the Planning Area between 2015 and 2035, representing a 10.4 percent average annual growth rate in jobs.

Table 5.1-2: Projected Non-Residential Growth at Buildout (2035)

	Existing (2015)		*New*		*Total (2035)*	
	Ceres City Limits (2015)[1]	*Full Planning Area*	*Ceres City Limits (2015)*	*Full Planning Area*	*Ceres City Limits (2015)*	*Full Planning Area*
Non-Residential Development[2]	8,500,000	12,100,000	8,800,000	13,900,000	17,300,000	26,000,000
Jobs[3]	8,700	10,000	13,400	20,800	22,100	30,800

Notes:

1. Refers to the Ceres city limits as of 2015. The city limits may change over the planning horizon.
2. Numbers rounded to the nearest hundred thousand square feet.
3. Numbers rounded to the nearest hundred.

Source: CA Department of Finance, 2015; Dyett & Bhatia, 2017; Economic & Planning Systems, Inc, 2016, which includes data from the Employment Development Department, 2015.

As the employment base in the Planning Area increases due to proposed General Plan land uses and policies that foster employment, more people may be drawn to the Planning Area to work, live, or both. As a result, housing demand may increase in both the Planning Area and other adjacent areas that are within commuting distance.

The proposed General Plan is projected to result in the development of approximately 4,900 single-family housing units and about 2,300 multi-family housing units, for an increase of about 7,200 new dwelling units by the year 2035, resulting in a total of 23,400 units in the Planning Area when added to the existing housing stock.

To ensure that housing is available to meet the needs of future residents under the proposed General Plan, the City would continue to use its Housing Element, last updated in 2016, to assess its supply of housing and provide policies and programs to ensure that the community continues to meet its fair share of regional housing needs.

Jobs/Housing Ratio

A desirable jobs-to-housing ratio is often defined as a ratio greater than 1.0 but less than 2.0. Because most households have more than one wage earner, ratios below 1.0 suggest that residents are required to commute to jobs outside of their area of residence, and ratios greater than 2.0 suggest that employers are not able to house their workers within the jurisdictions, requiring workers to commute into the area. Theoretically, a balanced jobs-to-housing ratio would reduce the need for people to commute in or out of town for work. In reality, the match of education, skills, and interests is not always accommodated within the boundaries of one community, and regional interdependencies almost always result in at least some inter-city commuting. The City cannot dictate the residential location of future employees in the Planning Area.

Based on the estimated buildout of the Proposed Project, the jobs-to-housing balance in the Planning Area in 2035 will shift from 0.63 in 2015 to 1.32 in 2035, as shown in Table 5.1-3: Jobs-to-Housing Unit Ratio. Therefore, the estimated jobs-to-housing ratio in Ceres in 2035 would not be expected to induce new residential growth.

Table 5.1-3: Jobs-to-Housing Unit Ratio (2015 & 2035)

	2015[1]	*2035*[2]
Jobs[3]	8,700	30,800
Housing Units[3]	13,800	23,400
Jobs to Housing Unit Ratio	0.63	1.32

Notes:

1. Includes jobs and housing units within Ceres city limits
2. Includes existing and potential new jobs and housing units within the entire Planning Area.
3. Numbers rounded to the nearest hundred.

Source: Economic & Planning Systems, Inc, 2016, which includes data from the 2015 Q2 California Employment Development Department (EDD); 2015 California Department of Finance; Dyett & Bhatia, 2017; Stanislaus County Assessor, 2014.

5.2 Cumulative Impacts

CEQA requires that an EIR examine cumulative impacts. As discussed in CEQA Guidelines Section 15130(a)(1), a cumulative impact "consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." Furthermore, the analysis of cumulative impacts need not provide the level of detail required of the analysis of impacts from the project itself, but shall "reflect the severity of the impacts and their likelihood of occurrence" (CEQA Guidelines Section 15130(b)).

In order to assess cumulative impacts, an EIR must analyze either a list of past, present, and probable future projects or a summary of projections contained in an adopted general plan or related planning document. Because it is a long-range, programmatic plan for an entire city and surrounding area, the Proposed Project represents the cumulative development scenario for the reasonably foreseeable future in the Planning Area. This future scenario incorporates the likely effects of surrounding regional growth.

CUMULATIVE ANALYSIS PROVIDED IN CHAPTER 3

Several analyses presented in Chapter 3: Environmental Settings and Impacts represent cumulative analyses of issues through the proposed General Plan horizon year of 2035 because they combine the anticipated effects of the proposed General Plan with anticipated effects of regional growth and development. By their nature, the air quality; transportation; noise; and energy, greenhouse gas emissions, and climate change analyses presented in Chapter 3 represent a cumulative analysis, because the effects specific to the Proposed Project cannot reasonably be differentiated from the broader effects of regional growth and development. Thus, analyses for these topics reflect not just growth in the Planning Area, but growth elsewhere in the region as well. The cumulative conclusions are summarized there, and where applicable, significant unavoidable impacts are listed in Section 5.3 Significant and Unavoidable Impacts. Other cumulative impacts are identified below and within the relevant sections of Chapter 3.

OTHER CUMULATIVE IMPACTS

For some issue areas evaluated as direct impacts in Chapter 3, concurrent implementation of the Proposed Project, along with regional growth and development, may result in cumulative impacts; however, due to various factors, the Proposed Project's contribution would not be cumulatively considerable. These include:

- ***Cumulative Changes to Aesthetics.*** Growth in the Stanislaus County region, including Ceres, will result in substantial changes to the visual character of the region. StanCOG projects that between 2015 and 2035, the population of Stanislaus County will increase by 25 percent (University of the Pacific, 2016). Development to accommodate new residents and jobs may impact visual resources. Views of farmland may be replaced with views of new development, visual character of existing urban areas may change with new infill and development of greater density, and growth will likely create new sources of light and glare. In addition, new transportation facilities and other infrastructure may result in the area's rural or semi-rural character shifting to a more suburban environment (StanCOG,

2014a.) The proposed General Plan seeks to protect farmland around the perimeter of the Planning Area, which will maintain agricultural views; and policies in the proposed General Plan minimize new sources of light and glare. However, the Proposed Project will contribute to changes in the visual resources of the region, thus the Proposed Project's contribution to this significant cumulative impact is cumulatively considerable.

- ***Cumulative Effects on Agriculture.*** Regional growth will likely result in the conversion of farmland. StanCOG's Regional Transportation Plan/Sustainable Community Strategies (RTP/SCS) includes a countywide land use change scenario on which the regional transportation investments between 2014 and 2040 are based. Although the land use scenario prioritizes infill and compact development patterns, implementation of the land use scenario would convert 9,400 acres of Prime Farmland in the county (StanCOG, 2014a). Implementation of the Proposed Project would result in farmland conversion and indirect affects to agricultural uses. Therefore, the Proposed Project's contribution to this significant cumulative impact is cumulatively considerable.
- ***Cumulative Effects on Biological Resources.*** Increased noise, light, and habitat disturbance resulting from urban development both within the Planning Area as well as in adjacent jurisdictions could adversely affect biological resources such as migratory birds and other wildlife species. However, with applicable policies in place as described in the direct impact analysis in Chapter 3, the Proposed Project's contribution to this potentially significant cumulative impact is less than cumulatively considerable.
- ***Cumulative Effects on Geology and Soils.*** There are no known active earthquake faults in most of Stanislaus County, and seismically induced liquefaction is not a substantial geologic hazard in the county (StanCOG, 2014a). Some areas of the county are susceptible to riverbank erosion and expansive soils, and the western portions of the county in the Diablo Range are susceptible to landslide. A combination of projects along the river or hillsides could contribute to a potentially significant cumulative impact. However, seismic activity in the Planning Area is considered minimal, and the risk of liquefaction and landslides in the Planning Area is low. The Project's contribution to this potentially significant cumulative is less than cumulatively considerable.
- ***Cumulative Increases in Hazards or Hazardous Materials.*** New development in the region may result in an increase in routine use, transportation, disposal, and accidental release of hazardous materials; handling of hazardous materials near existing and proposed schools; and physical interference with the Stanislaus County Emergency Operations Plan (EOP). However, existing federal, State, and local regulations create and enforce standards for activities related to hazardous materials and for new development. Upset or accident conditions, emissions of hazardous materials, and development on a site listed as containing hazardous materials usually occur on a project-by-project basis, rather than in a cumulative manner. Individual projects in Stanislaus County and nearby cities would be required to comply with federal, State, local regulations, and the Stanislaus County EOP. The impact would be less than cumulatively considerable.

  Development in Modesto and Ceres in proximity to the Modesto City-County Airport could contribute to a cumulative impact of increased airport-related hazards. However, compliance with the Stanislaus County Airport Land Use Compatibility Plan (ALUCP)

would minimize potential safety hazards and the impact would be less than cumulatively considerable.

Wildfire prevention is a shared responsibility between federal, State, and local agencies. The vast majority of Stanislaus County falls under State and local jurisdiction, with a few small areas under federal responsibility. Threats of wildfires on non-federal lands in unincorporated areas are the responsibility of CAL FIRE and addressed through compliance with Title 14 of the of the California Code of Regulations. Given that there are large areas in the western portion of Stanislaus County that are "High" and "Very High" Fire Hazard Severity Zones (CAL FIRE, 2007) in State Responsibility Areas, there is a potentially significant cumulative impact. However, the Proposed Project is geographically distant from these areas of fire hazard. The Project's contribution to this potentially significant cumulative impact is less than cumulatively considerable.

- ***Cumulative Effects on Historical Resources.*** Although impacts to cultural resources are typically highly localized, several impacts in a given area that are less than significant can contribute to a cumulative impact in loss or harm to cultural resources. For example, while the loss of one particular site may not be significant, the loss of one site in each jurisdiction in an area may constitute a significant cumulative impact. Cultural resources in the region could be affected by new development, but adherence to local policies, as well as to federal and State laws, would protect historic architectural resources, archaeological and paleontological resources, human remains, and historic architectural resources. There is a less than significant cumulative impact.
- ***Cumulative Effects on Hydrology and Water Quality.*** The majority of the water supply in Stanislaus County comes from surface water resources, most of which is used for agricultural purposes rather than for urban development. Groundwater supplements the surface water supply and is the major source for urban areas, including for the cities of Ceres, Modesto, Oakdale, and Riverbank. There are four groundwater management areas in Stanislaus County, including the Turlock groundwater basin, from which Ceres sources most of its water. In recent decades, the groundwater levels in the Turlock groundwater basin have decreased as a result of urbanization and expanded agricultural irrigation. The Turlock Irrigation District anticipates that groundwater recharge will likely diminish due to development and agricultural uses (StanCOG, 2014a).

  While the City of Ceres currently relies wholly on groundwater supply, the City is participating in implementation of the Regional Water Supply Project, which will reduce the City's reliance on groundwater. In addition, Ceres is a member of the Turlock Groundwater Basin Association, which has developed a number of groundwater basin management objectives to ensure a sustainable supply of groundwater; as well as the West Turlock Subbasin Groundwater Sustainability Agency, a joint powers authority responsible for the management of the subbasin and implementation of California's Sustainable Groundwater Management Act requirements. Nevertheless, despite State regulations and local efforts, Ceres will continue to rely on groundwater supplies which may lower the local groundwater table level. Given Ceres's continued reliance on groundwater supplies which may lower the local groundwater table level, the Proposed Project's contribution to this potentially significant cumulative impact is cumulatively considerable.

New development in the region has the potential to generate impacts related to the violation of water quality standards, erosion and sedimentation, construction-related water quality impacts, flood hazards, and dam failure. State and regional regulations described in Section 3.9: Hydrology and Water Quality, would reduce the rate of runoff and filter out pollutants. Construction activities are required to comply with the State Water Resources Control Board statewide NPDES stormwater permit program, the Porter-Cologne Act's requirements for site-specific waste discharge, as well as local agency public works construction standards. In addition, policies in the proposed General Plan and existing City regulations would ensure protection of water quality, improve stormwater management, and reduce stormwater pollution. The Proposed Project's contribution to this potentially significant cumulative impact is less than cumulatively considerable.

- ***Cumulative Effects on Land Use and Population.*** Projects that could have the effect of physically dividing an established community—such as a major new road, highway, or similar infrastructure—tend to have a singular rather than cumulative impact. Similarly, impacts from plans and projects in the region that could conflict with existing plans, including habitat conservation plans, are not cumulative in nature. However, potential impacts related to population and housing can be cumulative in nature. Population growth, by itself, is not an environmental impact; however, the direct and indirect effects, such as housing and infrastructure needs that are related to population growth, can lead to physical environmental effects. Given that StanCOG estimates the population of the county to grow by 25 percent between 2015 and 2035 (University of the Pacific, 2016), growth in the region could have a potentially significant impact. As discussed above, given the amount of new residential growth that the Proposed Project can accommodate, and the indirect effects from new job growth, the Proposed Project's contribution to this potentially significant cumulative impact is cumulatively considerable.
- ***Cumulative Effects on Public Services and Recreation.*** Public services are generally provided by local governments and/or special districts for areas within their jurisdiction and are not provided on a regional basis. Fire and police protection services are provided by local governments or fire protection districts for areas within their jurisdiction, although mutual aid agreements between agencies do help spread resources. Public schools are provided by school districts to areas within their jurisdictions. While districts may have cross jurisdictional boundaries, school services are still provided at the local, rather than regional, level. Several agencies provide park and recreation services in the region, including counties, cities, and special districts. Each of these areas has their own parkland ratios and standards and is responsible for providing parkland to meet the local demand. An increase in regional population may increase demand for parks and recreation facilities and services; however, these local jurisdictions have authority over land use, set and implement level of service standards, and determine the siting and timing of public service projects. The impacts on public services and facilities are not cumulative in nature, and are therefore not cumulatively considerable.
- ***Cumulative Effects on Utilities.*** Cumulative effects on potable water treatment and distribution, wastewater collection and treatment, and stormwater systems are each discussed below:

- **Potable Water Treatment and Distribution.** The cumulative effects on water supply and groundwater are discussed above in the Hydrology and Water Quality section; this evaluation focuses on impacts on the water treatment and distribution systems.

  Ceres's groundwater supplies are treated at the wellheads, and therefore impacts on groundwater treatment are not cumulative in nature. Surface water treatment facilities are being developed cooperatively by local governments. The Stanislaus Regional Water Authority, a joint powers authority comprised of the cities of Ceres and Turlock, is constructing a water treatment plant (WTP) to serve Ceres, Hughson, South Modesto and Turlock. The initial capacity of the WTP will be 15 mgd, with 5 mgd capacity for the City of Ceres. However, the WTP will be expandable, with plans for potential future expansion up to 45 mgd. Development in the jurisdictions served by the WTP could have a significant cumulative impact, requiring the expansion of the WTP. The initial capacity of WTP with 5 mgd of supply for Ceres is expected to adequately serve buildout under the Proposed Project, therefore the Proposed Project is not expected to contribute to the need for expanded facilities. However, within the cumulative context, the Proposed Project could contribute to the need for expansion. The Proposed Project's contribution to this potentially significant cumulative impact is cumulatively considerable.

  The City of Ceres water distribution system is essentially isolated from other city distribution systems. Although Ceres and Turlock will both receive water from the same water treatment plant, the water will be conveyed to each city in separate transmission pipelines. Portions of the city of Ceres receive water from Modesto (the North Ceres and Walnut Manor areas). There is no connection between Ceres's system and Modesto's North Ceres system, but there is an emergency interconnection between Ceres's system and the Walnut Manor system. However, the emergency interconnections are not normally used, and thus the distribution systems are essentially isolated from each other. Thus, the impacts on water distribution systems are not cumulative in nature, and the impact is less than cumulatively considerable.

- **Wastewater Treatment and Distribution**. Ceres's wastewater flows to three wastewater treatment plants in Ceres, Turlock, and Modesto respectively. As the wastewater treatment facilities are shared across jurisdictions, impacts on the wastewater treatment facilities are cumulative in nature. Development in each jurisdiction could result in significant cumulative impacts. Implementation of the Proposed Project would result in future residential, commercial, and industrial land uses in the Planning Area, resulting in additional population and additional demand for wastewater collection, conveyance, and treatment services over currently established levels. According to the Ceres 2013 SSMP, planned improvements to Ceres's sewer and wastewater treatment system will meet Central Valley RWQCB requirements and provide adequate capacity for buildout under the Proposed Project. However, according to the SSMP, Ceres will export wastewater for treatment at the Turlock and Modesto treatment plants. Therefore, implementation of the Proposed Project could contribute to the expansion of wastewater treatment facilities in the region. The Proposed Project's contribution to this potentially significant cumulative impact is cumulatively considerable.

  Within the City of Ceres there are two sewer systems. The primary sewer system flows to Ceres's wastewater treatment plant, and the smaller system in the northwest portion of Ceres flows to Modesto's wastewater treatment plant. These sewer systems

are essentially isolated from each other. Thus, the impacts on the sewer system facilities are not cumulative in nature, and are less than cumulatively considerable.

- **Stormwater Systems.** The majority of the stormwater runoff from the new growth resulting from the Proposed Project will flow into isolated storm drain collection systems, then through detention basins, and finally into into TID irrigation canals. These systems are isolated from each other and largely isolated from nearby cities. Thus, the impacts on the stormwater system facilities are not cumulative in nature, and are less than cumulatively considerable.
- **Solid Waste.** The Fink Road Sanitary Landfill is owned by Stanislaus County and provides municipal solid waste services to Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, Waterford, and the unincorporated areas of Stanislaus County. Growth in each of the jurisdictions could contribute to a significant cumulative impact on the landfill's capacity. Although the estimated solid waste generation from the Proposed Project only accounts for a small amount of the total capacity of the Fink Road Sanitary Landfill, the solid waste from the Planning Area contributes to the cumulative impact on the landfill. Therefore, the Proposed Project's contribution to this potentially significant cumulative impact is cumulatively considerable.

5.3 Significant and Unavoidable Impacts

Significant unavoidable impacts are those that cannot be mitigated to a level that is less than significant. According to CEQA Guidelines 15126(b), an EIR must discuss any significant environmental impacts that cannot be avoided under full implementation of the proposed program. Chapter 3 identified the following significant unavoidable impacts when comparing the Proposed Project to existing conditions:

AGRICULTURAL RESOURCES

Implementation of the Proposed Project, specifically the proposed General Plan, would allow for the conversion of Prime Farmland, Farmland of Statewide Importance, and Unique farmland to non-agricultural uses. Under the proposed General Plan, future development could impact about 3,508 acres of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland (important farmland) designated by the Farmland Mapping and Monitoring Program (FMMP) program currently under cultivation throughout the Planning Area. The Proposed Project proposes urban land use designations for land currently within the unincorporated area of the Planning Area that Stanislaus County has zoned for agricultural use. This inconsistency would be resolved upon annexation to the city, when the land in question would clearly be under the jurisdiction of the city and would be designated for urban uses. However, the Proposed Project indicates a clear intent to allow for urban development in areas currently zoned for agricultural uses; therefore, a conflict persists. If a project proposes urban uses on these sites, it would result in conversion of agricultural lands, which would be considered significant.

Urban development can result in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Such indirect impacts can include the division of large tracts of continuous agricultural land into smaller, less agriculturally viable tracts; the presence of

incompatible uses adjacent to existing agricultural operations that could lead to the restriction of chemical use and/or complaints regarding noise, dust, and odors; increases in land values and taxes that exert pressure on agricultural landowners to convert to urban uses; and loss of agricultural support infrastructure, such as processing facilities.

Although policies in the proposed General Plan seek to promote agricultural uses and preserve agricultural character throughout the Planning Area, the loss of Prime Farmland, Farmland of Statewide Importance, or Unique farmland due to conversion would represent an irreplaceable loss of farmland, and thus be considered a significant impact. As no feasible mitigation measures have been identified, the impact would be significant and unavoidable.

AIR QUALITY

Development under the Proposed Project, specifically the proposed General Plan, could violate air quality standards or contribute substantially to an existing or projected air quality violation. The San Joaquin Valley Air Basin (SJVAB) has been designated as a nonattainment area for the State ozone (O_3) and particulate matter ($PM_{2.5}$ and PM_{10}) standards. The SJVAB is also designated as a nonattainment area for the federal O_3 and $PM_{2.5}$.

Construction activities associated with the proposed General Plan would cause short-term emissions of criteria air pollutants. Due to the scale of development activity associated with buildout of the proposed General Plan, construction emissions would likely exceed the San Joaquin Valley Air Pollution Control District (SJVAPCD) regional significance thresholds. In accordance with the SJVAPCD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the SJVAB. Emissions of VOC and NO_X are precursors to the formation of O_3. In addition, NO_X is a precursor to the formation of particulate matter. Therefore, the proposed General Plan would cumulatively contribute to the nonattainment designations of the Basin for O_3 and particulate matter. Air quality related to construction must be addressed on a project-by-project basis.

For this EIR, it is not possible to determine whether the scale and phasing of individual projects would exceed the SJVAPCD's short-term regional or localized construction emissions thresholds. In addition to regulatory measures (e.g., SJVAPCD Rule 4601 for architectural coatings, Regulation VIII for fugitive dust control, Rule 9510 for new indirect source review, and the CARB's Airborne Toxic Control Measures), mitigation imposed at the project level may include extension of construction schedules and/or use of special equipment. Existing City policies and regulations and proposed General Plan principles and actions are intended to minimize impacts associated with nonattainment criteria pollutants. While these regulations and policies would reduce impacts associated with construction activities, there is no guarantee emissions would be mitigated below SJVAPCD thresholds. Therefore, impacts would remain significant and unavoidable during construction.

Long-term air emission impacts are those associated with area sources and mobile sources involving any change related to the proposed General Plan. In addition to the short-term construction emissions, buildout of the proposed General Plan would also generate long-term air emissions. These long-term emissions are primarily mobile source emissions that would result from vehicle trips and VMT associated with buildout of the proposed General Plan. Area sources,

such as natural gas heaters, landscape equipment, and use of consumer products, would also result in pollutant emissions. Operational emissions associated with the additional development that would occur under buildout conditions of the General Plan, would exceed the SJVAPCD's significance threshold for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$; therefore, impacts would be potentially significant. Future development under the Proposed Project would be required to comply with State and federal regulations, and the proposed General Plan principles and actions; however, there is no guarantee emissions would be mitigated below SJVAPCD thresholds. Proposed General Plan principles and actions, would reduce impacts associated with long-term operational criteria pollutant emissions; however, impacts would remain significant and unavoidable during operation.

LAND USE AND HOUSING

The Proposed Project plans for population growth associated with future development of residential land uses. Buildout projections for the Proposed Project estimate a total of approximately 7,200 new housing units and 24,000 new residents within the Planning Area by 2035. In fact, as the buildout projections do not assume that every available parcel will develop at maximum allowable density, the Proposed Project has the capacity to accommodate more residential growth than is estimated in the buildout projections. The potential population growth in Ceres under the Proposed Project is greater than forecasted by StanCOG, Caltrans, and the California DOF, and it is greater than the historical rate of growth between 2005 and 2015. The Proposed Project buildout projections are based on a different methodology than the StanCOG, Caltrans, and DOF forecasts, thus it can be expected that the buildout projections vary from the forecasts. Despite these differences, the Proposed Project accommodates a substantial amount of new residential development.

In addition, the Proposed Project aims to increase the number of jobs in the Planning Area. If the Proposed Project is successful in increasing the number of jobs in Ceres over the planning horizon, implementation of the Proposed Project may contribute to secondary growth-inducing impacts. An increase in jobs may attract new residents that are not accounted for in the buildout projections. Policies in the Proposed Project encourage infill development and require areawide plans for annexed land, thus limiting the potential for unplanned, induced growth. Nonetheless, the Proposed Project plans for both an increase in residential development and an increase in the number of jobs, resulting in a significant and unavoidable impact related to inducing substantial population growth in the area.

HAZARDS AND HAZARDOUS MATERIALS

Implementation of the Proposed Project would allow land uses to be developed within a quarter-mile of existing schools that could be reasonably expected to handle hazardous materials or generate hazardous emissions. Of the 26 public and private schools in the Planning Area, five schools would be located within a quarter mile of land designated for industrial uses, the uses most likely to handle or emit hazardous materials. For example, in the Light Industrial and Industrial Reserve land use designation, uses could include light manufacturing, auto services, and contractors' yards, which could handle or emit toxic chemicals or volatile chemicals. Policies in the proposed General Plan limit the safety risks from hazardous materials near schools. However, the Proposed Project allows for industrial development within one-quarter mile of five

existing schools, and industrial uses in these areas could emit hazardous emissions or handle hazardous materials, substances, or waste. Therefore, the impact of the Proposed Project related to hazardous materials in proximity to schools would be significant and unavoidable.

NOISE

The Proposed Project would result in both short-term and long-term changes to the existing noise environment in the Planning Area. Long term operational noise from traffic would increase compared to existing conditions. Proposed General Plan policies prohibit development of noise-sensitive land uses in certain scenarios, require noise mitigation measures, and require acoustical analyses to ensure noise exposure standards are met. These policies would reduce potential noise impacts to new development to a less than significant level. However, impacts of new traffic noise on existing sensitive receptors, such as the residences near the roadway segments that would experience noise levels more than 3 dBA CNEL in 2035 with the Proposed Project over existing conditions, would be significant and unavoidable.

TRANSPORTATION

Implementation of the Proposed Project could result in conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Development under the Proposed Project would improve the operation of some roadway facilities as expanded roadway facilities and parallel capacity would be provided. However, some roadway segments, including segments of SR 99, would continue to operate at deficient service levels and some additional segments are projected to degrade to deficient operations under Proposed Project conditions. Proposed General Plan policies would reduce potential impacts by requiring that new developments prepare transportation impact assessments to determine project-specific impacts of new development under the proposed General Plan such that impacts can be appropriately mitigated. The City will also coordinate with regional agencies to plan for the construction of the regional transportation network through Ceres. Additionally, City goals and policies strive to develop a multi-modal transportation network that would provide transportation alternatives to the single-occupant vehicle. However, even with implementation of these policies, the impact could remain significant and unavoidable.

StanCOG has integrated the function of the congestion management program into the StanCOG RTP/SCS. StanCOG has established a LOS D standard for regional roadway facilities, but also strives to develop a network of complete streets that accommodate all travel modes. The City of Ceres is supportive of the development of the Expressway System identified in the StanCOG Regional Expressway Study, 2010. The City shall implement all policies identified in the Circulation Element to reduce the demand for vehicle travel through Ceres, as well as work with StanCOG to implement regional transportation improvements that would provide travel capacity on the regional roadway network, including the expressway system. However, even with implementation of these policies, the potential impact to the regional transportation network

could be significant and unavoidable as the City of Ceres cannot assure the completion of roadway improvement projects in other jurisdictions.

5.4 Significant Irreversible Environmental Change

CEQA Guidelines require an EIR to consider whether "uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely" (CEQA Guidelines Section 15126.2(c)). "Nonrenewable resource" refers to the physical features of the natural environment, such as land or waterways. Irretrievable commitments of non-renewable resources associated with the proposed General Plan include:

WATER CONSUMPTION

New development under the Proposed Project would increase the demand for water supplies for residential, commercial, and industrial uses. It would place a greater demand on the City of Ceres municipal water supply, which currently derives water supply from local groundwater basins and will derive additional surface water supply from TID in 2020. This increased demand for public water represents an irreversible environmental change.

ENERGY SOURCES

New development under the Proposed Project would result in increased energy use, in the form of new buildings and transportation. Both residential and nonresidential developments use electricity, natural gas, and petroleum products for power, lighting, heating, and other indoor and outdoor services, while cars use both oil and gas. Use of these types of energy for new development would result in the overall increased use of nonrenewable energy resources. This represents an irreversible environmental change.

CONSTRUCTION-RELATED IMPACTS

Irreversible environmental changes could also occur during the course of constructing development projects allowed under the Proposed Project. New construction would result in the consumption of building materials, such as lumber, sand, and gravel for construction. Depletion of non-renewable resources that supply building materials would represent an irreversible environmental change.

LOSS OF IMPORTANT FARMLAND

Some new development allowed under the Proposed Project may take place on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as classified by the California Farmland Mapping and Monitoring Program. These designations identify high quality agricultural resources, and the loss of these resources due to conversion of designated land to non-agricultural uses may be considered an irreversible environmental change.

5.5 Impacts Found Not to Be Significant

CEQA requires that an EIR provide a brief statement indicating why various possible significant impacts were determined to be not significant. Chapter 3 of this EIR discusses all potential impacts, regardless of their magnitude. A similar level of analysis is provided for impacts found to be less than significant as impacts found to be significant and unavoidable. Significance of an impact is assessed in relation to the significance criteria provided in each section in Chapter 3. A summary of all impacts is provided in the Executive Summary of this EIR.

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7 List of Preparers

A list of contributing City staff and consultant team members, their titles, and affiliations, is provided below.

City of Ceres

Ceres City Staff

- Toby Wells, City Manager, P.E.
- Tom Westbrook, Director of Community Development
- Marjorie Blom, Planning Consultant
- Jeremy Damas, Public Works Director
- Suzanne Dean, Finance Director
- Traci Farris, Recreation Manager
- Steve Hallam, Redevelopment/Economic Development Manager
- Daryl Jordan, City Engineer
- James Michaels, Senior Planner
- Ann Montgomery, Administrative Secretary/Deputy City Clerk
- Bryan Nichols, Fire Chief
- Brent Smith, Police Chief

Consultants

Dyett & Bhatia, Urban and Regional Planners

- Sophie Martin, AICP, Principal
- Katharine Pan, AICP, Associate
- Ella Wise, Planner
- Shawn Yavari, Planner
- Isha Bhattarai, Senior GIS Specialist

- Claire Sanchez, Project Associate

Fehr & Peers

- Kathrin Tellez, AICP, PTP, Principal Transportation Planner
- Mackenzie Watten, Senior Transportation Planner

West-Yost

- Gerry S. Nakano, Vice President
- Douglas T. Moore, Engineering Manager
- Polly L. Boissevain, Engineering Manager
- Roberto D. Vera, Associate Engineer

CERES GENERAL PLAN 2035

DRAFT ENVIRONMENTAL IMPACT REPORT APPENDICES

SCH# 2017052063

February 07, 2018

Appendix A: Signed NOP and Comments

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NOTICE OF PREPARATION

Program Environmental Impact Report
Ceres General Plan Update

Date	May 24, 2017
To	Reviewing Agencies, Interested Parties, and Organizations
Subject	Notice of Preparation of a Draft Environmental Impact Report for the Ceres General Plan Update and Scheduling of a Scoping Meeting on Monday, June 5, 2017

The City of Ceres (City) is preparing an update to its General Plan and has determined that an Environmental Impact Report (EIR) will be necessary to evaluate environmental impacts of this Project, pursuant to the California Environmental Quality Act (CEQA). In compliance with CEQA, the City will be the Lead Agency and will prepare the EIR. Attached are the project description, location maps, and preliminary identification of the potential environmental issues to be explored.

The City is requesting comments and guidance on the scope and content of the EIR from responsible and trustee agencies, interested public agencies, organizations, and the general public (CEQA Guidelines §15082). If your agency is a responsible agency as defined by Section 15381 of the CEQA Guidelines, your agency may use the environmental documents prepared by the City when considering permits or approvals for action regarding the project.

Public Review Period: May 24, 2017 to June 23, 2017

Responses and Comments: The City requests your careful review and consideration of this notice, and it invites any and all input and comments from interested agencies, persons, and organizations regarding the preparation of the EIR. Comments and responses to this notice must be in writing and submitted to the Lead Agency Contact through the close of business on June 23, 2017. If applicable, please indicate a contact person for your agency or organization.

Lead Agency Contact:

Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307
tom.westbrook@ci.ceres.ca.us

A scoping meeting will be conducted as part of the regularly scheduled Planning Commission meeting at **6:00 PM on Monday, June 5, 2017, at the Ceres Community Center, 2701 Fourth Street, Ceres, CA 95307** to collect oral comments from agencies and the public. If you have questions regarding this NOP or the scoping meeting, please contact Tom Westbrook, at (209) 538-5774 or via email at tom.westbrook@ci.ceres.ca.us.

Tom Westbrook, Director of Community Development
City of Ceres

5/24/17
Date

1 Project Contact Information

Project Title	Ceres General Plan Update
Lead Agency Name	City of Ceres
Contact Person	Tom Westbrook, Director of Community Development
Address	Planning Division 2220 Magnolia Street Ceres, CA 95307
Phone	(209) 538-5774
Email	tom.westbrook@ci.ceres.ca.us
Project Sponsor Name and Address (same as Lead Agency)	City of Ceres 2220 Magnolia Street Ceres, CA 95307

2 Project Location

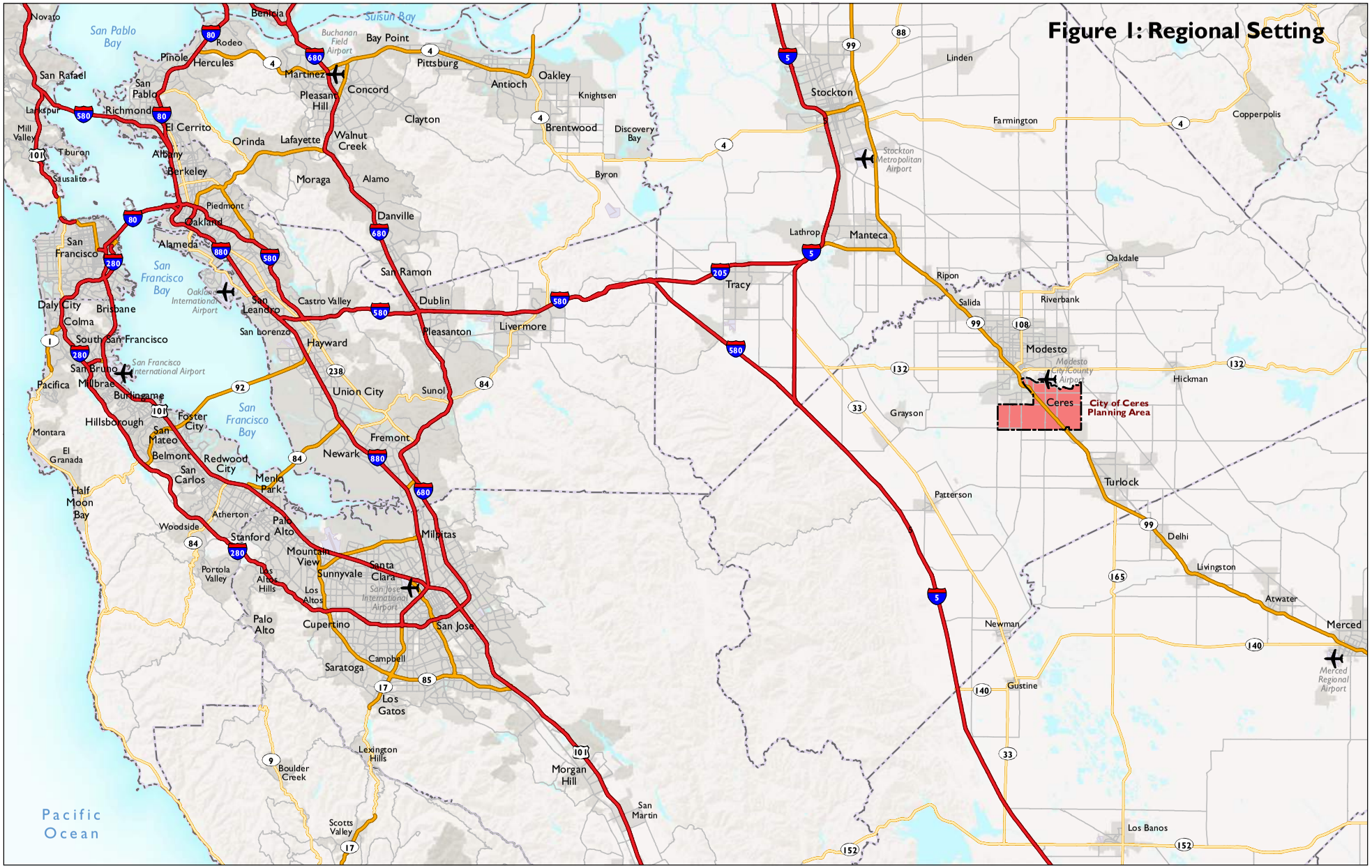
Regional Context

The City of Ceres is located just southeast of Modesto in central Stanislaus County in the San Joaquin Valley. The city is almost 80 miles southeast of San Francisco by car, 60 miles from the nearest Bay Area Rapid Transit (BART) station in Dublin, 35 miles south of Stockton, and 10 miles north of Turlock. State Route 99 (SR-99) runs through the city. The regional setting is depicted in **Figure 1**.

Planning Area

The General Plan Planning Area (Planning Area), shown in **Figure 2**, is defined as the land area addressed by the General Plan. The Planning Area for the General Plan Update is the same as that used for the 1997 General Plan. It encompasses 14,700 acres including the City of Ceres, its Sphere of Influence (SOI), adjacent unincorporated areas, and Mancini Park in the City of Modesto. It is roughly bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east. Although Ceres does not have jurisdiction in areas outside of its city limits, what happens in those areas bears a relation to the city's planning and must be considered in the General Plan, per California Government Code Section 65300.

Figure 1: Regional Setting

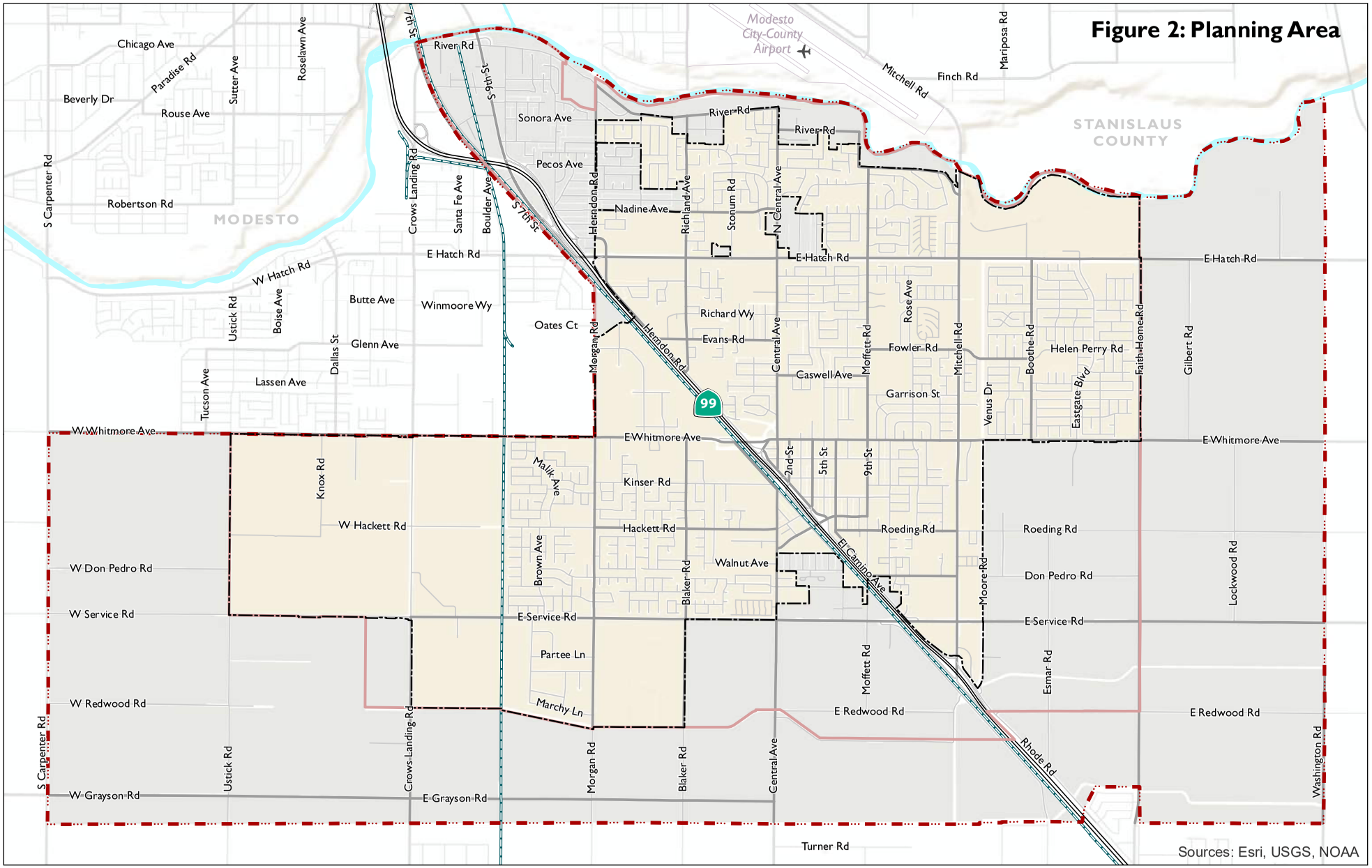


Freeway
Major Highway
Minor Highway
Major/Minor Roads
County Boundary
Ceres Planning Area
Urban Areas
Water

0 5 10 20
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

3 Project Description

The proposed Environmental Impact Report (EIR) will cover the Ceres General Plan Update, referred to as the Proposed Project. The following section provides background information on the Proposed Project and what the EIR will be analyzing.

CERES GENERAL PLAN UPDATE

Background

The General Plan is a long-term document with text and diagrams that express the goals, objectives, and policies necessary to guide the community toward achieving its vision over a 20- to 30-year period. City decision-makers (e.g., City Council and Planning Commission), rely on the General Plan as a basis for making decisions on matters such as land use and the provision of public facilities (e.g., roads, parks, fire stations, etc.). It is also a policy document that guides decisions related to protecting, enhancing, and providing those things that the community values most, such as farmland, and protecting and enhancing the character of the community.

In late 2015, the City of Ceres initiated a multi-year collaborative process to comprehensively update its General Plan, which dates back to 1997, and does not necessarily reflect current conditions or community priorities. The update process has allowed the community to establish priorities regarding Downtown Ceres, parks and recreation, economic development, housing types, farmland preservation, and other issues. The General Plan update is comprehensive and includes all State-required elements other than the Housing Element, which was last updated in January of 2016 (per California Department of Housing and Community Development requirements) and is not part of the Proposed Project.

Steps in the planning process leading up to preparation of the General Plan that have been completed include community visioning, compiling background reports and analyzing land use and transportation alternatives, engaging the community in deliberating choices about the future, and preparation of a "Preferred Plan" land use map. The full Public Review Draft General Plan is anticipated to be released in late summer/early fall of 2017. More information about the Ceres General Plan Update can be found on the Ceres General Plan Update website at http://www.ceresgeneralplanupdate.com/.

Vision and Objectives

An ongoing public participation process has provided opportunities for public input to the Ceres General Plan Update. Early in the planning process, the community was engaged through a citywide survey, community workshops, stakeholder interviews, presentations to service clubs and Planning Commission and City Council study sessions to establish priorities for future planning, resulting in the following vision statement and guiding principles for the General Plan Update that have been adopted by the City Council.

Vision Statement

In 2035, Ceres has a continued connection to its agricultural heritage, a balance of housing and retail choices, ample job opportunities, an attractive Downtown, rich cultural and community events and an abundance of recreational opportunities. Ceres is a place where families want to raise their children and businesses want to locate and flourish. In Ceres, people enjoy a safe and healthy city with first-rate community amenities and a clean and sustainable environment.

General Plan Guiding Principles

- **Neighborly Character.** Knowing that "Together We Achieve," continue to cultivate a friendly, small town feel, inclusive, and civically engaged community as the population grows and changes.
- **Safe, Family-Friendly Hometown.** Promote Ceres strong and high performing school system, and support the City's safe neighborhoods and youth activities so that Ceres continues to be a desirable place for families.
- **Agricultural Identity**. Celebrate Ceres agricultural history, support the continued success of the agricultural industry, and consider how to balance the protection of prime agricultural lands with growth and economic development objectives.
- **Health and Sustainability.** Provide well-maintained and accessible parks, street trees and landscaping, and healthy food options; and prioritize clean air, clean water, and resource conservation to help keep the community—both the people and the environment—healthy.
- **Complete Community.** Support the development of a complete and balanced community where needs can be met locally, with new commercial options, industrial growth, and a diversity of housing options that attracts new business, industry and associated professionals.
- **Strong Downtown.** Encourage and direct public and private investment in Downtown Ceres to restore it as the physical and cultural center of the city. Enhance Downtown so it becomes vibrant, active and a place for people to assemble, dine, and socialize in a mixed-use environment.
- **Attractive Destination.** Cultivate Ceres as a unique destination in the Central Valley and for travelers on Highway 99. To the extent possible, ensure that new development visible from Highway 99 offers attractive and unique views from that travel way.
- **Economic Development.** Strengthen job opportunities with industrial and commercial growth and promote education and job training. Continue to balance provision of streamlined services and entitlements with fiscal responsibility to support the future needs of the City.
- **Revitalization.** Encourage infill development and investment within existing neighborhoods and commercial corridors in order to revitalize areas within the city limits.
- **Balanced Circulation Network.** Make it safe and convenient for residents and workers to get where they need to go and for businesses to transport goods by providing well-

maintained sidewalks, connected bicycle networks, efficient connections to major transportation corridors, and regional transit connections.

General Plan Update Contents

The General Plan Update comprises the following chapters, meeting the requirements for general plans under California Government Code §65302 for elements that a general plan must contain.

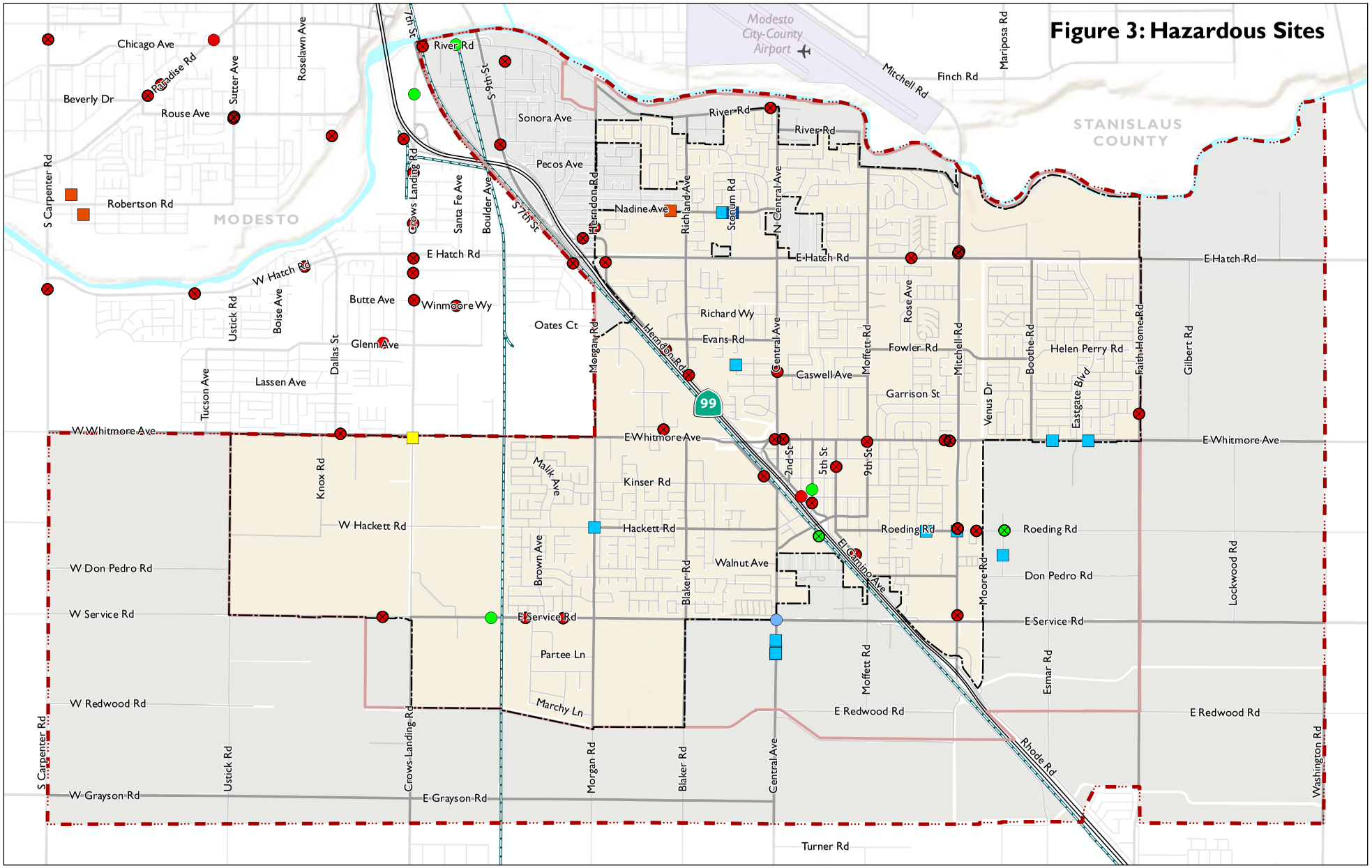
Each element of the Plan includes goals, policies, and actions, which together articulate a vision for Ceres. Goals define an ideal future related to the public health, safety, or general welfare of the community; they set directions for policies. Policies are specified ends or conditions that are an intermediate step towards attaining a goal; they are specific statements to guide decision-making. Actions are implementation measures that the City will undertake to accomplish the objective of the policy.

1. **Introduction.** The introduction to the General Plan provides an overview of the document and its purpose, use, and policy structure. It highlights the vision statements and key principles; gives the reader a background to the planning process and the requirements for the Plan; describes how the Plan is organized; and explains how it will be administered after it is adopted.
2. **Land Use and Community Design Element.** The Land Use and Community Design Element directs the location and form of future development, shaping where people will live, work, play, and shop in Ceres. It presents the desirable pattern for the ultimate development of the city for the General Plan horizon year of 2035 and seeks to ensure that land use planning reflects the community's evolution and changing demographics, while promoting sustainability and considering the needs of disadvantaged unincorporated communities. Goals and policies related to urban form and design will inform development decisions by providing a common understanding of the characteristics the community wishes to achieve and preserve.
3. **Transportation and Circulation Element.** The Transportation and Circulation Element provides for the development and maintenance of a multimodal circulation network, promoting increased transportation choices to serve existing and new development. It responds to the California Complete Streets Act of 2008 by planning for a balanced, multimodal transportation system that meets the needs of all users of roadways, including motorists, pedestrians, bicyclists, children, seniors, persons with disabilities, public transportation users, and movers of commercial goods. A system of street typologies and mode priorities for each roadway type are established.
4. **Agricultural and Natural Resources Element.** The Agricultural and Natural Resources Element establishes goals and policies for the conservation of natural resources in Ceres. This element addresses agricultural and soil resources; open space resources; biological resources; hydrology and water quality; and cultural and archaeological resources. The General Plan promotes thoughtful planning and resource management that can help inform community discussion about weighing environmental conservation with other General Plan goals. The General Plan seeks to balance carefully planned growth with conservation and enhancement of the area's natural resources.

5. **Health and Safety Element.** The purpose of the Health and Safety Element is to identify the natural and man-made public health and safety hazards that exist within the city, and to establish preventative and responsive policies and programs to mitigate their potential impacts. Ensuring the safety of community members, through protection from hazards, is an essential service of public agencies and a critical priority for maintaining community health and welfare. Specifically, the Health and Safety Element addresses physical and nutritional health, health risks of disadvantaged communities, air quality hazards, climate change mitigation and adaptation, seismic and geologic hazards, flooding, hazardous materials, airport hazards, and fire hazards. The Element also identifies the major noise sources that exist in the Planning Area and establishes policies and programs that the City can enact to mitigate potential impacts through both preventative and responsive measures, consistent with requirements for the Noise Element. Hazardous sites designated by both the State Water Resources Control Board (SWRCB) and the California Department of Toxic Substances Control (DTSC) are shown on **Figure 3**.
6. **Public Facilities and Services Element.** The purpose of the Public Facilities and Services Element is to provide a policy framework for the City to manage infrastructure and services, identify areas for improvement, and ensure that public utilities and services meet the needs of the community as the city grows. More specifically, the Element addresses the planning, provision, and maintenance of police and fire services; parks and recreational facilities and programs; schools; and water, wastewater, stormwater, and solid waste systems.
7. **Economic and Community Development Element.** The Economic and Community Development Element of the General Plan contains goals and policies that will enable the City to direct local resources to retain, relocate, expand and assist local businesses and attract new industries that will increase the City's tax base and economic diversity. This Element provides policy direction for fostering development and revitalization to support a vibrant downtown; providing jobs for the growing population; creating opportunities for supply of retail goods and services that will be needed by the community and patronized by regional travelers as well as business to business opportunities, and enhancing the City's ability to engage and prioritize improvements to disadvantaged communities.

While a required element of a city's General Plan, the Housing Element is not included in the Proposed Project being considered in this EIR. Per the requirements of the California Department of Housing and Community Development, Ceres' Housing Element was last updated and adopted in January 2016 (covering the period from 2014-2023) and underwent environmental review at that time. However, other elements in the Ceres General Plan Update are consistent with the Housing Element.

Figure 3: Hazardous Sites



Highway
Ramps
Major Roads
Local Roads
Railroads

Hazardous Sites (SWRCB)
- LUST Cleanup Site
- Cleanup Program Site
- School Investigation
- Closed Sites

Hazardous Sites (DTSC)
- Corrective Action
- School Cleanup
- School Investigation
- State Response

River
City of Ceres
Ceres Sphere of Influence
General Plan Planning Area

0 0.25 0.5 1
MILES

Data Source: GeoTracker, State Water Resources Control Board (SWRCB), 2016; Envirostor, Department of Toxic Substances Control (DTSC); City of Ceres, 2015

GENERAL PLAN UPDATE
City of Ceres

Land Use Change and Projected Growth Under the Proposed General Plan

The land use diagram of the Proposed Project is shown in Figure 4. The land use diagram is similar to Ceres' current land use diagram from the 1997 General Plan, with some changes. Changes to land use designations in the Proposed Project include the following: a new Medium High Density land use designation (allowing residential development from 12 to 20 dwelling units per acre); greater allowable density in the High Density land use designation (new allowable range of 20 to 30 dwelling units per acre); and a wider variety of allowable uses in the Regional Commercial designation (such as large-scale shopping centers, office centers, low-intensity warehousing, and recreational uses). Changes to the current land use diagram in the Proposed Project include the following: designating the area around the interchange of Service Road and Mitchell Road as Regional Commercial, and changing the designation of two parcels near the intersection of Roeding Road and Moore Road from Low Density Residential to Light Industrial. Additional refinements to the Proposed Project land use diagram are possible as the new General Plan is drafted.

The Ceres General Plan Update uses a horizon year of 2035. State law specifies that general plans take a long-term perspective; therefore, in order to effectively set goals and policies that can guide strategic decision-making, most general plans look ahead approximately 20 years. The horizon year of 2035 does not signify an "end point." Rather, it represents a reasonable range in which to plan comprehensively for the city's next phase of growth, change, and investment.

In the EIR, the horizon year of 2035 is referred to as "buildout" for analysis purposes. The potential population, number of jobs, and amount of development at buildout is based on existing development and an estimated amount of potential new development in the Planning Area. For the Proposed Project, potential new development is expected to occur on underutilized, vacant, and rural parcels as well as sites of current development projects as of 2017; however, not all of these identified parcels are assumed to fully develop. To estimate potential new development, assumptions were made about the percentage of parcels that would develop by buildout, as well as the density of new development. However, land use development, population growth, and job growth are subject to numerous forces, such as macroeconomic cycles and the decisions of individual property owners. Neither the Proposed Project nor the EIR guarantees, assumes, or requires that the General Plan Planning Area will develop to its fullest "buildout" extent by 2035.

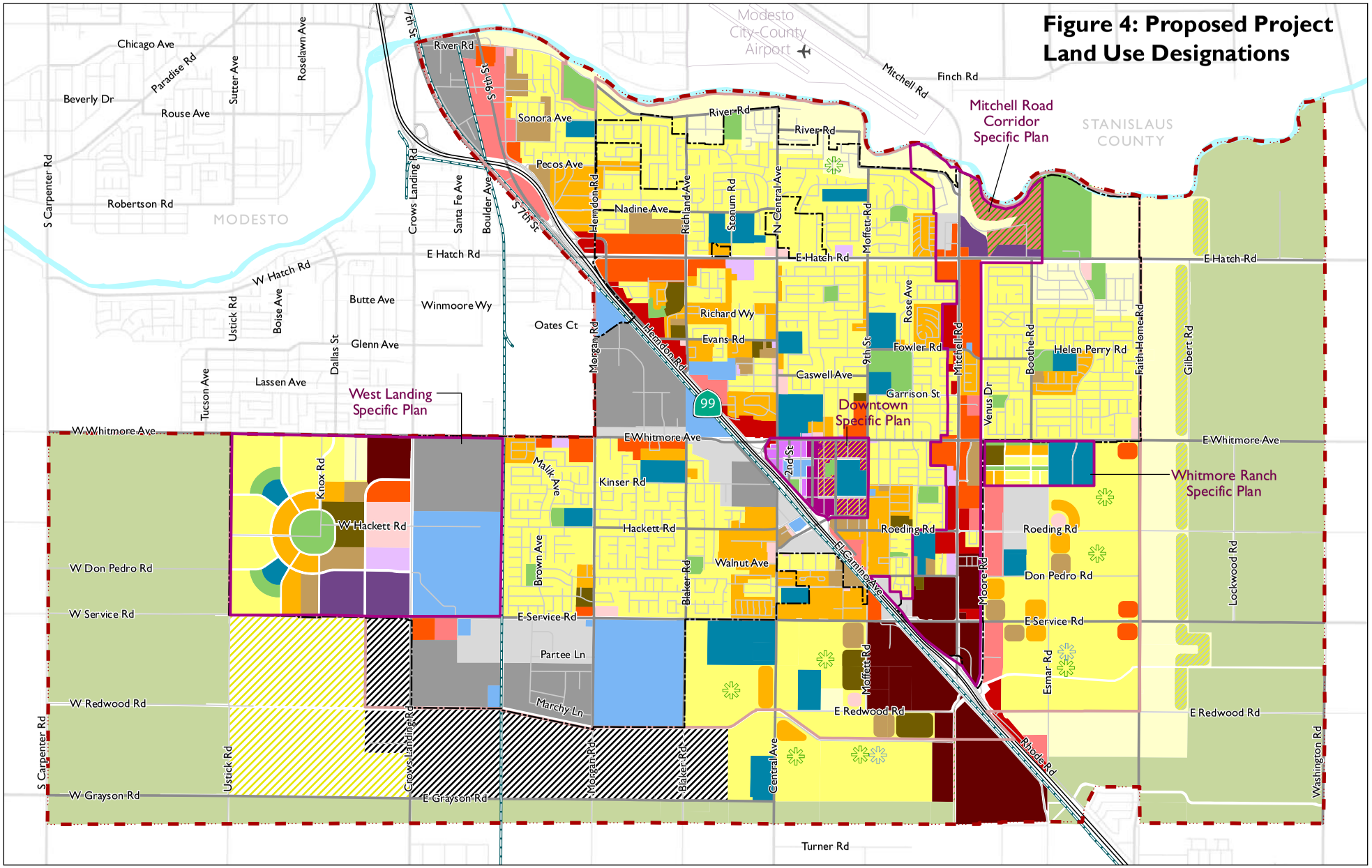
Table 1 shows the estimated buildout of the Planning Area to be analyzed in the EIR. In 2015, the Planning Area's population was approximately 47,000. The Proposed Project could result in approximately 22,300 new residents by 2035 based on expected development at buildout. This would constitute an increase of 47 percent from the population in 2015 and an average annual growth rate of 2.0 percent. These new residents would be in approximately 6,800 new housing units, an increase of 49 percent and an average annual growth rate of 2.0 percent from the number of housing units in 2015. New development in the Planning Area could support about 19,200 new jobs in 2035, a 225 percent increase from the total number of jobs in 2015, with an average annual growth rate of 6.1 percent. While ultimately market forces will determine the amount of housing and employment growth that occurs by 2035, the EIR will take a conservative approach of assuming this level of potential job and housing growth—which the developable land in the Planning Area could support—in order to fully account for potential impacts.

Table 1: Potential Growth in the Ceres General Plan Planning Area, 2015-2035

	2015	*2035*
Population	47,000	69,300
Housing Units	13,800	20,500
Jobs	8,500	27,700

Note: Numbers rounded to the nearest hundred.

Sources: 2015 figures: California Department of Finance, 2015; EPS, 2016; Dyett & Bhatia, 2017. 2035 figures: Dyett & Bhatia, 2017.



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2017.

4 Environmental Impact Report

The EIR will analyze the potential environmental consequences of adopting the proposed Ceres General Plan Update (the Proposed Project). It will discuss how goals, policies, and implementing actions of the Proposed Project may affect the environment, identify significant impacts, and recommend measures to mitigate those impacts. It will also evaluate the cumulative impacts and potential growth-inducing impacts of the Proposed Project. The EIR will consider the environmental impacts of various alternatives developed during the planning process, including the "No Project Alternative" (projected outcomes based on continued implementation of the existing General Plan [1997]), and identify an environmentally superior alternative.

The environmental assessment will utilize the most current guidelines for CEQA and for each issue area. The EIR will be prepared to take full advantage of CEQA streamlining and tiering opportunities for future projects, whether in accordance with provisions of SB 375, or other tiering and exemption provisions in CEQA. Community members can provide input at two different phases in the EIR process: in response to this Notice of Preparation (where comments are solicited on the scope of the EIR), and to the Draft EIR itself when that document is released (when comments are solicited on the analysis and conclusions of the EIR).

5 Potential Environmental Impacts to Be Considered

Preliminary issues for the EIR analysis of the Proposed Project and project alternatives include:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Energy, Greenhouse Gases, and Climate Change
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Historic and Cultural Resources (includes Tribal Cultural Resources)
- Hydrology and Water Quality
- Land Use, Population, and Housing
- Noise
- Public Services and Recreation
- Transportation
- Utilities

Resource topics that will not be addressed in the EIR include forestry resources and mineral resources, due to a lack of these resources in the Planning Area.

RECEIVED
JUN 5 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

June 2, 2017

To: Mr. Tom Westbrook, City of Ceres

I have reviewed the proposed Scoping Document for the Environmental Impact Report that will be prepared to accompany the General Plan Update. I am assuming that the assessment will cover the full General Plan Planning Area as shown in the document map (Agenda Item 3, p. 15). I draw particular attention to the proposed change indicated below and the importance of including a full environmental assessment of those parcels associated with the proposed change. The proximity to the elementary school needs to be considered to ensure safety for the children as well as for the surrounding residential properties.

Notice of Preparation
Ceres General Plan Update
11
Land Use Change and Projected Growth Under the Proposed General Plan

"..changing the designation of two parcels near the intersection of Roeding Road and Moore Road from Low Density Residential to Light Industrial."

If I am recalling correctly, it is at the intersection of Roeding and McGee and there is a school located about a block south of this intersection.

Thank you,

Stella Melugin Coakley
[redacted]

From: Patricia Cousins [redacted]
To: Tom Westbrook <Tom.Westbrook@ci.ceres.ca.us>, SM Coakley [redacted]
Date: 6/2/2017 8:57 PM
Subject: Fwd: Comment on scope of EIR 6/5/17 Planning Commission
Attachments: Ceres60217.docx

June 2, 2017
As usual, I join in my sister's acute observation. I request again that ANY concerned person contemplating this proposed change actually visit the site of the suggested truck stop, McGee and Roeding?, Moore? during the school year about 7:45-8:45, a.m., rush hour, preferably on a pouring rain day--instead of the usual ostrich head-in-the sand response. Apparent lack of knowledge of the location suggests a lot about the wisdom of the proposal. Patricia Melugin Cousins (and husband Michael D. Cousins)

-------- Forwarded Message --------
Subject: Comment on scope of EIR 6/5/17 Planning Commission
Date: Sat, 3 Jun 2017 03:39:15 +0000
From:SM Coakley [redacted]
To: Tom Westbrook <Tom.Westbrook@ci.ceres.ca.us>, Patricia Cousins [redacted]

Mr. Westbrook,
Please find attached a short comment in terms of the scope of the upcoming Environmental impact Assessment related to the updating of the Ceres General Plan.
Thank you.
Stella Coakley

Tom Westbrook - Public Comments - Ceres General Plan Update - Notice of Preparation of Draft EIR

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CITY OF CERES
PLANNING & BUILDING DIVISION

From: Ray [redacted]
To: <tom.westbrook@ci.ceres.ca.us>
Date: 6/6/2017 3:40 PM
Subject: Public Comments - Ceres General Plan Update - Notice of Preparation of Draft EIR

Mr. Westbrook,

Following is my submittal to clarify my oral comments delivered during the Planning Commission meeting of 5 June 2017 of Subject NOP.

I request the focus on two areas in the upcoming Draft EIR content.

- Given that there is a substantial number of LUSTs (Leaking Underground Storage Tank) within the Ceres Sphere of Influence previously identified by the Department of Toxic Substances Control (DTSC) and published in the May 24, 2017 Notice of Preparation document, the concern exists that the identified LUSTs may not be all fully remediated and that there may be additional LUSTs not yet included in the DTSC listing (given it is not uncommon for the State's listings to be potentially outdated). The request is to ensure the EIR includes content to confirm all known LUSTs have been fully remediated and any suspect LUSTs are reviewed for possible required remediation. The focus is to ensure the exposure to LUST contamination does not increase under the updated General Plan.
- During the General Planning discussion, last minute changes were approved to identify a parcel on Roeding Road (near Mc Gee Ave.) to provide it a light industrial classification. Given that this location's neighbors are residential, church, agricultural and nearby schools, the request is to include requirements as a specific focus for this location identifying potential environmental impacts for this site as a light industrial operation (initially planned to be a heavy trucking terminal). Using the identification of environmental impacts, subsequent requirements to prevent all debilitating activities may be generated to avoid issues such as any future contamination exposure, excessive dust and or noise from the operations, any damage to roadways due to traffic wear on the roadway and bridge not built to sustain such industrial activity, and all likewise impacts. Placing an industrial operation in close proximity to dramatically different parcel usages requires a crisp understanding of all environmental impacts and unique requirements to ensure a good neighbor relationship results from any future development.

Thank you for providing a vehicle for public input to this process.

Ray Dias P.E.

California Water Boards

RECEIVED
JUN 21 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

Edmund G. Brown Jr.
Governor

Matthew Rodriquez
Secretary for
Environmental Protection

Central Valley Regional Water Quality Control Board

15 June 2017

Tom Westbrook
City of Ceres
2220 Magnolia Street
Ceres, CA 95307

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, CITY OF CERES GENERAL PLAN UPDATE PROJECT, SCH# 2017052063, STANISLAUS COUNTY

Pursuant to the State Clearinghouse's 24 May 2017 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environment Impact Report* for the City of Ceres General Plan Update Project, located in Stanislaus County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

> *Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*
>
> *This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Caltrans Phase I MS4 Permit, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance (i.e., discharge of dredge or fill material) of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements

Discharges to Waters of the State

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

Land Disposal of Dredge Material

If the project will involve dredging, Water Quality Certification for the dredging activity and Waste Discharge Requirements for the land disposal may be needed.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering

discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of the waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

RECEIVED
JUN 22 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

June 19, 2017

Tom Westbrook, Director of Community Development
City of Ceres Planning Division
2220 Magnolia Street
Ceres, California 95307

Subject: Notice of Preparation for the Program Environmental Impact Report Ceres General Plan Update (Project); SCH#: 2017052063

Dear Mr. Westbrook:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) from the City of Ceres for the above-referenced Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

regulatory authority. (Fish & G. Code, § 1600 *et seq.*) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 *et seq.*), related authorization as provided by the Fish and Game Code will be required.

PROJECT DESCRIPTION SUMMARY

Proponent: City of Ceres

Objective: The Project is a long-term document that express the goals, objectives and policies necessary to guide the community toward achieving its vision over a 20- to 30-year period. City decision-makers rely on the General Plan as a basis for making decisions on matters such as land use and the provision of public facilities. It is also a policy document that guides decisions related to protecting, enhancing and providing those things that the community values most, such as farmland, and protecting and enhancing the character of the community.

Location: The City of Ceres is located just southeast of Modesto in central Stanislaus County. The Planning Area for the General Plan Update encompasses 14,700 acres including the City of Ceres, its Sphere of Influence, adjacent unincorporated areas and Mancici Park in the City of Modesto. It is roughly bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the City of Ceres in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

Swainson's Hawk:

Specific impacts: Swainson's hawk (*Buteo swainsoni*; SWHA), a species listed as threatened pursuant to CESA, are known to nest and forage within the City of Ceres. Potentially significant impacts that may result from ground-disturbing Project-related activities include nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young) and direct mortality. Any take of SWHA without appropriate take authorization would be a violation of Fish and Game Code.

SWHA Mitigation Measure 1: To evaluate potential Project-related impacts, CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the survey methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC, 2000) prior to ground-disturbing activities. The survey protocol includes early season surveys to assist the Project proponent in identifying active nest sites prior to initiating ground-disturbing activities in order to implement necessary avoidance and minimization measures.

SWHA Mitigation Measure 2: If ground-disturbing activities will take place during the SWHA nesting season (March 1 through August 31) and SWHA nests are present, CDFW recommends establishing a minimum no-disturbance buffer of 0.5 miles around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, to avoid nest abandonment and other impacts to nesting SWHA. If a 0.5-mile buffer is not feasible, consultation with CDFW is warranted to determine if a smaller buffer from Project activities will avoid take. If take cannot be avoided, take authorization through the issuance of an Incidental Take Permit, pursuant to Fish and Game Code § 2081(b) is necessary to comply with CESA.

SWHA Mitigation Measure 3: CDFW recommends compensation for the loss of Swainson's hawk foraging habitat as described in CDFW's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (DFG, 1994) to reduce impacts to foraging habitat to less than significant. The Staff Report recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites. CDFW has the following recommendations based on the Staff Report:

- For projects within 1 mile of an active nest tree, a minimum of one acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of 0.75 acres of HM land for each acre of development is advised.
- For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of 0.5 acres of HM land for each acre of development is advised.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database that may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The

CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP to assist the City of Ceres in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Jim Vang, Environmental Scientist, at (559)243-4014 extension 254 or Jim.Vang@wildlife.ca.gov.

Sincerely,

Julie A. Vance
Regional Manager

REFERENCES

CDFG, 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California. California Department of Fish and Game.

SWHA TAC, 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Swainson's Hawk Technical Advisory Committee, May 31, 2000.

[redacted]

June 19, 2017

JUN 19 2017

City of Ceres
City Manager, Toby Wells
2220 Magnolia Street
Ceres, CA 95307

Dear City Manager,

I would like to submit the following statement to the City as part of the Environmental Impact Report for the General Plan Update that is required by the state of California. Our City is in the process of updating the General Plan document. Along with that plan is an Environmental Impact Report which is open for public comment on important areas and issues Ceres will face over the next 20 years.

The General Plan deals with all of the City of Ceres, including the sphere of influence of the City, and unincorporated areas surrounding Ceres totaling 14,357 acres. Agriculture and residential agricultural areas represents 44% of the planning area. The majority of this farmland is considered prime farmland. This land is a precious commodity and disappearing in front of our eyes. As we choose more residential growth and less farmland preservation we invite problems that Ceres has been ill equipped to deal with. Through our General Plan we can and should make Ceres a place that puts a priority on saving prime agricultural land. In fact the results of a General Plan survey showed that over 80% of citizens agreed that Ceres should prioritize protection of farmland and limit development on farmland as much as possible. The protection of farmland has been the sentiment from the public throughout the General Plan Update.

Economic development and infill development have also been important issues to the citizens of Ceres throughout this process. The community survey asked if the City should focus new development on vacant or underutilized properties within the City limits. Nearly 95% of respondents agreed with the principal of infill development. Citizens want us to focus within the City limits and improve the conditions of our current development challenges before we look to expand our City limits. Our General Plan should stress the concerns of its citizens and address infill development. We currently have over 400 acres within the City limits that is designated as vacant or underutilized. Our City must actively recruit and pursue businesses to come to Ceres whether they are industrial or commercial. Ceres needs to improve our residential to employment ratio which currently is five to one which is among the worst

in Stanislaus County. We should target economic development in the heart of Ceres, downtown. With direct access to Highway 99 and a current update to street scape, downtown will be primed for economic development opportunities. Downtown Ceres has languished as a huge potential for our City for years but has yet to be realized. A strong downtown would make a major impact on the quality of life for the citizens of Ceres. Downtown Ceres must be addressed as we develop our General Plan.

Our public services and the quality of service the City provides to the citizens of Ceres must also be addressed. Currently the service ratio of police officer per thousand residents is 0.88 per 1,000 residents; in addition fire fighters are 0.79 per 1,000 residents. The City of Ceres needs to have a clear goal in this General Plan of the level of safety we want to provide our citizens. First and foremost we must act to improve the service ratios of public safety officers in Ceres. Our plan and goal should be 1.5 police officers per 1,000 residents and 1 fire fighter per 1,000 residents. Anything less should be unacceptable to our City leaders. Ceres must address the growing problem of gang activity in Ceres. This plan should identify the need for a gang task force to combat an increasing gang presence such as the MS-13, Surenos, and Nortenos. This level of service would ensure the safety of all citizens of Ceres.

The growth of Ceres over the next 20 years depends on many different challenges that we will face. In the past Ceres has had fast-paced growth, from 1970 to 2010 the population of Ceres grew by 10,000 or more each decade. This fast-paced growth in the Ceres has slowed over the last decade; however our City must be prepared to act responsibly when growth comes. We must make decisions based on the long term good of our City.

The growth of any City is not sustainable without a clean and abundant supply of water. Currently the City of Ceres is solely reliant on the groundwater from the Turlock Sub basin. Ceres water is supplied by 15 active wells many of which are treated to help lower levels of Arsenic, Uranium, Nitrates, Magnesium, and 1,2,3 Trichloropropane which have all been found in Ceres water. Ceres and Turlock are working in an effort to bring a surface water plant to the Tuolumne River to supply both cities with a sustainable source of clean water. The City of Ceres must do everything in its power to ensure we have safe and clean drinking water for all of our residents. Our General Plan should address our water needs and the impact of growth on those needs.

Thank you for the opportunity to submit my statement as part of the Ceres General Plan Update 2017.

Couper Condit
Ceres Planning Commissioner

Stanislaus
LAFCO
LOCAL AGENCY FORMATION COMMISSION

1010 TENTH STREET, 3RD FLOOR
MODESTO, CA 95354

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JUN 19 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

June 19, 2017

Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia St.
Ceres, CA 95307

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT – CITY OF CERES GENERAL PLAN UPDATE

Dear Mr. Westbrook:

Thank you for the opportunity to review and comment on the City of Ceres' Notice of Preparation of a Draft Environmental Impact Report (Draft EIR) for its General Plan Update. LAFCO policy encourages cities and Stanislaus County to adopt general plans, policies and agreements that protect farmland outside urban boundaries, encourage compact and efficient growth, and discourage urban sprawl. Although it is unknown if a sphere of influence modification will be proposed with the General Plan Update, the following comments are provided for the City's consideration, as Lead Agency, in the preparation of the Draft EIR.

Agricultural Resources

The Commission has an adopted Agricultural Preservation Policy that requires applicants to prepare a "Plan for Agricultural Preservation" for annexation or sphere of influence proposals containing agricultural lands. (The Policy is available online at: http://www.stanislauslafco.org/info/policy.htm.) The City's Plan for Agricultural Preservation must include information such as the proposal's direct and indirect impacts to agricultural resources, the availability of other lands in the City's existing boundaries, and the City's relevant General Plan policies. The Plan for Agricultural Preservation must also specify the method or strategy proposed to minimize the loss of agricultural lands. This information should be included in the Draft EIR.

Williamson Act

A number of properties included in the project area consist of Williamson Act contracted lands. The Williamson Act is considered a mechanism to preserve agricultural lands in the short and long term. The City's EIR should discuss the location of these lands as it relates to General Plan policies, development, and financing scenarios that would preserve the agricultural viability of this and surrounding agricultural lands. It should be noted that Government Code Section 56426.5 prohibits LAFCO from approving a change to a sphere of influence if that territory contains Williamson Act lands unless specific findings are made.

Public Services

The Draft EIR should discuss what specific measures will be implemented to improve and/or maintain the current level of services (e.g., water quality and quantity, wastewater infrastructure and capacity, adequate police and fire protection) prior to expansion of the City's boundaries. This information can also be utilized to prepare the "Plan for Services" required by LAFCO policy and State Law (Government Code Section 56653), which requires information on the present and future level of services, and evidence that the annexing agency can at least maintain the current level of public services already provided within its boundaries.

Sphere of Influence Policies

A sphere of influence (SOI) is defined by Government Code Section 56076 as "a plan for the probable physical boundaries and service area of a local agency, as determined by the commission." Stanislaus LAFCO has established policies that further describe a SOI as a twenty-year planning boundary and additionally designate an area known as a "primary area" that represents a more near-term (zero to ten years) growth boundary for a city. In order to expand these areas, the Commission must determine that insufficient alternative land is available within the current SOI, that growth has been directed away from prime agricultural lands, and that the additional territory will not exceed the twenty-year period for probable growth and development (or ten years for a primary area). In addition, modifications to a SOI are required to be consistent with Government Code Section 56425.

The General Plan update includes area outside of the LAFCO adopted sphere of influence (SOI). Although the project does not include the removal or addition of SOI territory, any potential or future SOI modifications should be assessed in the Draft EIR.

Municipal Service Review Requirement

In accordance with Government Code Sections 56425 and 56430, when updating a Sphere of Influence, a Municipal Service Review (MSR) must also be prepared. The City's last MSR was prepared in 2012 and will necessitate an update prior to or concurrent with consideration of any Sphere of Influence Update.

If you have any questions regarding these comments, you may contact our office by email at camarenaj@stancounty.com or by phone at(209) 525-7660.

Sincerely,

Javier Camarena
Assistant Executive Officer

DEPARTMENT OF TRANSPORTATION
P.O. BOX 2048 STOCKTON, CA 95201
(1976 E. CHARTER WAY/1976 E. DR. MARTIN
LUTHER KING JR. BLVD. 95205)
TTY: California Relay Service (800) 735-2929
PHONE (209) 941-1921
FAX (209) 948-7194

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CITY OF CERES
PLANNING & BUILDING DIVISION

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June 22, 2017

10-STA-SR-99 PM 10.3-13.26
Notice of Preparation
Program EIR
City of Ceres General Plan
Update
SCH#2017052063

Mr. Tom Westbrook
Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307

Dear Mr. Westbrook:

The California Department of Transportation appreciates the opportunity to comment on the Notice of Preparation Program Environmental Impact Report (EIR) for the City of Ceres General Plan Update.

Upon review of the project, the Department has the following comments:

The projects within the City of Ceres General Plan area may cause a significant impact to State Routes. As the Planned projects within the influence area of the State Highway System (SHS) move forward, a traffic analysis for each development will be required. Please refer to the "Guide for the Preparation of Traffic Impact Studies" developed by Caltrans, in order to determine impacts and mitigations to the affected SHS.

If you have any questions, please contact Eduardo Fuentes at (209) 948-7783 (e-mail: Eduardo.Fuentes@dot.ca.gov) or myself at (209) 941-1921.

Sincerely,

E Fuentes for
TOM DUMAS, Chief
Office of Metropolitan Planning

State of California • Natural Resources Agency
Department of Conservation
Division of Land Resource Protection
801 K Street • MS 14-15
Sacramento, CA 95814
(916) 324-0850 • FAX (916) 327-3430

Edmund G. Brown Jr., *Governor*
Kathryn M. Lyddan, *Division Director*

June 22, 2017

VIA EMAIL: TOM.WESTBROOK@CI.CERES.CA.US
Mr. Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307

Dear Mr. Westbrook:

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT, CERES GENERAL PLAN UPDATE

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation for an Environmental Impact Report for the Ceres General Plan Update submitted by the City of Ceres (City). The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources.

Project Description

The General Plan is a long-term document with text and diagrams that express the goals, objectives, and policies necessary to guide the community toward achieving its vision over a 20- to 30-year period. In 2015, the City of Ceres initiated a multi-year collaborative process to comprehensively update its General Plan, which dates back to 1997, and does not necessarily reflect current conditions or community priorities. The General Plan update is comprehensive and includes all State-required elements other than the Housing Element, which was last updated in January of 2016.

The City of Ceres is located just southeast of Modesto in central Stanislaus County in The San Joaquin Valley. The General Plan Planning Area is defined as the land area addressed by the General Plan and is the same as that used for the 1997 General Plan. The planning area encompasses 14,700 acres including the City of Ceres, its Sphere of Influence, adjacent unincorporated areas, and Mancini Park in the City of Modesto.

Department Comments

The Department recommends the following discussion under the Agricultural Resources section of the DEIR:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the Ceres General Plan update.

- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects
- Inventory of lands currently enrolled in the Williamson Act.

The conversion of agricultural land represents a permanent reduction in the State's agricultural land resources. The City has recognized this fact and framed many of its agricultural policies around this fact, including Policy 6.A.6 which states, "The City shall encourage and support Stanislaus County in the implementation of its agricultural preserve program."[1] The Department encourages the City to display this commitment by implementing its own Farmland Mitigation Program such as the one established by Stanislaus County.[2]

A source that has proven helpful for regional and statewide agricultural mitigation is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

http://www.calandtrusts.org/resources/conserving-californias-harvest/

Thank you for giving us the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the City of Ceres General Plan update. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Kathryn Lyddan
Division Director

[1] Ceres General Plan Policy Document, Adopted Feb 24, 1997, p. 6-2, http://www.ci.ceres.ca.us/GeneralPlan.pdf
[2] Statislaus County Farmland Mitigation Program Guidelines, Appendix "B", https://www.stancounty.com/planning/pl/documents/gp/vii-b-farmland-mitigation-program-guideline.pdf

Stanislaus County
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JUN 23 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

CHIEF EXECUTIVE OFFICE

Stan Risen
Chief Executive Officer

Patricia Hill Thomas
Chief Operations Officer/
Assistant Executive Officer

Keith D. Boggs
Assistant Executive Officer

Jody Hayes
Assistant Executive Officer

1010 10th Street, Suite 6800, Modesto, CA 95354
Post Office Box 3404, Modesto, CA 95353-3404

Phone: 209.525.6333 Fax 209.544.6226

STANISLAUS COUNTY ENVIRONMENTAL REVIEW COMMITTEE

June 22, 2017

Tom Westbrook, Director
City of Ceres
Community Development – Planning Division
2220 Magnolia Street
Ceres, CA 95307

SUBJECT: ENVIRONMENTAL REFERRAL – CITY OF CERES – CERES GENERAL PLAN UPDATE – NOTICE OF PREPARATION – PROGRAM ENVIRONMENTAL IMPACT REPORT

Mr. Westbrook:

Thank you for the opportunity to review the above-referenced project.

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has no comments at this time.

The ERC appreciates the opportunity to comment on this project.

Sincerely,

Patrick Cavanah
Management Consultant
Environmental Review Committee

PC:ss

cc: ERC Members

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

June 26, 2017

Tom Westbrook,
City of Ceres
Planning Division
2220 Magnolia Street
Ceres, CA 95307

Project: Notice of Preparation – Ceres General Plan Update

District CEQA Reference No: 20170622

Dear Mr. Westbrook:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the subject project and offers the following comments:

1. The General Plan itself will not have an impact on air quality. However, future development within the area will contribute to the overall decline in air quality due to increased traffic and ongoing operational emissions. New development may require further environmental review and mitigation. The District makes the following recommendations regarding future development:

   A. Accurate quantification of health risks and operational emissions requires detailed site specific information, e.g. type of emission source, proximity of the source to sensitive receptors, and trip generation information. The required level of detail is typically not available until project specific approvals are being granted. Thus, the District recommends that potential health risks be further reviewed when approving future projects, including those that would be exempt from CEQA requirements. Specific consideration should be given when approving projects that could expose sensitive receptors to toxic air contaminants (TACs). If the analysis indicates that TACs are a concern, the District recommends that a Health Risk Assessment (HRA) be performed. If an HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. If there are questions regarding health risk assessments, please contact Mr. Esteban Gutierrez, Supervising Air Quality Specialist, at hramodeler@valleyair.org. Additional information on TACs can be found online by visiting the District's website at http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

www.valleyair.org www.healthyairliving.com

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B. Construction Emissions – To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier III emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier III and above engine standards.

C. Individual development projects would be subject to District Rule 9510 (Indirect Source Review) if upon full build-out the project would include or exceed any one of the following:

- 50 dwelling units
- 2,000 square feet of commercial space;
- 25,000 square feet of light industrial space;
- 100,000 square feet of heavy industrial space;
- 20,000 square feet of medical office space;
- 39,000 square feet of general office space; or
- 9,000 square feet of educational space; or
- 10,000 square feet of government space; or
- 20,000 square feet of recreational space; or
- 9,000 square feet of space not identified above

The District recommends that demonstration of compliance with District Rule 9510 for each project phase including payment of all applicable fees, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

D. Individual development projects may also be subject to the following District rules: Regulation VIII, (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

E. The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (559) 230-5888. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm.

2. The General Plan is the blueprint for future growth and provides guidance for the community's development. The District is currently designated as extreme non-attainment of the federal national ambient air quality standard for ozone and non-

attainment for PM2.5. Given the size of the project, it is reasonable to conclude that mobile source emissions resulting from growth and development would have significant impacts on air quality. To reduce the project related impacts on air quality the General Plan should include design standards that reduce vehicle miles traveled (VMT). VMT can be reduced through encouragement of mixed-use development, walkable communities, etc. Recommended design elements can be found on the District's website at http://www.valleyair.org/ISR/ISROnSite Measures.htm.

3. AB 170 (Reyes) requires cities and counties in the San Joaquin Valley to include an air quality element or air quality implementation strategies in their general plans. The District prepared the Air Quality Guidelines for General Plans (AQGGP) to assist in addressing this new requirement. The city is required to forward the air quality element or its equivalent to the District for review. The AQGGP can be found online at http://www.valleyair.org/transportation/Entire-AQGGP.pdf.

4. Referral documents for new development projects should include a project summary detailing, at a minimum, the land use designation, project size, and proximity to sensitive receptors and existing emission sources.

If you have any questions or require further information, please call Sharla Yang at (559) 230-5934.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Sharla Yang

For Brian Clements
Program Manager

AM: sy

Appendix B: Air Quality Modeling Results

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Ceres General Plan

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	2,320.00	Dwelling Unit	145.00	2,320,000.00	7654
General Light Industry	4,422.00	1000sqft	101.52	4,422,000.00	0
General Office Building	838.00	1000sqft	19.24	838,000.00	0
Government (Civic Center)	1,374.00	1000sqft	31.54	1,374,000.00	0
Single Family Housing	4,901.00	Dwelling Unit	1,591.23	8,821,800.00	16170
Strip Mall	7,253.00	1000sqft	166.51	7,253,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Ceres General Plan - Stanislaus County, Annual

Project Characteristics - GHG (therefore electricity) emissions assessed separately, so PG&E is utility selected.

Land Use - Default populations scaled up to add up to total new residents from proposed General Plan buildout (23,824).

Off-road Equipment -

Vehicle Trips - Assumed 100% primary trips. Scaled trip length to match increase in weekday daily VMT resulting from implementation of the proposed General Plan (475,954 miles).

Energy Use -

Table Name	Column Name	Default Value	New Value
tblLandUse	Population	6,635.00	7,654.00
tblLandUse	Population	14,017.00	16,170.00
tblProjectCharacteristics	OperationalYear	2018	2035
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00

tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	7.50	1.00
tblVehicleTrips	HO_TL	7.50	1.00
tblVehicleTrips	HS_TL	7.30	1.00
tblVehicleTrips	HS_TL	7.30	1.00
tblVehicleTrips	HW_TL	10.80	1.40
tblVehicleTrips	HW_TL	10.80	1.40
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblWoodstoves	NumberCatalytic	145.00	0.00
tblWoodstoves	NumberCatalytic	1,591.23	0.00
tblWoodstoves	NumberNoncatalytic	145.00	0.00
tblWoodstoves	NumberNoncatalytic	1,591.23	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	119.7877	3.3187	54.7046	0.0201		0.5162	0.5162		0.5162	0.5162	0.0000	3,216.0208	3,216.0208	0.1440	0.0574	3,236.7104
Energy	2.1591	19.0371	12.1554	0.1178		1.4917	1.4917		1.4917	1.4917	0.0000	73,381.1125	73,381.1125	2.7615	0.8783	73,711.8933
Mobile	43.0417	648.2152	229.9259	1.4227	61.1005	0.5444	61.6449	16.4027	0.5069	16.9096	0.0000	133,508.3369	133,508.3369	20.6499	0.0000	134,024.5854
Waste						0.0000	0.0000		0.0000	0.0000	5,805.2310	0.0000	5,805.2310	343.0793	0.0000	14,382.2140
Water						0.0000	0.0000		0.0000	0.0000	777.9737	4,760.6390	5,538.6128	80.1206	1.9313	8,117.1486
Total	**164.9884**	**670.5710**	**296.7859**	**1.5606**	**61.1005**	**2.5523**	**63.6528**	**16.4027**	**2.5148**	**18.9175**	**6,583.2047**	**214,866.1092**	**221,449.3139**	**446.7553**	**2.8670**	**233,472.5516**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	119.7877	3.3187	54.7046	0.0201		0.5162	0.5162		0.5162	0.5162	0.0000	3,216.0208	3,216.0208	0.1440	0.0574	3,236.7104
Energy	2.1591	19.0371	12.1554	0.1178		1.4917	1.4917		1.4917	1.4917	0.0000	73,381.1125	73,381.1125	2.7615	0.8783	73,711.8933
Mobile	43.0417	648.2152	229.9259	1.4227	61.1005	0.5444	61.6449	16.4027	0.5069	16.9096	0.0000	133,508.3369	133,508.3369	20.6499	0.0000	134,024.5854
Waste						0.0000	0.0000		0.0000	0.0000	5,805.2310	0.0000	5,805.2310	343.0793	0.0000	14,382.2140
Water						0.0000	0.0000		0.0000	0.0000	777.9737	4,760.6390	5,538.6128	80.1206	1.9313	8,117.1486
Total	**164.9884**	**670.5710**	**296.7859**	**1.5606**	**61.1005**	**2.5523**	**63.6528**	**16.4027**	**2.5148**	**18.9175**	**6,583.2047**	**214,866.1092**	**221,449.3139**	**446.7553**	**2.8670**	**233,472.5516**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Ceres General Plan - Stanislaus County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	10/24/2017	10/23/2017	5	11000	
2	Building Construction	Building Construction	10/24/2017	10/23/2017	5	155000	
3	Demolition	Demolition	10/24/2017	10/23/2017	5	10000	
4	Grading	Grading	10/24/2017	10/23/2017	5	15500	
5	Paving	Paving	10/24/2017	10/23/2017	5	11000	
6	Site Preparation	Site Preparation	10/24/2017	10/23/2017	5	6000	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 38750

Acres of Paving: 0

Residential Indoor: 22,562,145; Residential Outdoor: 7,520,715; Non-Residential Indoor: 20,830,500; Non-Residential Outdoor: 6,943,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Ceres General Plan - Stanislaus County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	1,664.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8,321.00	3,048.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	43.0417	648.2152	229.9259	1.4227	61.1005	0.5444	61.6449	16.4027	0.5069	16.9096	0.0000	133,508.3369	133,508.3369	20.6499	0.0000	134,024.5854
Unmitigated	43.0417	648.2152	229.9259	1.4227	61.1005	0.5444	61.6449	16.4027	0.5069	16.9096	0.0000	133,508.3369	133,508.3369	20.6499	0.0000	134,024.5854

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	15,288.80	16,611.20	14082.40	6,649,731	6,649,731
General Light Industry	30,821.34	5,837.04	3006.96	9,473,302	9,473,302
General Office Building	9,243.14	2,061.48	879.90	2,724,875	2,724,875
Government (Civic Center)	38,362.08	0.00	0.00	11,470,262	11,470,262
Single Family Housing	46,657.52	48,568.91	42246.62	20,116,174	20,116,174
Strip Mall	321,452.96	304,916.12	148178.79	110,695,710	110,695,710
Total	461,825.84	377,994.75	208,394.67	161,130,054	161,130,054

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	1.40	1.00	1.00	48.40	13.90	37.70	100	0	0
General Light Industry	1.20	1.00	1.00	59.00	28.00	13.00	100	0	0
General Office Building	1.20	1.00	1.00	33.00	48.00	19.00	100	0	0
Government (Civic Center)	1.20	1.00	1.00	75.00	20.00	5.00	100	0	0
Single Family Housing	1.40	1.00	1.00	48.40	13.90	37.70	100	0	0
Strip Mall	1.20	1.00	1.00	16.60	64.40	19.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
General Light Industry	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
General Office Building	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Government (Civic Center)	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Single Family Housing	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Strip Mall	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Ceres General Plan - Stanislaus County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52,013.8088	52,013.8088	2.3519	0.4866	52,217.6144
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52,013.8088	52,013.8088	2.3519	0.4866	52,217.6144
NaturalGas Mitigated	2.1591	19.0371	12.1554	0.1178		1.4917	1.4917		1.4917	1.4917	0.0000	21,367.3037	21,367.3037	0.4095	0.3917	21,494.2789
NaturalGas Unmitigated	2.1591	19.0371	12.1554	0.1178		1.4917	1.4917		1.4917	1.4917	0.0000	21,367.3037	21,367.3037	0.4095	0.3917	21,494.2789

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	4.34991e+007	0.2346	2.0044	0.8529	0.0128		0.1621	0.1621		0.1621	0.1621	0.0000	2,321.2799	2,321.2799	0.0445	0.0426	2,335.0741
General Light Industry	9.26409e+007	0.4995	4.5412	3.8146	0.0273		0.3451	0.3451		0.3451	0.3451	0.0000	4,943.6712	4,943.6712	0.0948	0.0906	4,973.0490
General Office Building	1.09946e+007	0.0593	0.5390	0.4527	3.2300e-003		0.0410	0.0410		0.0410	0.0410	0.0000	586.7116	586.7116	0.0113	0.0108	590.1981
Government (Civic Center)	1.80269e+007	0.0972	0.8837	0.7423	5.3000e-003		0.0672	0.0672		0.0672	0.0672	0.0000	961.9830	961.9830	0.0184	0.0176	967.6996
Single Family Housing	1.57349e+008	0.8485	7.2504	3.0853	0.0463		0.5862	0.5862		0.5862	0.5862	0.0000	8,396.7658	8,396.7658	0.1609	0.1539	8,446.6635
Strip Mall	7.78972e+007	0.4200	3.8185	3.2075	0.0229		0.2902	0.2902		0.2902	0.2902	0.0000	4,156.8923	4,156.8923	0.0797	0.0762	4,181.5946
Total		**2.1590**	**19.0371**	**12.1554**	**0.1178**		**1.4917**	**1.4917**		**1.4917**	**1.4917**	**0.0000**	**21,367.3037**	**21,367.3037**	**0.4095**	**0.3917**	**21,494.2789**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	4.34991e+007	0.2346	2.0044	0.8529	0.0128		0.1621	0.1621		0.1621	0.1621	0.0000	2,321.2799	2,321.2799	0.0445	0.0426	2,335.0741
General Light Industry	9.26409e+007	0.4995	4.5412	3.8146	0.0273		0.3451	0.3451		0.3451	0.3451	0.0000	4,943.6712	4,943.6712	0.0948	0.0906	4,973.0490
General Office Building	1.09946e+007	0.0593	0.5390	0.4527	3.2300e-003		0.0410	0.0410		0.0410	0.0410	0.0000	586.7116	586.7116	0.0113	0.0108	590.1981
Government (Civic Center)	1.80269e+007	0.0972	0.8837	0.7423	5.3000e-003		0.0672	0.0672		0.0672	0.0672	0.0000	961.9830	961.9830	0.0184	0.0176	967.6996
Single Family Housing	1.57349e+008	0.8485	7.2504	3.0853	0.0463		0.5862	0.5862		0.5862	0.5862	0.0000	8,396.7658	8,396.7658	0.1609	0.1539	8,446.6635
Strip Mall	7.78972e+007	0.4200	3.8185	3.2075	0.0229		0.2902	0.2902		0.2902	0.2902	0.0000	4,156.8923	4,156.8923	0.0797	0.0762	4,181.5946
Total		**2.1590**	**19.0371**	**12.1554**	**0.1178**		**1.4917**	**1.4917**		**1.4917**	**1.4917**	**0.0000**	**21,367.3037**	**21,367.3037**	**0.4095**	**0.3917**	**21,494.2789**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.17104e+007	3,406.6855	0.1540	0.0319	3,420.0339
General Light Industry	3.97538e+007	11,564.8304	0.5229	0.1082	11,610.1449
General Office Building	7.81016e+006	2,272.0651	0.1027	0.0213	2,280.9677
Government (Civic Center)	1.28057e+007	3,725.3192	0.1685	0.0349	3,739.9161
Single Family Housing	4.61535e+007	13,426.5685	0.6071	0.1256	13,479.1777
Strip Mall	6.05626e+007	17,618.3402	0.7967	0.1648	17,687.3741
Total		**52,013.8088**	**2.3519**	**0.4866**	**52,217.6144**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.17104e+007	3,406.6855	0.1540	0.0319	3,420.0339
General Light Industry	3.97538e+007	11,564.8304	0.5229	0.1082	11,610.1449
General Office Building	7.81016e+006	2,272.0651	0.1027	0.0213	2,280.9677
Government (Civic Center)	1.28057e+007	3,725.3192	0.1685	0.0349	3,739.9161
Single Family Housing	4.61535e+007	13,426.5685	0.6071	0.1256	13,479.1777
Strip Mall	6.05626e+007	17,618.3402	0.7967	0.1648	17,687.3741
Total		**52,013.8088**	**2.3519**	**0.4866**	**52,217.6144**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	119.7877	3.3187	54.7046	0.0201		0.5162	0.5162		0.5162	0.5162	0.0000	3,216.0208	3,216.0208	0.1440	0.0574	3,236.7104
Unmitigated	119.7877	3.3187	54.7046	0.0201		0.5162	0.5162		0.5162	0.5162	0.0000	3,216.0208	3,216.0208	0.1440	0.0574	3,236.7104

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	20.1125					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	97.7500					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3161	2.7011	1.1494	0.0172		0.2184	0.2184		0.2184	0.2184	0.0000	3,128.1906	3,128.1906	0.0600	0.0574	3,146.7799
Landscaping	1.6091	0.6176	53.5552	2.8400e-003		0.2978	0.2978		0.2978	0.2978	0.0000	87.8302	87.8302	0.0840	0.0000	89.9305
Total	**119.7877**	**3.3187**	**54.7046**	**0.0201**		**0.5162**	**0.5162**		**0.5162**	**0.5162**	**0.0000**	**3,216.0208**	**3,216.0208**	**0.1440**	**0.0574**	**3,236.7103**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	20.1125					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	97.7500					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3161	2.7011	1.1494	0.0172		0.2184	0.2184		0.2184	0.2184	0.0000	3,128.1906	3,128.1906	0.0600	0.0574	3,146.7799
Landscaping	1.6091	0.6176	53.5552	2.8400e-003		0.2978	0.2978		0.2978	0.2978	0.0000	87.8302	87.8302	0.0840	0.0000	89.9305
Total	**119.7877**	**3.3187**	**54.7046**	**0.0201**		**0.5162**	**0.5162**		**0.5162**	**0.5162**	**0.0000**	**3,216.0208**	**3,216.0208**	**0.1440**	**0.0574**	**3,236.7103**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5,538.6128	80.1206	1.9313	8,117.1486
Unmitigated	5,538.6128	80.1206	1.9313	8,117.1486

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	151.157 / 95.2948	382.9236	4.9406	0.1194	542.0304
General Light Industry	1022.59 / 0	1,934.0973	33.3938	0.8018	3,007.8911
General Office Building	148.941 / 91.2863	374.6500	4.8680	0.1177	531.4134
Government (Civic Center)	272.958 / 167.297	686.6072	8.9215	0.2156	973.9015
Single Family Housing	319.32 / 201.31	808.9261	10.4370	0.2523	1,145.0392
Strip Mall	537.248 / 329.281	1,351.4086	17.5596	0.4244	1,916.8731
Total		**5,538.6128**	**80.1206**	**1.9313**	**8,117.1486**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	151.157 / 95.2948	382.9236	4.9406	0.1194	542.0304
General Light Industry	1022.59 / 0	1,934.0973	33.3938	0.8018	3,007.8911
General Office Building	148.941 / 91.2863	374.6500	4.8680	0.1177	531.4134
Government (Civic Center)	272.958 / 167.297	686.6072	8.9215	0.2156	973.9015
Single Family Housing	319.32 / 201.31	808.9261	10.4370	0.2523	1,145.0392
Strip Mall	537.248 / 329.281	1,351.4086	17.5596	0.4244	1,916.8731
Total		**5,538.6128**	**80.1206**	**1.9313**	**8,117.1486**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5,805.2310	343.0793	0.0000	14,382.2140
Unmitigated	5,805.2310	343.0793	0.0000	14,382.2140

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1067.2	216.6320	12.8026	0.0000	536.6965
General Light Industry	5483.28	1,113.0563	65.7797	0.0000	2,757.5498
General Office Building	779.34	158.1990	9.3493	0.0000	391.9313
Government (Civic Center)	7831.8	1,589.7846	93.9536	0.0000	3,938.6241
Single Family Housing	5821.2	1,181.6510	69.8336	0.0000	2,927.4903
Strip Mall	7615.65	1,545.9081	91.3606	0.0000	3,829.9220
Total		**5,805.2310**	**343.0793**	**0.0000**	**14,382.2140**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1067.2	216.6320	12.8026	0.0000	536.6965
General Light Industry	5483.28	1,113.0563	65.7797	0.0000	2,757.5498
General Office Building	779.34	158.1990	9.3493	0.0000	391.9313
Government (Civic Center)	7831.8	1,589.7846	93.9536	0.0000	3,938.6241
Single Family Housing	5821.2	1,181.6510	69.8336	0.0000	2,927.4903
Strip Mall	7615.65	1,545.9081	91.3606	0.0000	3,829.9220
Total		**5,805.2310**	**343.0793**	**0.0000**	**14,382.2140**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Ceres General Plan

Stanislaus County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	2,320.00	Dwelling Unit	145.00	2,320,000.00	7654
General Light Industry	4,422.00	1000sqft	101.52	4,422,000.00	0
General Office Building	838.00	1000sqft	19.24	838,000.00	0
Government (Civic Center)	1,374.00	1000sqft	31.54	1,374,000.00	0
Single Family Housing	4,901.00	Dwelling Unit	1,591.23	8,821,800.00	16170
Strip Mall	7,253.00	1000sqft	166.51	7,253,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Ceres General Plan - Stanislaus County, Summer

Project Characteristics - GHG (therefore electricity) emissions assessed separately, so PG&E is utility selected.

Land Use - Default populations scaled up to add up to total new residents from proposed General Plan buildout (23,824).

Off-road Equipment -

Vehicle Trips - Assumed 100% primary trips. Scaled trip length to match increase in weekday daily VMT resulting from implementation of the proposed General Plan (475,954 miles).

Energy Use -

Table Name	Column Name	Default Value	New Value
tblLandUse	Population	6,635.00	7,654.00
tblLandUse	Population	14,017.00	16,170.00
tblProjectCharacteristics	OperationalYear	2018	2035
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00

tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	7.50	1.00
tblVehicleTrips	HO_TL	7.50	1.00
tblVehicleTrips	HS_TL	7.30	1.00
tblVehicleTrips	HS_TL	7.30	1.00
tblVehicleTrips	HW_TL	10.80	1.40
tblVehicleTrips	HW_TL	10.80	1.40
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblWoodstoves	NumberCatalytic	145.00	0.00
tblWoodstoves	NumberCatalytic	1,591.23	0.00
tblWoodstoves	NumberNoncatalytic	145.00	0.00
tblWoodstoves	NumberNoncatalytic	1,591.23	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	16.4335	0.0000	0.0000	15.3581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**16.4335**	**0.0000**	**0.0000**	**15.3581**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	16.4335	0.0000	0.0000	15.3581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**16.4335**	**0.0000**	**0.0000**	**15.3581**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560
Energy	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767
Mobile	347.1507	4,036.5051	1,352.0271	9.2654	388.3296	3.3391	391.6686	104.0100	3.1084	107.1184		958,269.5677	958,269.5677	133.0588		961,596.0366
Total	**1,030.3912**	**4,213.5608**	**2,041.7237**	**10.3628**	**388.3296**	**20.1481**	**408.4777**	**104.0100**	**19.9174**	**123.9274**	**0.0000**	**1,172,508.5534**	**1,172,508.5534**	**138.1734**	**3.9080**	**1,177,127.4693**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560
Energy	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767
Mobile	347.1507	4,036.5051	1,352.0271	9.2654	388.3296	3.3391	391.6686	104.0100	3.1084	107.1184		958,269.5677	958,269.5677	133.0588		961,596.0366
Total	**1,030.3912**	**4,213.5608**	**2,041.7237**	**10.3628**	**388.3296**	**20.1481**	**408.4777**	**104.0100**	**19.9174**	**123.9274**	**0.0000**	**1,172,508.5534**	**1,172,508.5534**	**138.1734**	**3.9080**	**1,177,127.4693**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	10/24/2017	10/23/2017	5	11000	
2	Building Construction	Building Construction	10/24/2017	10/23/2017	5	155000	
3	Demolition	Demolition	10/24/2017	10/23/2017	5	10000	
4	Grading	Grading	10/24/2017	10/23/2017	5	15500	
5	Paving	Paving	10/24/2017	10/23/2017	5	11000	
6	Site Preparation	Site Preparation	10/24/2017	10/23/2017	5	6000	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 38750

Acres of Paving: 0

Residential Indoor: 22,562,145; Residential Outdoor: 7,520,715; Non-Residential Indoor: 20,830,500; Non-Residential Outdoor: 6,943,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Ceres General Plan - Stanislaus County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	1,664.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8,321.00	3,048.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	347.1507	4,036.5051	1,352.0271	9.2654	388.3296	3.3391	391.6686	104.0100	3.1084	107.1184		958,269.5677	958,269.5677	133.0588		961,596.0366
Unmitigated	347.1507	4,036.5051	1,352.0271	9.2654	388.3296	3.3391	391.6686	104.0100	3.1084	107.1184		958,269.5677	958,269.5677	133.0588		961,596.0366

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	15,288.80	16,611.20	14082.40	6,649,731	6,649,731
General Light Industry	30,821.34	5,837.04	3006.96	9,473,302	9,473,302
General Office Building	9,243.14	2,061.48	879.90	2,724,875	2,724,875
Government (Civic Center)	38,362.08	0.00	0.00	11,470,262	11,470,262
Single Family Housing	46,657.52	48,568.91	42246.62	20,116,174	20,116,174
Strip Mall	321,452.96	304,916.12	148178.79	110,695,710	110,695,710
Total	461,825.84	377,994.75	208,394.67	161,130,054	161,130,054

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	1.40	1.00	1.00	48.40	13.90	37.70	100	0	0
General Light Industry	1.20	1.00	1.00	59.00	28.00	13.00	100	0	0
General Office Building	1.20	1.00	1.00	33.00	48.00	19.00	100	0	0
Government (Civic Center)	1.20	1.00	1.00	75.00	20.00	5.00	100	0	0
Single Family Housing	1.40	1.00	1.00	48.40	13.90	37.70	100	0	0
Strip Mall	1.20	1.00	1.00	16.60	64.40	19.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
General Light Industry	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
General Office Building	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Government (Civic Center)	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Single Family Housing	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Strip Mall	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Ceres General Plan - Stanislaus County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767
NaturalGas Unmitigated	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	119176	1.2852	10.9829	4.6736	0.0701		0.8880	0.8880		0.8880	0.8880		14,020.6742	14,020.6742	0.2687	0.2571	14,103.9920
General Light Industry	253811	2.7372	24.8834	20.9021	0.1493		1.8911	1.8911		1.8911	1.8911		29,860.0806	29,860.0806	0.5723	0.5474	30,037.5241
General Office Building	30122.1	0.3249	2.9532	2.4806	0.0177		0.2244	0.2244		0.2244	0.2244		3,543.7744	3,543.7744	0.0679	0.0650	3,564.8333
Government (Civic Center)	49388.7	0.5326	4.8420	4.0673	0.0291		0.3680	0.3680		0.3680	0.3680		5,810.4367	5,810.4367	0.1114	0.1065	5,844.9653
Single Family Housing	431094	4.6491	39.7283	16.9057	0.2536		3.2121	3.2121		3.2121	3.2121		50,716.9855	50,716.9855	0.9721	0.9298	51,018.3712
Strip Mall	213417	2.3016	20.9232	17.5755	0.1255		1.5902	1.5902		1.5902	1.5902		25,107.8872	25,107.8872	0.4812	0.4603	25,257.0908
Total		**11.8305**	**104.3130**	**66.6048**	**0.6453**		**8.1738**	**8.1738**		**8.1738**	**8.1738**		**129,059.8386**	**129,059.8386**	**2.4737**	**2.3661**	**129,826.7767**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	119.176	1.2852	10.9829	4.6736	0.0701		0.8880	0.8880		0.8880	0.8880		14,020.6742	14,020.6742	0.2687	0.2571	14,103.9920
General Light Industry	253.811	2.7372	24.8834	20.9021	0.1493		1.8911	1.8911		1.8911	1.8911		29,860.0806	29,860.0806	0.5723	0.5474	30,037.5241
General Office Building	30.1221	0.3249	2.9532	2.4806	0.0177		0.2244	0.2244		0.2244	0.2244		3,543.7744	3,543.7744	0.0679	0.0650	3,564.8333
Government (Civic Center)	49.3887	0.5326	4.8420	4.0673	0.0291		0.3680	0.3680		0.3680	0.3680		5,810.4367	5,810.4367	0.1114	0.1065	5,844.9653
Single Family Housing	431.094	4.6491	39.7283	16.9057	0.2536		3.2121	3.2121		3.2121	3.2121		50,716.9855	50,716.9855	0.9721	0.9298	51,018.3712
Strip Mall	213.417	2.3016	20.9232	17.5755	0.1255		1.5902	1.5902		1.5902	1.5902		25,107.8872	25,107.8872	0.4812	0.4603	25,257.0908
Total		**11.8305**	**104.3130**	**66.6048**	**0.6453**		**8.1738**	**8.1738**		**8.1738**	**8.1738**		**129,059.8386**	**129,059.8386**	**2.4737**	**2.3661**	**129,826.7767**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560
Unmitigated	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	110.2054					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	535.6163					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.7095	65.8810	28.0345	0.4205		5.3266	5.3266		5.3266	5.3266	0.0000	84,103.4118	84,103.4118	1.6120	1.5419	84,603.1963
Landscaping	17.8788	6.8617	595.0574	0.0316		3.3087	3.3087		3.3087	3.3087		1,075.7354	1,075.7354	1.0290		1,101.4597
Total	**671.4100**	**72.7427**	**623.0919**	**0.4521**		**8.6353**	**8.6353**		**8.6353**	**8.6353**	**0.0000**	**85,179.1471**	**85,179.1471**	**2.6410**	**1.5419**	**85,704.6560**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	110.2054					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	535.6163					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.7095	65.8810	28.0345	0.4205		5.3266	5.3266		5.3266	5.3266	0.0000	84,103.4118	84,103.4118	1.6120	1.5419	84,603.1963
Landscaping	17.8788	6.8617	595.0574	0.0316		3.3087	3.3087		3.3087	3.3087		1,075.7354	1,075.7354	1.0290		1,101.4597
Total	**671.4100**	**72.7427**	**623.0919**	**0.4521**		**8.6353**	**8.6353**		**8.6353**	**8.6353**	**0.0000**	**85,179.1471**	**85,179.1471**	**2.6410**	**1.5419**	**85,704.6560**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Ceres General Plan

Stanislaus County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	2,320.00	Dwelling Unit	145.00	2,320,000.00	7654
General Light Industry	4,422.00	1000sqft	101.52	4,422,000.00	0
General Office Building	838.00	1000sqft	19.24	838,000.00	0
Government (Civic Center)	1,374.00	1000sqft	31.54	1,374,000.00	0
Single Family Housing	4,901.00	Dwelling Unit	1,591.23	8,821,800.00	16170
Strip Mall	7,253.00	1000sqft	166.51	7,253,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Ceres General Plan - Stanislaus County, Winter

Project Characteristics - GHG (therefore electricity) emissions assessed separately, so PG&E is utility selected.

Land Use - Default populations scaled up to add up to total new residents from proposed General Plan buildout (23,824).

Off-road Equipment -

Vehicle Trips - Assumed 100% primary trips. Scaled trip length to match increase in weekday daily VMT resulting from implementation of the proposed General Plan (475,954 miles).

Energy Use -

Table Name	Column Name	Default Value	New Value
tblLandUse	Population	6,635.00	7,654.00
tblLandUse	Population	14,017.00	16,170.00
tblProjectCharacteristics	OperationalYear	2018	2035
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CC_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CNW_TL	7.30	1.00
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	CW_TL	9.50	1.20
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00

tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	HO_TL	7.50	1.00
tblVehicleTrips	HO_TL	7.50	1.00
tblVehicleTrips	HS_TL	7.30	1.00
tblVehicleTrips	HS_TL	7.30	1.00
tblVehicleTrips	HW_TL	10.80	1.40
tblVehicleTrips	HW_TL	10.80	1.40
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	15.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	45.00	100.00
tblWoodstoves	NumberCatalytic	145.00	0.00
tblWoodstoves	NumberCatalytic	1,591.23	0.00
tblWoodstoves	NumberNoncatalytic	145.00	0.00
tblWoodstoves	NumberNoncatalytic	1,591.23	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	16.5061	0.0000	0.0000	15.4276	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**16.5061**	**0.0000**	**0.0000**	**15.4276**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	16.5061	0.0000	0.0000	15.4276	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**16.5061**	**0.0000**	**0.0000**	**15.4276**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560
Energy	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767
Mobile	243.6685	3,961.4765	1,596.3091	8.3740	388.3296	3.4111	391.7407	104.0100	3.1773	107.1874		865,693.7814	865,693.7814	151.5183		869,481.7388
Total	**926.9090**	**4,138.5321**	**2,286.0057**	**9.4714**	**388.3296**	**20.2202**	**408.5497**	**104.0100**	**19.9864**	**123.9964**	**0.0000**	**1,079,932.7671**	**1,079,932.7671**	**156.6329**	**3.9080**	**1,085,013.1715**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560
Energy	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767
Mobile	243.6685	3,961.4765	1,596.3091	8.3740	388.3296	3.4111	391.7407	104.0100	3.1773	107.1874		865,693.7814	865,693.7814	151.5183		869,481.7388
Total	**926.9090**	**4,138.5321**	**2,286.0057**	**9.4714**	**388.3296**	**20.2202**	**408.5497**	**104.0100**	**19.9864**	**123.9964**	**0.0000**	**1,079,932.7671**	**1,079,932.7671**	**156.6329**	**3.9080**	**1,085,013.1715**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	10/24/2017	10/23/2017	5	11000	
2	Building Construction	Building Construction	10/24/2017	10/23/2017	5	155000	
3	Demolition	Demolition	10/24/2017	10/23/2017	5	10000	
4	Grading	Grading	10/24/2017	10/23/2017	5	15500	
5	Paving	Paving	10/24/2017	10/23/2017	5	11000	
6	Site Preparation	Site Preparation	10/24/2017	10/23/2017	5	6000	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 38750

Acres of Paving: 0

Residential Indoor: 22,562,145; Residential Outdoor: 7,520,715; Non-Residential Indoor: 20,830,500; Non-Residential Outdoor: 6,943,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Ceres General Plan - Stanislaus County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	1,664.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	8,321.00	3,048.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	243.6685	3,961.4765	1,596.3091	8.3740	388.3296	3.4111	391.7407	104.0100	3.1773	107.1874		865,693.7814	865,693.7814	151.5183		869,481.7388
Unmitigated	243.6685	3,961.4765	1,596.3091	8.3740	388.3296	3.4111	391.7407	104.0100	3.1773	107.1874		865,693.7814	865,693.7814	151.5183		869,481.7388

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	15,288.80	16,611.20	14082.40	6,649,731	6,649,731
General Light Industry	30,821.34	5,837.04	3006.96	9,473,302	9,473,302
General Office Building	9,243.14	2,061.48	879.90	2,724,875	2,724,875
Government (Civic Center)	38,362.08	0.00	0.00	11,470,262	11,470,262
Single Family Housing	46,657.52	48,568.91	42246.62	20,116,174	20,116,174
Strip Mall	321,452.96	304,916.12	148178.79	110,695,710	110,695,710
Total	461,825.84	377,994.75	208,394.67	161,130,054	161,130,054

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	1.40	1.00	1.00	48.40	13.90	37.70	100	0	0
General Light Industry	1.20	1.00	1.00	59.00	28.00	13.00	100	0	0
General Office Building	1.20	1.00	1.00	33.00	48.00	19.00	100	0	0
Government (Civic Center)	1.20	1.00	1.00	75.00	20.00	5.00	100	0	0
Single Family Housing	1.40	1.00	1.00	48.40	13.90	37.70	100	0	0
Strip Mall	1.20	1.00	1.00	16.60	64.40	19.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
General Light Industry	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
General Office Building	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Government (Civic Center)	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Single Family Housing	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460
Strip Mall	0.559639	0.029013	0.181073	0.090332	0.009605	0.003398	0.026172	0.093096	0.001811	0.000879	0.003847	0.000675	0.000460

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Ceres General Plan - Stanislaus County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767
NaturalGas Unmitigated	11.8305	104.3130	66.6048	0.6453		8.1738	8.1738		8.1738	8.1738		129,059.8386	129,059.8386	2.4737	2.3661	129,826.7767

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	119176	1.2852	10.9829	4.6736	0.0701		0.8880	0.8880		0.8880	0.8880		14,020.6742	14,020.6742	0.2687	0.2571	14,103.9920
General Light Industry	253811	2.7372	24.8834	20.9021	0.1493		1.8911	1.8911		1.8911	1.8911		29,860.0806	29,860.0806	0.5723	0.5474	30,037.5241
General Office Building	30122.1	0.3249	2.9532	2.4806	0.0177		0.2244	0.2244		0.2244	0.2244		3,543.7744	3,543.7744	0.0679	0.0650	3,564.8333
Government (Civic Center)	49388.7	0.5326	4.8420	4.0673	0.0291		0.3680	0.3680		0.3680	0.3680		5,810.4367	5,810.4367	0.1114	0.1065	5,844.9653
Single Family Housing	431094	4.6491	39.7283	16.9057	0.2536		3.2121	3.2121		3.2121	3.2121		50,716.9855	50,716.9855	0.9721	0.9298	51,018.3712
Strip Mall	213417	2.3016	20.9232	17.5755	0.1255		1.5902	1.5902		1.5902	1.5902		25,107.8872	25,107.8872	0.4812	0.4603	25,257.0908
Total		**11.8305**	**104.3130**	**66.6048**	**0.6453**		**8.1738**	**8.1738**		**8.1738**	**8.1738**		**129,059.8386**	**129,059.8386**	**2.4737**	**2.3661**	**129,826.7767**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	119.176	1.2852	10.9829	4.6736	0.0701		0.8880	0.8880		0.8880	0.8880		14,020.6742	14,020.6742	0.2687	0.2571	14,103.9920
General Light Industry	253.811	2.7372	24.8834	20.9021	0.1493		1.8911	1.8911		1.8911	1.8911		29,860.0806	29,860.0806	0.5723	0.5474	30,037.5241
General Office Building	30.1221	0.3249	2.9532	2.4806	0.0177		0.2244	0.2244		0.2244	0.2244		3,543.7744	3,543.7744	0.0679	0.0650	3,564.8333
Government (Civic Center)	49.3887	0.5326	4.8420	4.0673	0.0291		0.3680	0.3680		0.3680	0.3680		5,810.4367	5,810.4367	0.1114	0.1065	5,844.9653
Single Family Housing	431.094	4.6491	39.7283	16.9057	0.2536		3.2121	3.2121		3.2121	3.2121		50,716.9855	50,716.9855	0.9721	0.9298	51,018.3712
Strip Mall	213.417	2.3016	20.9232	17.5755	0.1255		1.5902	1.5902		1.5902	1.5902		25,107.8872	25,107.8872	0.4812	0.4603	25,257.0908
Total		**11.8305**	**104.3130**	**66.6048**	**0.6453**		**8.1738**	**8.1738**		**8.1738**	**8.1738**		**129,059.8386**	**129,059.8386**	**2.4737**	**2.3661**	**129,826.7767**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560
Unmitigated	671.4100	72.7427	623.0919	0.4521		8.6353	8.6353		8.6353	8.6353	0.0000	85,179.1471	85,179.1471	2.6410	1.5419	85,704.6560

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	110.2054					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	535.6163					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.7095	65.8810	28.0345	0.4205		5.3266	5.3266		5.3266	5.3266	0.0000	84,103.4118	84,103.4118	1.6120	1.5419	84,603.1963
Landscaping	17.8788	6.8617	595.0574	0.0316		3.3087	3.3087		3.3087	3.3087		1,075.7354	1,075.7354	1.0290		1,101.4597
Total	**671.4100**	**72.7427**	**623.0919**	**0.4521**		**8.6353**	**8.6353**		**8.6353**	**8.6353**	**0.0000**	**85,179.1471**	**85,179.1471**	**2.6410**	**1.5419**	**85,704.6560**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	110.2054					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	535.6163					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.7095	65.8810	28.0345	0.4205		5.3266	5.3266		5.3266	5.3266	0.0000	84,103.4118	84,103.4118	1.6120	1.5419	84,603.1963
Landscaping	17.8788	6.8617	595.0574	0.0316		3.3087	3.3087		3.3087	3.3087		1,075.7354	1,075.7354	1.0290		1,101.4597
Total	**671.4100**	**72.7427**	**623.0919**	**0.4521**		**8.6353**	**8.6353**		**8.6353**	**8.6353**	**0.0000**	**85,179.1471**	**85,179.1471**	**2.6410**	**1.5419**	**85,704.6560**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Appendix C: Tribal Consultation Letters

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Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95501
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: _____

County: _____

USGS Quadrangle

Name: _____

Township: _____ Range: _____ Section(s): _____

Company/Firm/Agency:

_____

Contact Person: _____

Street Address: _____

City: _____ Zip: _____

Phone: _____ Extension: _____

Fax: _____

Email: _____

Project Description:

See next page

☑ Project Location Map is attached

PROJECT DESCRIPTION

The City of Ceres is preparing an update of its General Plan, which will establish the city's overall approach to development, public services, and other issues for the next 20 years. The Planning Area includes the City of Ceres, its Sphere of Influence, unincorporated areas, and a very small amount of land within the city of Modesto. It is bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east.

The General Plan sets a framework for decisions about the form of development, the location of new urban growth, and how to provide public services and facilities. State law requires that a General Plan contain at least the following seven elements: Land Use, Transportation, Housing, Conservation, Open Space, Noise, and Safety. Ceres intends to include an analysis of Cultural and Historical Resources in their General Plan update, as well. The project is currently in the initial stage of data collection before analysis and drafting.

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 - Fax

September 12, 2016

Tom Westbrook
City of Ceres Community Development

Sent by E-mail: tom.westbrook@ci.ceres.ca.us

RE: Proposed General Plan Update Project, City of Ceres; Ceres USGS Quadrangle, Stanislaus County, California

Dear Mr. Westbrook:

Government Code §65352.3 **requires local governments to consult** with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places in creating or amending general plans, including specific plans. Attached is a consultation list of tribes traditionally and culturally affiliated with the area that may have cultural places located within the boundaries of the project referenced above.

As a part of consultation, the NAHC recommends that local governments conduct record searches through the NAHC and California Historic Resources Information System (CHRIS) to determine if any cultural places are located within the area(s) affected by the proposed action. A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Also note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE. Records maintained by the NAHC and CHRIS are not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of tribal cultural resources.

The list should provide a starting place to locate areas of potential adverse impact within the APE. I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes on the attached list, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Tribal Consultation List
Stanislaus County
9/12/2016

Amah MutsunTribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA, 95632
Phone: (916)743-5833
vlopez@amahmutsun.org

Costanoan
Northern Valley
Yokut

North Valley Yokuts Tribe
Katherine Erolinda Perez,
Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209)887-3415
canutes@verizon.net

Costanoan
Northern Valley
Yokut

Southern Sierra Miwuk Nation
Lois Martin, Chairperson
P.O. Box 186
Mariposa, CA, 95338
Phone: (209)742-6867

Miwok
Northern Valley
Yokut
Paiute

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65362.4 et seq for the proposed City of Ceres General Plan Update, Stanislaus County.

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

September 12, 2016

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
PO Box 5272
Galt, CA 95632

Dear Chairperson Lopez:

The City of Ceres has initiated the process of updating its General Plan. In order to provide Native American tribes with the opportunity to participate in local land use decisions at an early stage, in accordance with Senate Bill 18, we are seeking your comments on the proposed General Plan update.

The Planning Area includes the City of Ceres, its Sphere of Influence, unincorporated areas, and a very small amount of land within the city of Modesto. It is bounded by the Tuolumne River on the north, Carpenter Road on the east, Grayson Road on the south, and Washington Road on the west. The specific boundaries of the planning area are outlined on the USGS 7.5 minute quadrangle attached with this correspondence.

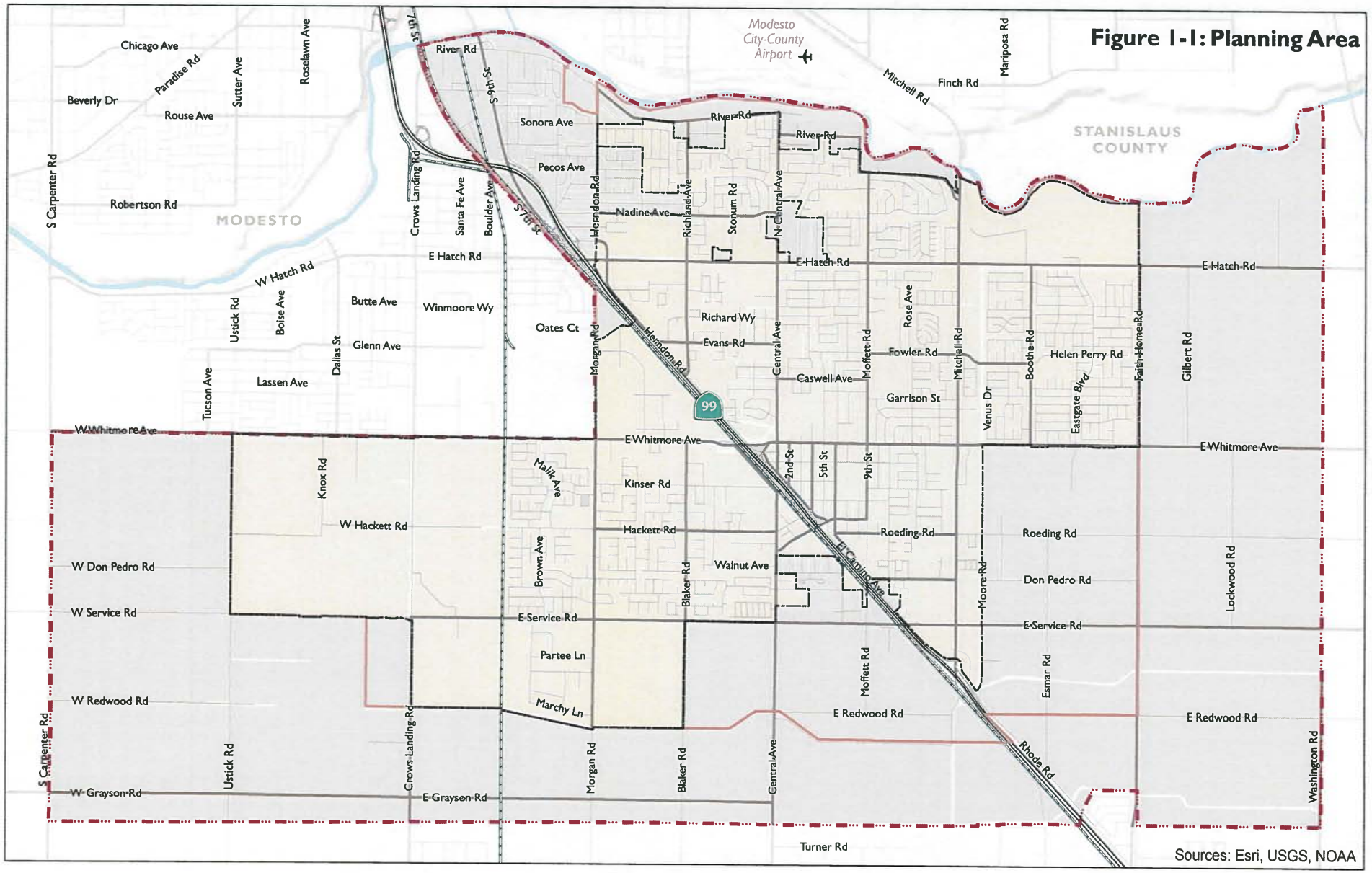
The Ceres General Plan Update will serve as the comprehensive vision and primary policy document for the city's overall approach to development, public services, and other issues for the next 20 years. State law requires that a General Plan contain at least the following seven elements: Land Use, Transportation, Housing, Conservation, Open Space, Noise, and Safety. Ceres intends to include an analysis of Cultural and Historical Resources in their General Plan update, as well.

The Ceres Planning Area is shown on the enclosed map. If you have any concerns or information regarding archaeological resources or traditional tribal cultural places in the Planning Area, or if you would like to be involved in the planning process, please let us know. We would appreciate receiving your comments by November 14, 2016.

With Warm Regards,

Tom Westbrook
Director of Community Development

Enclosure



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

September 12, 2016

Katherine Erolinda Perez, Chairperson
North Valley Yokuts Tribe, MLD
PO Box 717
Linden, CA 95236

Dear Ms. Perez:

The City of Ceres has initiated the process of updating its General Plan. In order to provide Native American tribes with the opportunity to participate in local land use decisions at an early stage, in accordance with Senate Bill 18, we are seeking your comments on the proposed General Plan update.

The Planning Area includes the City of Ceres, its Sphere of Influence, unincorporated areas, and a very small amount of land within the city of Modesto. It is bounded by the Tuolumne River on the north, Carpenter Road on the east, Grayson Road on the south, and Washington Road on the west. The specific boundaries of the planning area are outlined on the USGS 7.5 minute quadrangle attached with this correspondence.

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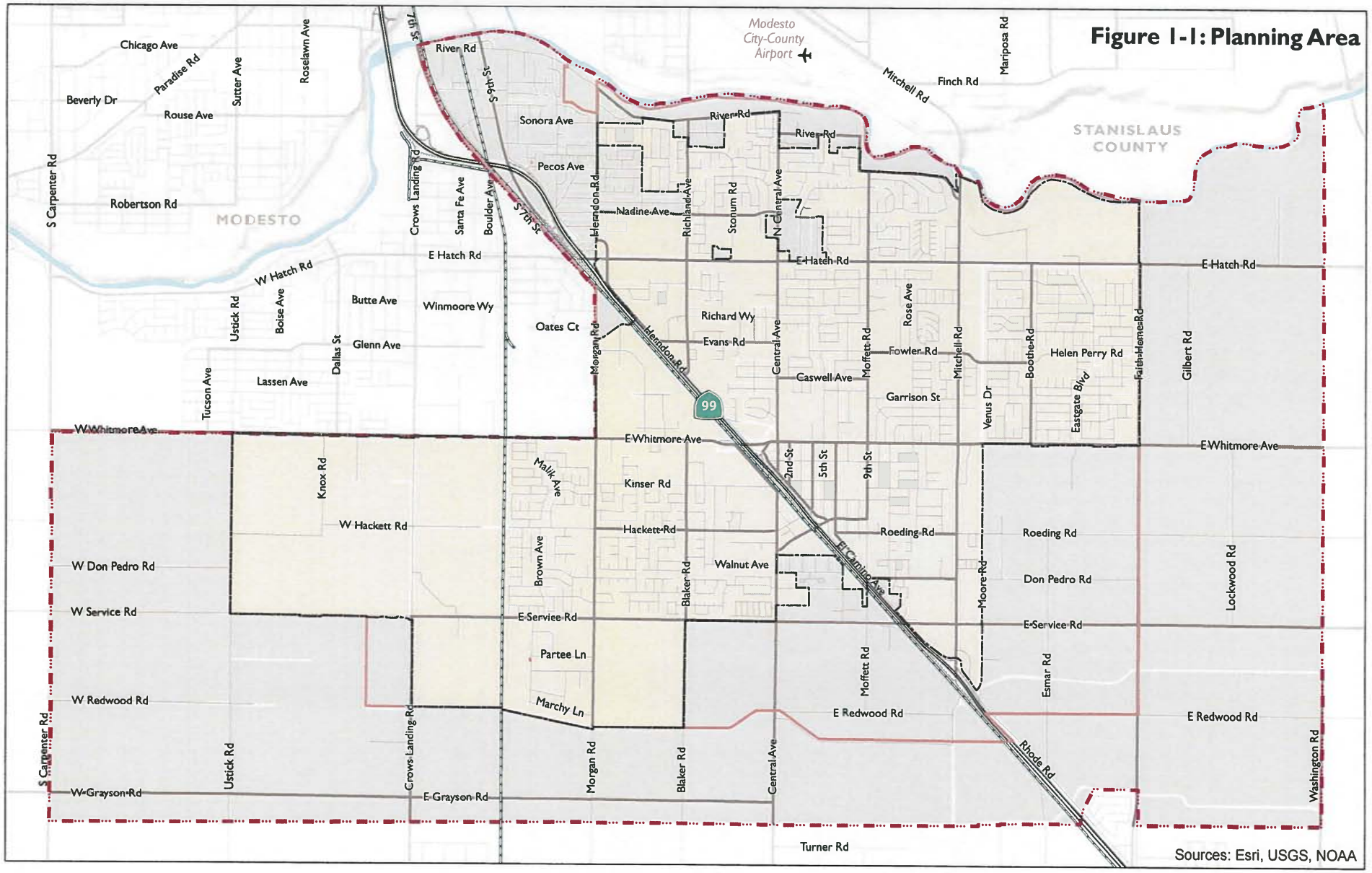
The Ceres Planning Area is shown on the enclosed map. If you have any concerns or information regarding archaeological resources or traditional tribal cultural places in the Planning Area, or if you would like to be involved in the planning process, please let us know. We would appreciate receiving your comments by November 14, 2016.

With warm regards,

Tom Westbrook
Director of Community Development

Enclosure



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

September 12, 2016

Southern Sierra Miwuk Nation
Lois Martin
PO Box 186
Mariposa, CA 95338

Dear Chairperson Martin:

The City of Ceres has initiated the process of updating its General Plan. In order to provide Native American tribes with the opportunity to participate in local land use decisions at an early stage, in accordance with Senate Bill 18, we are seeking your comments on the proposed General Plan update.

The Planning Area includes the City of Ceres, its Sphere of Influence, unincorporated areas, and a very small amount of land within the city of Modesto. It is bounded by the Tuolumne River on the north, Carpenter Road on the east, Grayson Road on the south, and Washington Road on the west. The specific boundaries of the planning area are outlined on the USGS 7.5 minute quadrangle attached with this correspondence.

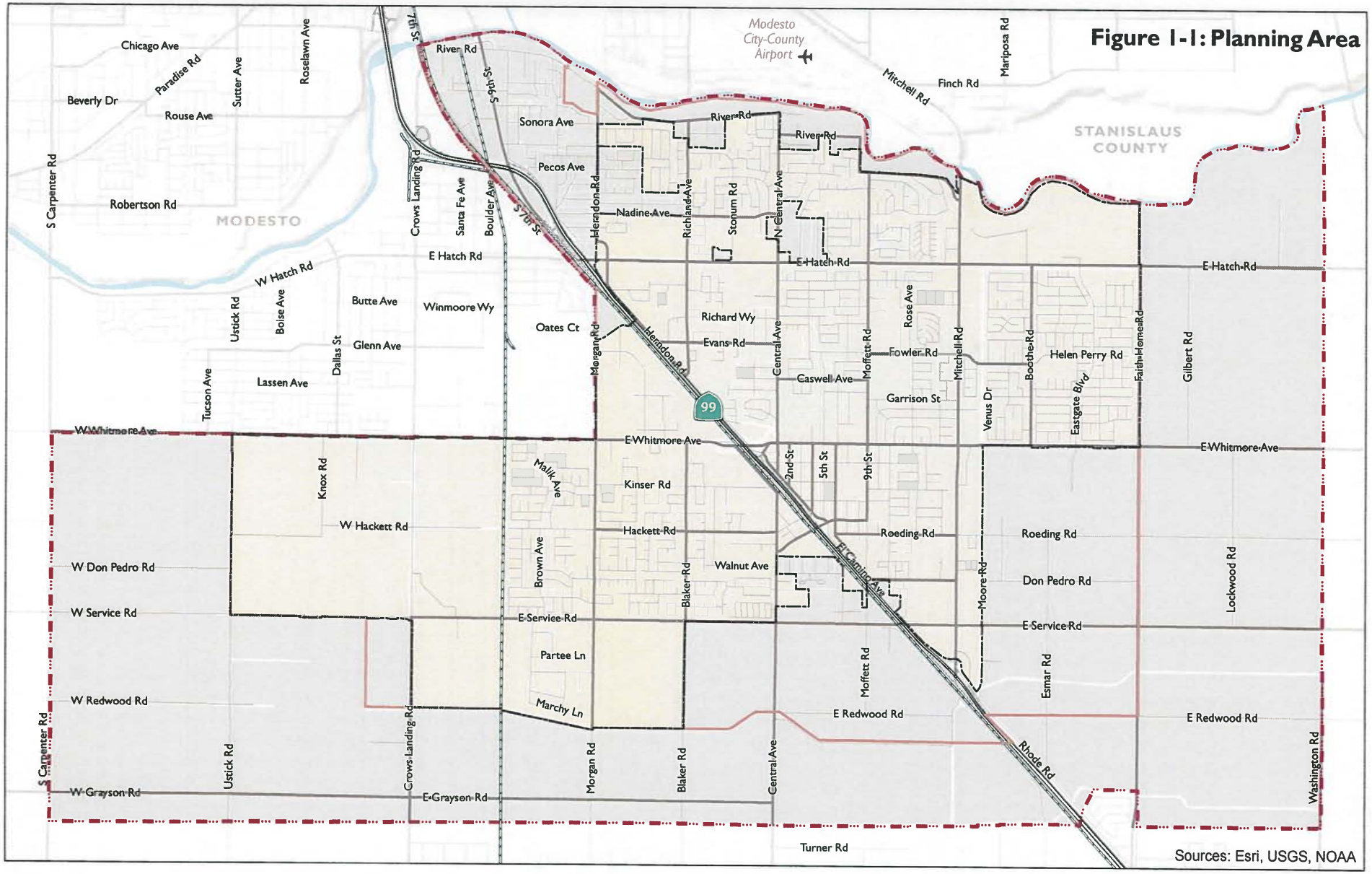
The Ceres General Plan Update will serve as the comprehensive vision and primary policy document for the city's overall approach to development, public services, and other issues for the next 20 years. State law requires that a General Plan contain at least the following seven elements: Land Use, Transportation, Housing, Conservation, Open Space, Noise, and Safety. Ceres intends to include an analysis of Cultural and Historical Resources in their General Plan update, as well.

The Ceres Planning Area is shown on the enclosed map. If you have any concerns or information regarding archaeological resources or traditional tribal cultural places in the Planning Area, or if you would like to be involved in the planning process, please let us know. We would appreciate receiving your comments by November 14, 2016.

With Warm Regards,

Tom Westbrook
Director of Community Development

Enclosure



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

☒ **CEQA Tribal Consultation List (AB 52)** – ***Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2***

☐ **General Plan (SB 18)** - ***Per Government Code § 65352.3.***

Local Action Type:

☒ **General Plan** ___ **General Plan Element** ___ **General Plan Amendment**

___ **Specific Plan** ___ **Specific Plan Amendment** ___ **Pre-planning Outreach Activity**

Required Information

Project Title: City of Ceres General Plan Update

Local Government/Lead Agency: City of Ceres

Contact Person: Tom Westbrook, Director of Community Development

Street Address: 2220 Magnolia Street

City: Ceres **Zip:** 95307

Phone: (209) 583-5778 **Fax:** _____

Email: Tom.Westbrook@ci.ceres.ca.us

Specific Area Subject to Proposed Action

County: Stanislaus **City/Community:** Ceres

Project Description:

The City of Ceres is updating its General Plan, which will establish the City's overall approach to development, public services, and other issues over the next 20 years. The Planning Area includes the City of Ceres, its Sphere of Influence, unincorporated areas of Stanislaus County, and a small area within the City of Modesto (see attached figure and USGS quadrangle maps). The Draft General Plan includes an updated land use map and designations and policies regarding land use and community design, transportation, agricultural/natural resources, health and safety, public facilities and services, and economic and community development. Policies related to Tribal Cultural Resources are included. The project is in the public review and CEQA environmental assessment phase. See www.ceresgeneralplanupdate.com for public review documents and project information.

Additional Request

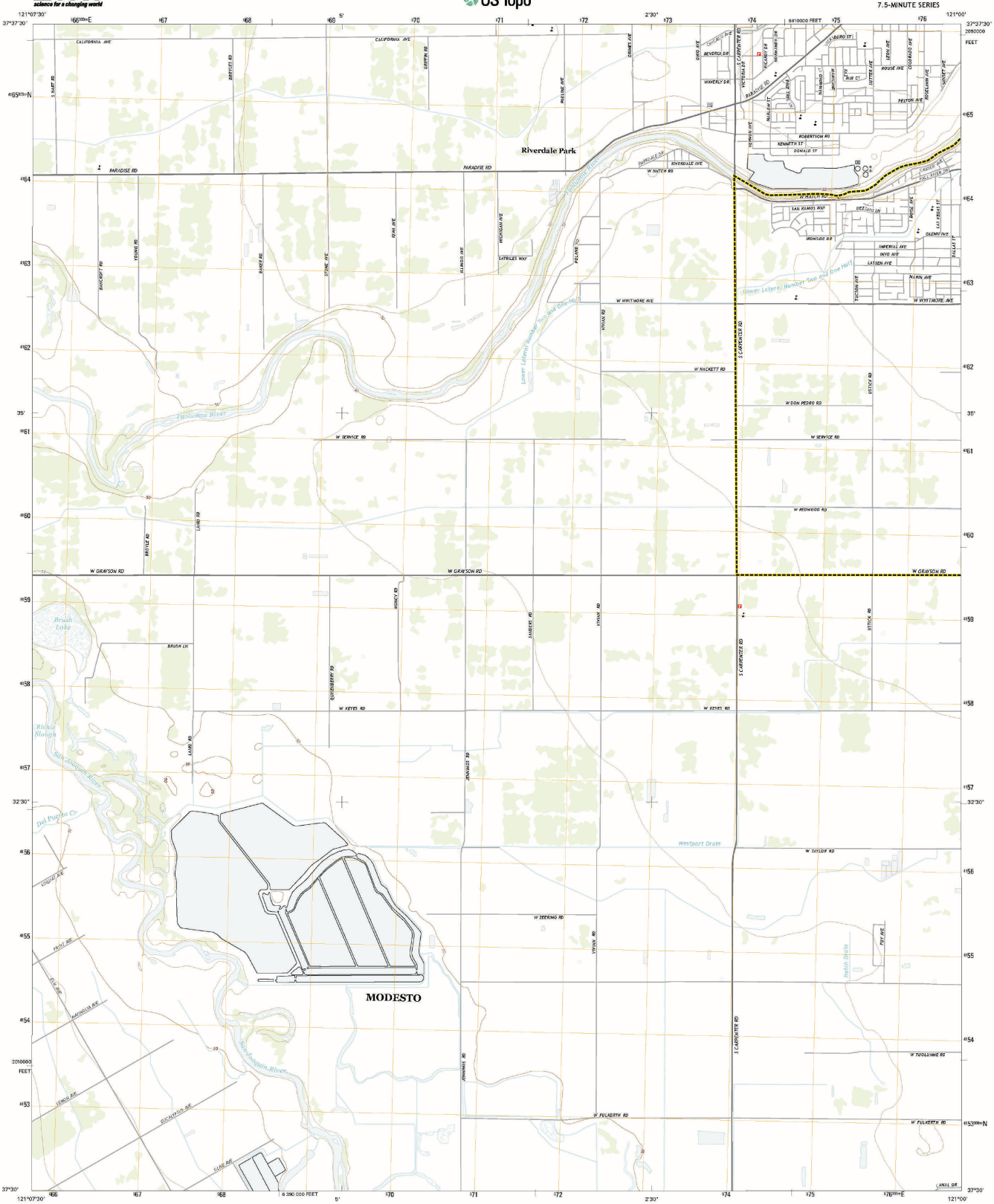
☒ **Sacred Lands File Search** - ***Required Information:***

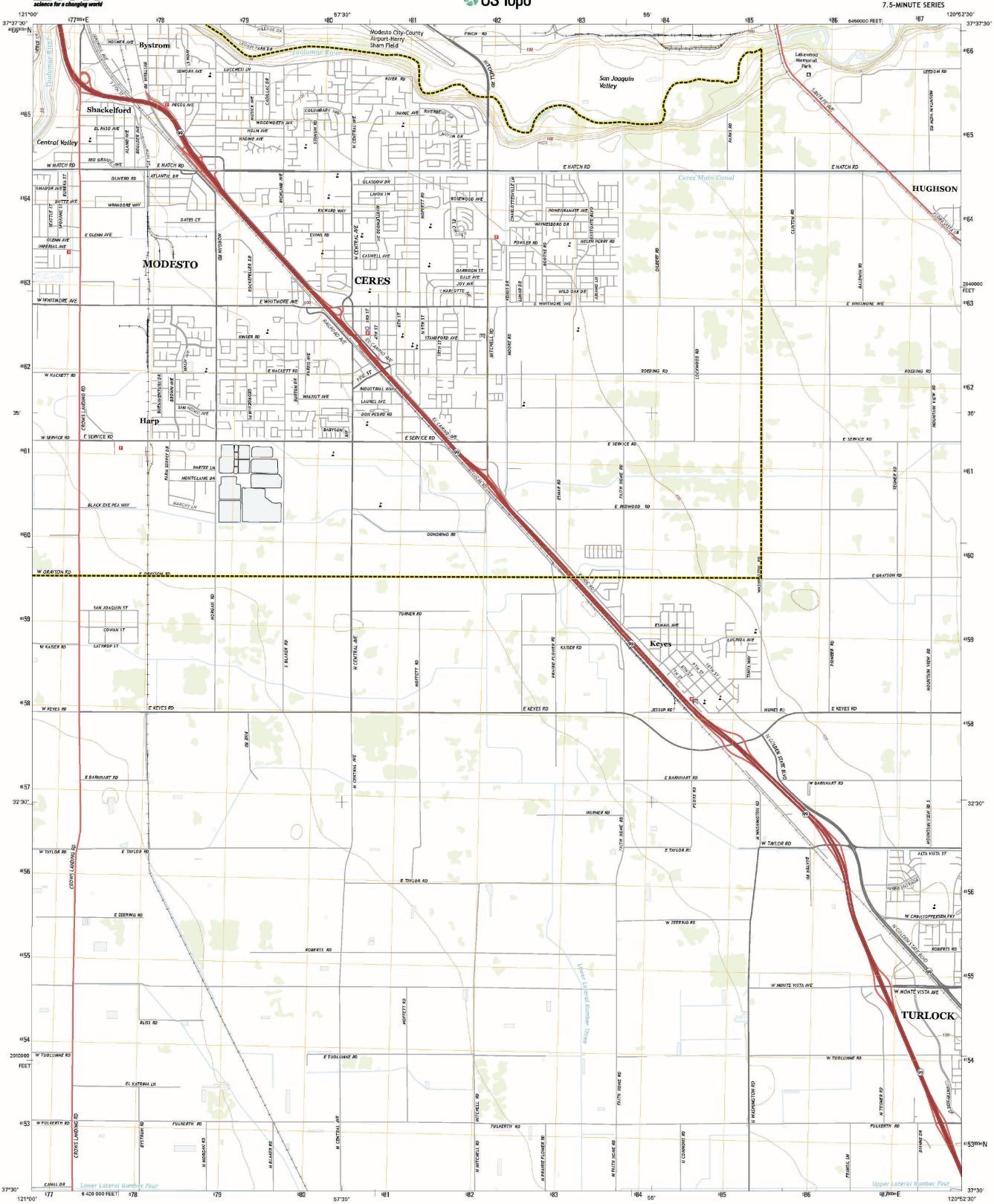
USGS Quadrangle Name(s): Riverlake, Ceres, and Brushlake

Township: _____ **Range:** _____ **Section(s):** _____

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres


U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
The National Map US Topo
BRUSH LAKE QUADRANGLE
CALIFORNIA-STANISLAUS CO.
7.5-MINUTE SERIES
Riverdale Park
MODESTO
Tuolumne River
Lower Lateral Number Two and One Half
Brush Lake
Westport Drain
Hatch Ditch
Del Puerto Cr
Richland Slough
San Joaquin River
PARADISE RD
W GRAYSON RD
W SERVICE RD
W WHITMORE AVE
W MACKETT RD
W DON PEDRO RD
W REDWOOD RD
W KEYES RD
W ZEERING RD
W TAYLOR RD
W TUOLUMNE RD
W FULKERTH RD
S CARPENTER RD
VIVIAN RD
STICK RD
CALIFORNIA AVE
RIVERDALE AVE
W WATCH RD
SAN RAMON WAY
IMPERIAL AVE
INYO AVE
LATSEN AVE
MORNSIDE DR
GLENN AVE
BRUSH LN
BLAKE RD
BANGHART RD
STONE AVE
ILLINOIS AVE
MICHIGAN AVE
SATRIALES WAY
RYAN AVE
YOUNG RD
HONEY RD
SANDERS RD
QUIMBERRY RD
ZENKICH RD
ARMANKO RD
LUKE RD
BUTTLE RD
LOWER SAN JOAQUIN LEVEE DIST
CANAL DR
641000 FEET
2050000 FEET
2010000 FEET
6390 000 FEET
121°07'30"
121°00'
37°37'30"
37°30'
32'30"
35'
2'30"
5'
SCALE 1:24 000
KILOMETERS
METERS
MILES
FEET
CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
1 Ripon
2 Salida
3 Riverbank
4 Westley
5 Ceres
6 Patterson
7 Crows Landing
8 Hatch
ADJOINING QUADRANGLES
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 10S
10 000-foot ticks: California Coordinate System of 1983 (zone 3)
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.
Imagery..... NAIP, June 2012
Roads..... HERE, 02013 - 2014
Names..... GNIS, 2015
Hydrography..... National Hydrography Dataset, 2012
Contours..... National Elevation Dataset, 2008
Boundaries..... Multiple sources; see metadata file 1972 - 2015
Public Land Survey System..... BLM, 2011
UTM GRID AND 2015 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET
U.S. National Grid
100,000-m Square ID
FG
Grid Zone Designation
10S
This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18
BRUSH LAKE, CA
2015


U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
The National Map US Topo
CERES QUADRANGLE
CALIFORNIA-STANISLAUS CO.
7.5-MINUTE SERIES
Bystrom
Shackelford
Central Valley
Modesto City-County Airport-Harry Sham Field
San Joaquin Valley
Lakewood Memorial Park
HUGHSON
MODESTO
CERES
Harp
Keyes
TURLOCK
Ceres Main Canal
Tuolumne River
Lower Lateral Number Four
Upper Lateral Number Four
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 10S
10 000-foot ticks: California Coordinate System of 1983 (zone 3)
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.
Imagery.....NAIP, June 2012
Roads.....HERE, ©2013 - 2014
Names.....GNIS, 2015
Hydrography.....National Hydrography Dataset, 2012
Contours.....National Elevation Dataset, 2008
Boundaries.....Multiple sources; see metadata file 1972 - 2015
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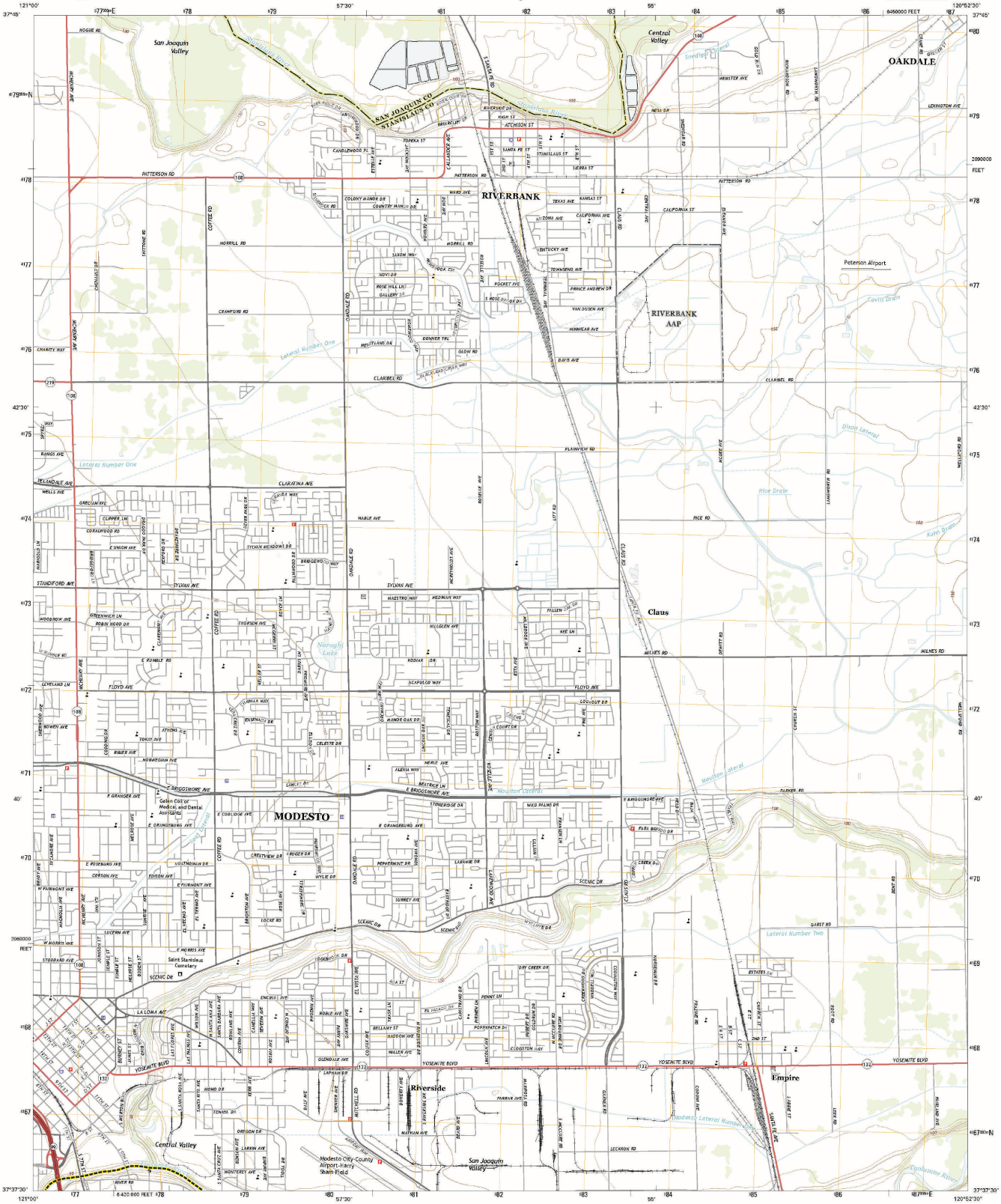
UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
U.S. National Grid
1000-meter Square ID
FG
Grid Zone Designation
10S
SCALE 1:24 000
KILOMETERS
METERS
MILES
FEET
CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18
CALIFORNIA
QUADRANGLE LOCATION
ADJOINING QUADRANGLES
1 Salida
2 Riverbank
3 Waterford
4 Brush Lake
5 Denair
6 Crows Landing
7 Hatch
8 Turlock
ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
CERES, CA
2015

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

RIVERBANK QUADRANGLE
CALIFORNIA
7.5-MINUTE SERIES



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UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

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ROAD CLASSIFICATION
Expressway | Local Connector
Secondary Hwy | Local Road
Ramp | 4WD
Interstate Route | US Route | State Route

ADJOINING QUADRANGLES
1 Avena
2 Escalon
3 Oakdale
4 Salida
5 Waterford
6 Brush Lake
7 Ceres
8 Denair

RIVERBANK, CA
2015

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

RECEIVED
NOV 7 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

November 7, 2017

Tom Westbrook
City of Ceres

Sent via e-mail: tom.westbrook@ci.ceres.ca.us

RE: City of Ceres General Plan Update, Stanislaus County

Dear Mr. Westbrook:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced project.

Government Code §65352.3 requires local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, and/or mitigating impacts to cultural places in creating or amending general plans, including specific plans. As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 require public agencies to consult with California Native American tribes identified by the NAHC for the purpose mitigating impacts to tribal cultural resources:

> Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC requests that lead agencies include in their notifications information regarding any cultural resources assessment that has been completed on a potential "area of project affect" (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. **A search of the SFL was completed for the USGS quadrangle information provided with negative results.**

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. **A tribe may be the only source of information regarding the existence of a tribal cultural resource.**

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

Lead agencies or agencies potentially undertaking a project are encouraged to send more than one written notice to tribes that are traditionally and culturally affiliated to a potential APE during the 30-day notification period to ensure that the information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information. If you have any questions, please contact me at my email address: Sharaya.souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst
(916) 573-0168

Native American Heritage Commission
Native American Contacts
11/7/2017

Calaveras Band of Mi-Wuk Indians
Debra Grimes. Cultural Res. Specialist
P.O. Box 899 Mi-Wuk
West Point , CA 95255 Miwok
calaverasmiwukpreservation@gmail.com
(209) 470-8688

Tuolumne Band of Me-Wuk Indians
Kevin Dav. Chairperson
P.O. Box 699 Me-Wuk - Miwok
Tuolumne , CA 95379
receptionist@mewuk.com
(209) 928-5300 Office

(209) 928-1677 Fax

California Valley Miwok Tribe
4620 Shippee Lane Miwok
Stockton , CA 95212
CalaverasMiwukPreservation
(209) 931-4567 Office

(209) 931-4333 Fax

RECEIVED
NOV 7 2017
CITY OF CERES
PLANNING & BUILDING DIVISION

North Valley Yokuts Tribe
Katherine Erolinda Perez. Chairperson
P.O. Box 717 Ohlone/Costanoan
Linden , CA 95236 Northern Valley Yokuts
canutes@verizon.net Bay Miwok
(209) 887-3415

Southern Sierra Miwuk Nation
Lois Martin. Chairperson
P.O. Box 186 Miwok
Mariposa , CA 95338 Pauite
(209) 742-6867 Office Northern Valley Yokut

Tule River Indian Tribe
Neil Peyron. Chairperson
P.O. Box 589 Yokuts
Porterville , CA 93258
chairman@tulerivertribe-nsn.gov
(559) 781-4271

(559) 781-4610 Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the City of Ceres General Plan Update, Stanislaus County.

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

November 14, 2017

Calaveras Board of Mi-Wuk Indians
Debra Grimes, Cultural Resource Specialist
PO Box 899
West Point, CA 95255

Dear Ms. Grimes,

The City of Ceres is preparing an update to its General Plan and has determined that an Environmental Impact Report (EIR) is necessary to evaluate environmental impacts of the Proposed Project, pursuant to the California Environmental Quality Act (CEQA). In compliance with CEQA, the City is the Lead Agency and will prepare the EIR. Below please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

Project Description

The General Plan is a long-term document with text and diagrams that express the goals, objectives, and policies necessary to guide the community toward achieving its vision over a 20- to 30-year period. City decision-makers (e.g., City Council and Planning Commission), rely on the General Plan as a basis for making decisions on matters such as land use and the provision of public facilities (e.g., roads, parks, fire stations, etc.). It is also a policy document that guides decisions related to protecting, enhancing, and providing those things that the community values most, such as farmland, and protecting and enhancing the character of the community.

In late 2015, the City of Ceres initiated a multi-year collaborative process to comprehensively update its General Plan, which dates back to 1997, and does not necessarily reflect current conditions or community priorities. The update process has allowed the community to establish priorities regarding Downtown Ceres, parks and recreation, economic development, housing types, farmland preservation, and other issues.

The General Plan update is comprehensive and includes all State-required elements other than the Housing Element, which was last updated in January of 2016 (per California Department of Housing and Community Development requirements) and is not part of the Proposed Project.

The full Public Review Draft General Plan is available online at the project website at http://www.ceresgeneralplanupdate.com/documents.html. Additional information about the General Plan update process, including documentation of community outreach activities, background studies, and project updates are also available at the website.

Project Location

The City of Ceres is located just southeast of Modesto in central Stanislaus County in the San Joaquin Valley. The city is almost 80 miles southeast of San Francisco by car, 60 miles from the nearest Bay Area Rapid Transit (BART) station in Dublin, 35 miles south of Stockton, and 10 miles north of Turlock. State Route 99 (SR-99) runs through the city. The regional setting is depicted in **Figure 1**.

The General Plan Planning Area (Planning Area), shown in **Figure 2**, is defined as the land area addressed by the General Plan. The Planning Area for the General Plan Update is the same as that used for the 1997 General Plan. It encompasses 14,700 acres including the City of Ceres, its Sphere of Influence (SOI), adjacent unincorporated areas, and Mancini Park in the City of Modesto. It is roughly bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east. Although Ceres does not have jurisdiction in areas outside of its city limits, what happens in those areas bears a relation to the city's planning and must be considered in the General Plan, per California Government Code Section 65300.

Lead Agency Point of Contact

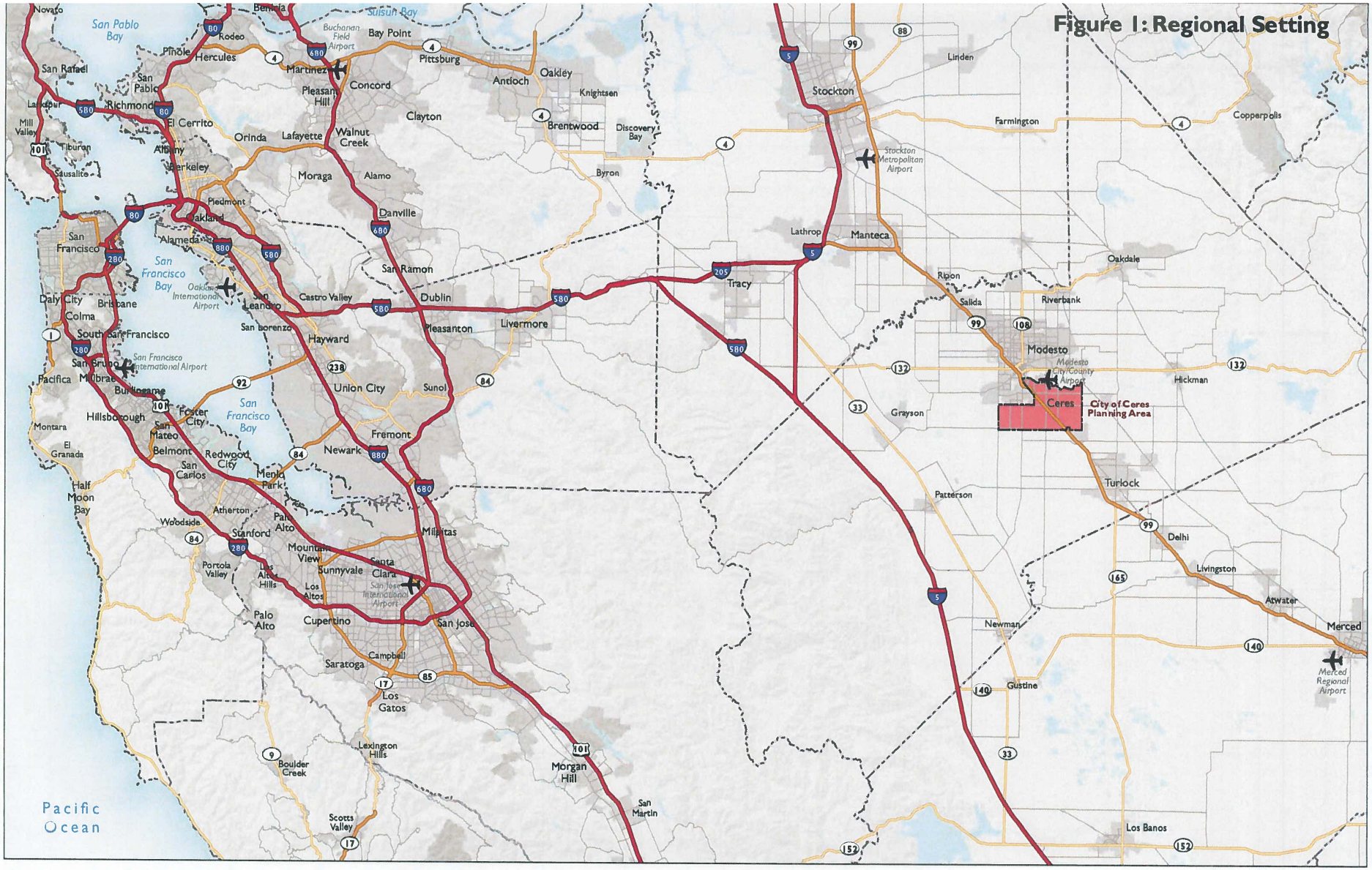
Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307
tom.westbrook@ci.ceres.ca.us

The City requests your careful review and consideration of this notice and invites any and all input and comments, including those regarding any Tribal Cultural Resources in the Planning Area that may be impacted by the Proposed Project. In accordance with AB 52 (Gatto, 2014), California Native American tribes traditionally and culturally affiliated with the Planning Area may request consultation on the Project regarding potential impacts to Tribal Cultural Resources. Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation, in writing, with the City of Ceres.

Very Respectfully,

Tom Westbrook
Director of Community Development

Figure 1: Regional Setting



Freeway
Major Highway
Minor Highway
Major/Minor Roads
County Boundary
Ceres Planning Area
Urban Areas
Water

0 5 10 20
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Figure 2: Planning Area

Highway
Ramps
Major Roads
Local Roads
Railroads
River
City of Ceres (5,989 acres)
Ceres Sphere of Influence
General Plan Planning Area (14,357 acres)

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

November 14, 2017

California Valley Miwok Tribe
4620 Shippee Lane
Stockton, CA 95212

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Lead Agency Point of Contact

Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307
tom.westbrook@ci.ceres.ca.us

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Director of Community Development

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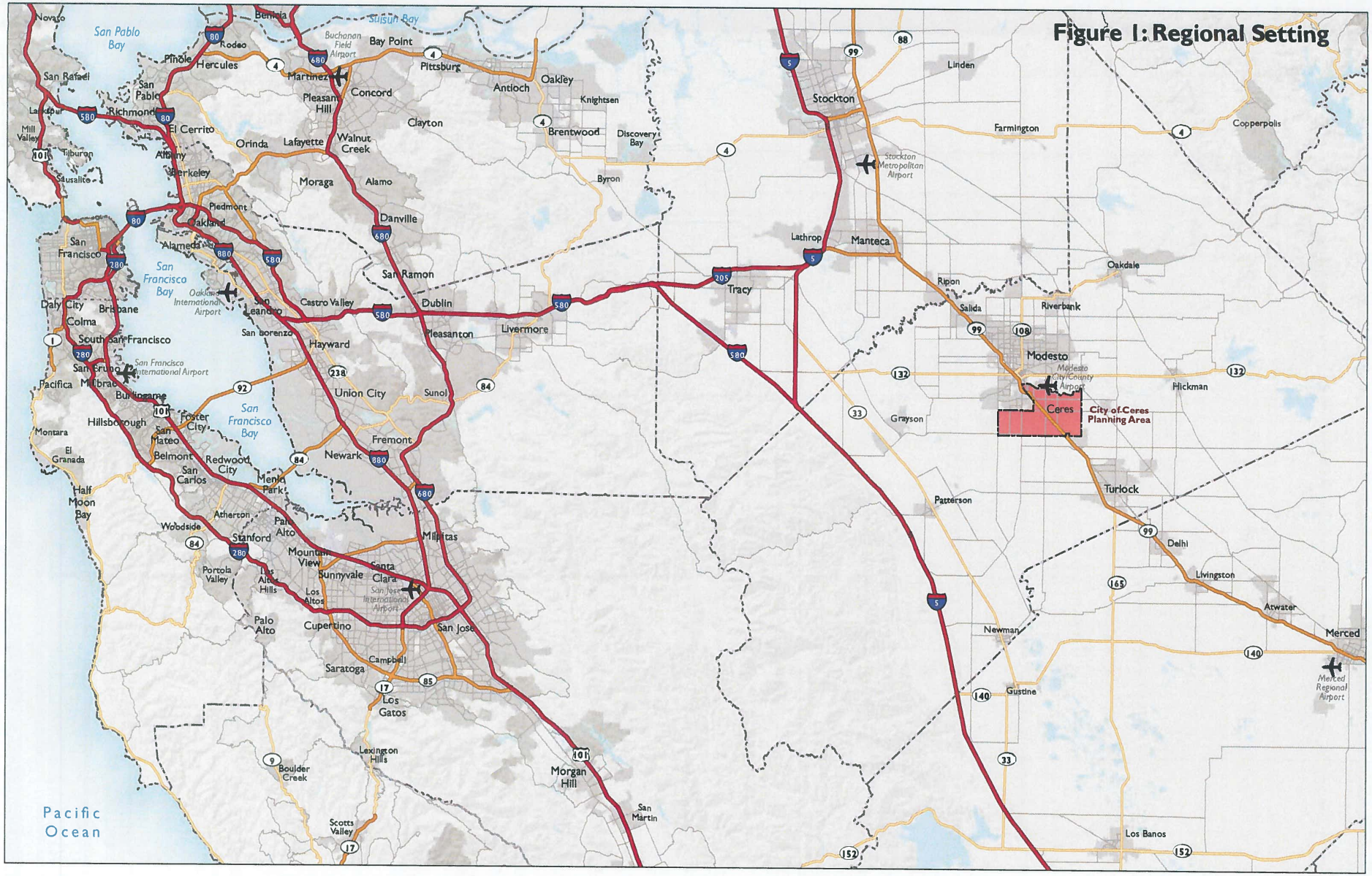

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

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GENERAL PLAN UPDATE
City of Ceres

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

November 14, 2017

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
PO Box 717
Linden, CA 95326

Dear Katherine,

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tom.westbrook@ci.ceres.ca.us

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Director of Community Development

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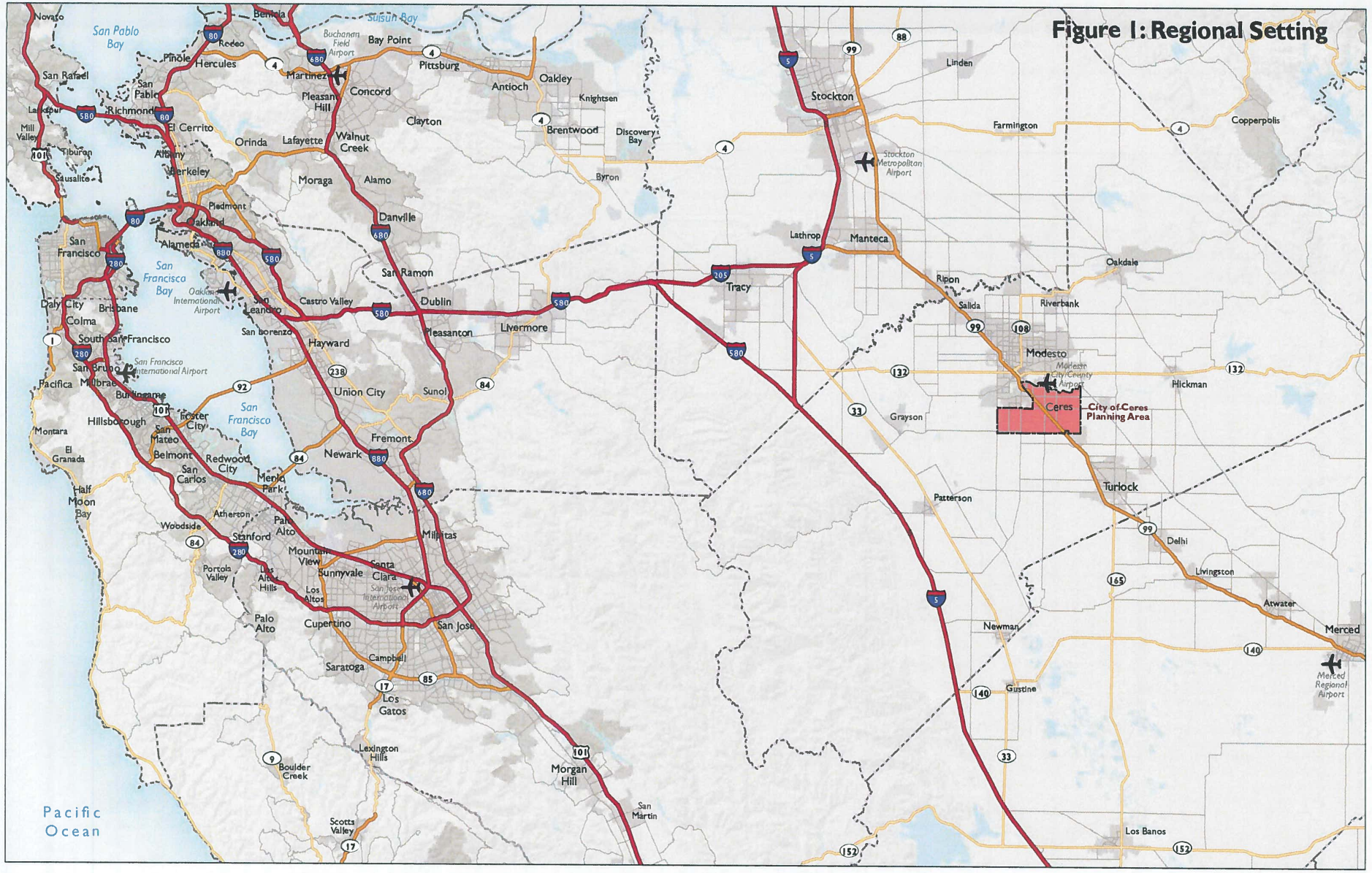

Freeway
Major Highway
Minor Highway
Major/Minor Roads
County Boundary
Ceres Planning Area
Urban Areas
Water

0 5 10 20
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

Figure 2: Planning Area
Modesto City-County Airport
STANISLAUS COUNTY
MODESTO
Chicago Ave
Beverly Dr
Paradise Rd
Rouse Ave
Sutter Ave
Roselawn Ave
S Carpenter Rd
Robertson Rd
Riverr Rd
Sonora Ave
Pecos Ave
Crows Landing Rd
Santa Fe Ave
Boulder Ave
S 7th St
S 9th St
Mitchell Rd
Finch Rd
Mariposa Rd
Heerndon Rd
Richland Ave
Stonum Rd
N Central Ave
Nadine Ave
E Hatch Rd
W Hatch Rd
Ustick Rd
Boise Ave
Butte Ave
Winmoore Wy
Oates Ct
Dallas St
Glenn Ave
Lassen Ave
Tucson Ave
Morgan Rd
Richard Wy
Evans Rd
Central Ave
Caswell Ave
Moffett Rd
Fowler Rd
Mitchell Rd
Rose Ave
Boothe Rd
Helen Perry Rd
Venus Dr
Eastgate Blvd
Faith Home Rd
Gilbert Rd
99
W Whitmore Ave
E Whitmore Ave
Knox Rd
Malik Ave
Kinser Rd
2nd St
5th St
9th St
W Hackett Rd
Hackett Rd
Roeding Rd
El Camino Ave
Brown Ave
Blaker Rd
Walnut Ave
Moore Rd
Lockwood Rd
W Don Pedro Rd
Don Pedro Rd
W Service Rd
E Service Rd
Partee Ln
Esmar Rd
W Redwood Rd
Marchy Ln
E Redwood Rd
Rhode Rd
Washington Rd
W Grayson Rd
E Grayson Rd
Turner Rd
Sources: Esri, USGS, NOAA
Highway
Ramps
Major Roads
Local Roads
Railroads
River
City of Ceres (5,989 acres)
Ceres Sphere of Influence
General Plan Planning Area (14,357 acres)
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MILES
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GENERAL PLAN UPDATE
City of Ceres

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

November 14, 2017

Southern Sierra Miwuk Nation
Lois Martin, Chairperson
PO Box 186
Mariposa, CA 95338

Dear Lois,

The City of Ceres is preparing an update to its General Plan and has determined that an Environmental Impact Report (EIR) is necessary to evaluate environmental impacts of the Proposed Project, pursuant to the California Environmental Quality Act (CEQA). In compliance with CEQA, the City is the Lead Agency and will prepare the EIR. Below please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

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The General Plan update is comprehensive and includes all State-required elements other than the Housing Element, which was last updated in January of 2016 (per California Department of Housing and Community Development requirements) and is not part of the Proposed Project.

The full Public Review Draft General Plan is available online at the project website at http://www.ceresgeneralplanupdate.com/documents.html. Additional information about the General Plan update process, including documentation of community outreach activities, background studies, and project updates are also available at the website.

Project Location

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The General Plan Planning Area (Planning Area), shown in **Figure 2**, is defined as the land area addressed by the General Plan. The Planning Area for the General Plan Update is the same as that used for the 1997 General Plan. It encompasses 14,700 acres including the City of Ceres, its Sphere of Influence (SOI), adjacent unincorporated areas, and Mancini Park in the City of Modesto. It is roughly bounded by the Tuolumne River on the north, Carpenter Road on the west, Grayson Road on the south, and Washington Road on the east. Although Ceres does not have jurisdiction in areas outside of its city limits, what happens in those areas bears a relation to the city's planning and must be considered in the General Plan, per California Government Code Section 65300.

Lead Agency Point of Contact

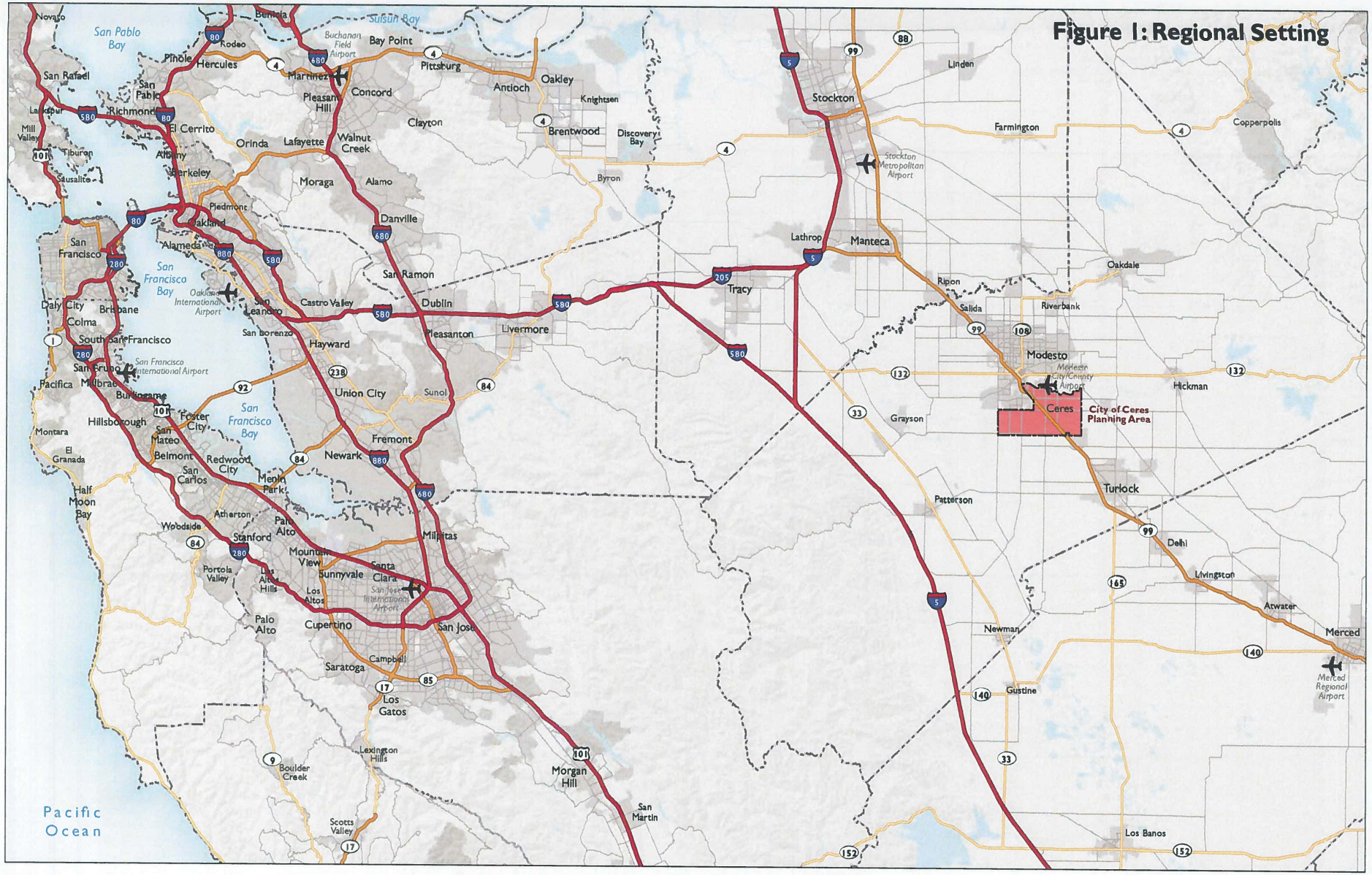
Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307
tom.westbrook@ci.ceres.ca.us

The City requests your careful review and consideration of this notice and invites any and all input and comments, including those regarding any Tribal Cultural Resources in the Planning Area that may be impacted by the Proposed Project. In accordance with AB 52 (Gatto, 2014), California Native American tribes traditionally and culturally affiliated with the Planning Area may request consultation on the Project regarding potential impacts to Tribal Cultural Resources. Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation, in writing, with the City of Ceres.

Very Respectfully,

Tom Westbrook
Director of Community Development

Figure 1: Regional Setting



Freeway
Major Highway
Minor Highway
Major/Minor Roads
County Boundary
Ceres Planning Area
Urban Areas
Water

0 5 10 20
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE

Figure 2: Planning Area

Highway
Ramps
Major Roads
Local Roads
Railroads
River
City of Ceres (5,989 acres)
Ceres Sphere of Influence
General Plan Planning Area (14,357 acres)

0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

PLANNING AND BUILDING DIVISION
2220 Magnolia Street
Ceres, CA 95307
209-538-5774
Fax 209-538-5675

CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

November 14, 2017

Tule River Indian Tribe
Neil Pevron, Chairperson
PO Box 589
Porterville, CA 95328

Dear Neil,

The City of Ceres is preparing an update to its General Plan and has determined that an Environmental Impact Report (EIR) is necessary to evaluate environmental impacts of the Proposed Project, pursuant to the California Environmental Quality Act (CEQA). In compliance with CEQA, the City is the Lead Agency and will prepare the EIR. Below please find a description of the proposed project, a map showing the project location, and the name of our project point of contact, pursuant to PRC § 21080.3.1 (d).

Project Description

The General Plan is a long-term document with text and diagrams that express the goals, objectives, and policies necessary to guide the community toward achieving its vision over a 20- to 30-year period. City decision-makers (e.g., City Council and Planning Commission), rely on the General Plan as a basis for making decisions on matters such as land use and the provision of public facilities (e.g., roads, parks, fire stations, etc.). It is also a policy document that guides decisions related to protecting, enhancing, and providing those things that the community values most, such as farmland, and protecting and enhancing the character of the community.

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The full Public Review Draft General Plan is available online at the project website at http://www.ceresgeneralplanupdate.com/documents.html. Additional information about the General Plan update process, including documentation of community outreach activities, background studies, and project updates are also available at the website.

Project Location

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Lead Agency Point of Contact

Tom Westbrook, Director of Community Development
Planning Division
2220 Magnolia Street
Ceres, CA 95307
tom.westbrook@ci.ceres.ca.us

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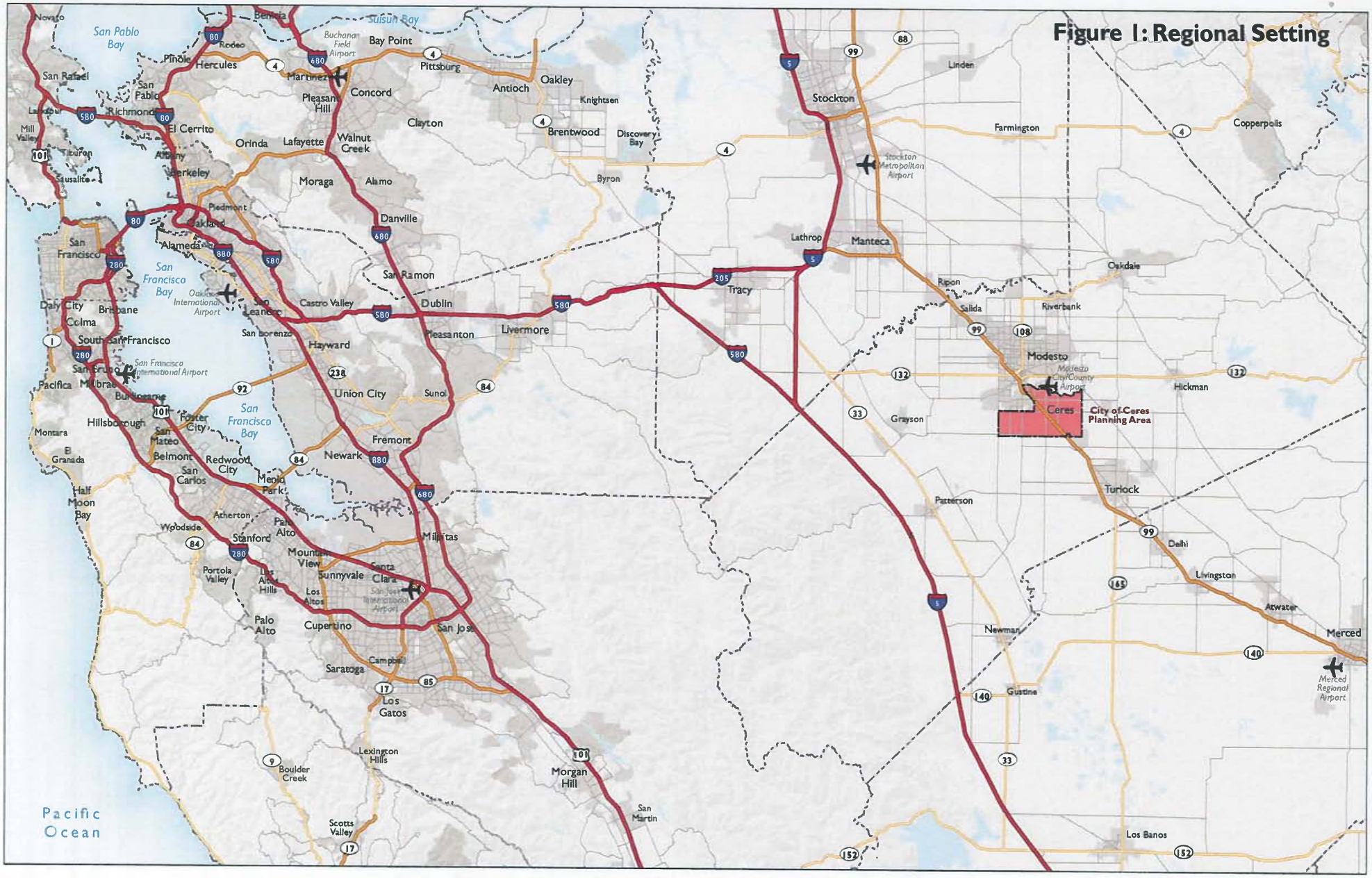
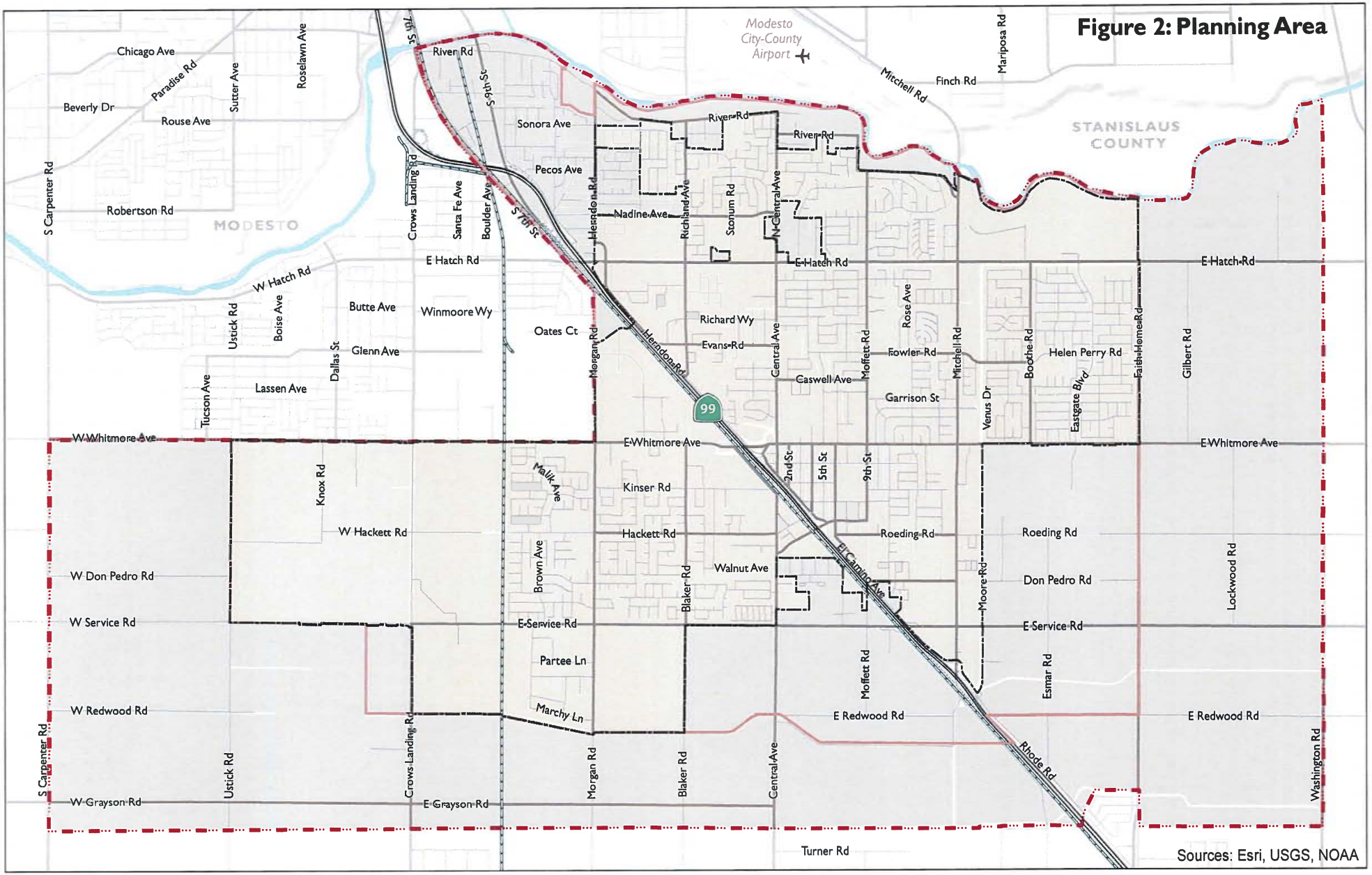
Tom Westbrook
Director of Community Development



Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

Figure 2: Planning Area



Highway
Ramps
Major Roads
Local Roads
Railroads
River
City of Ceres (5,989 acres)
Ceres Sphere of Influence
General Plan Planning Area (14,357 acres)

0 0.25 0.5 1
MILES

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GENERAL PLAN UPDATE
City of Ceres

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CITY COUNCIL

Chris Vierra, Mayor
Ken Lane — Bret Durossette
Linda Ryno — Mike Kline

November 14, 2017

Tuolumne Band of Me-Wuk Indians
Kevin Dav, Chairperson
PO Box 699
Tuolumne, CA 95379

Dear Mr. Dav,

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Tom Westbrook
Director of Community Development

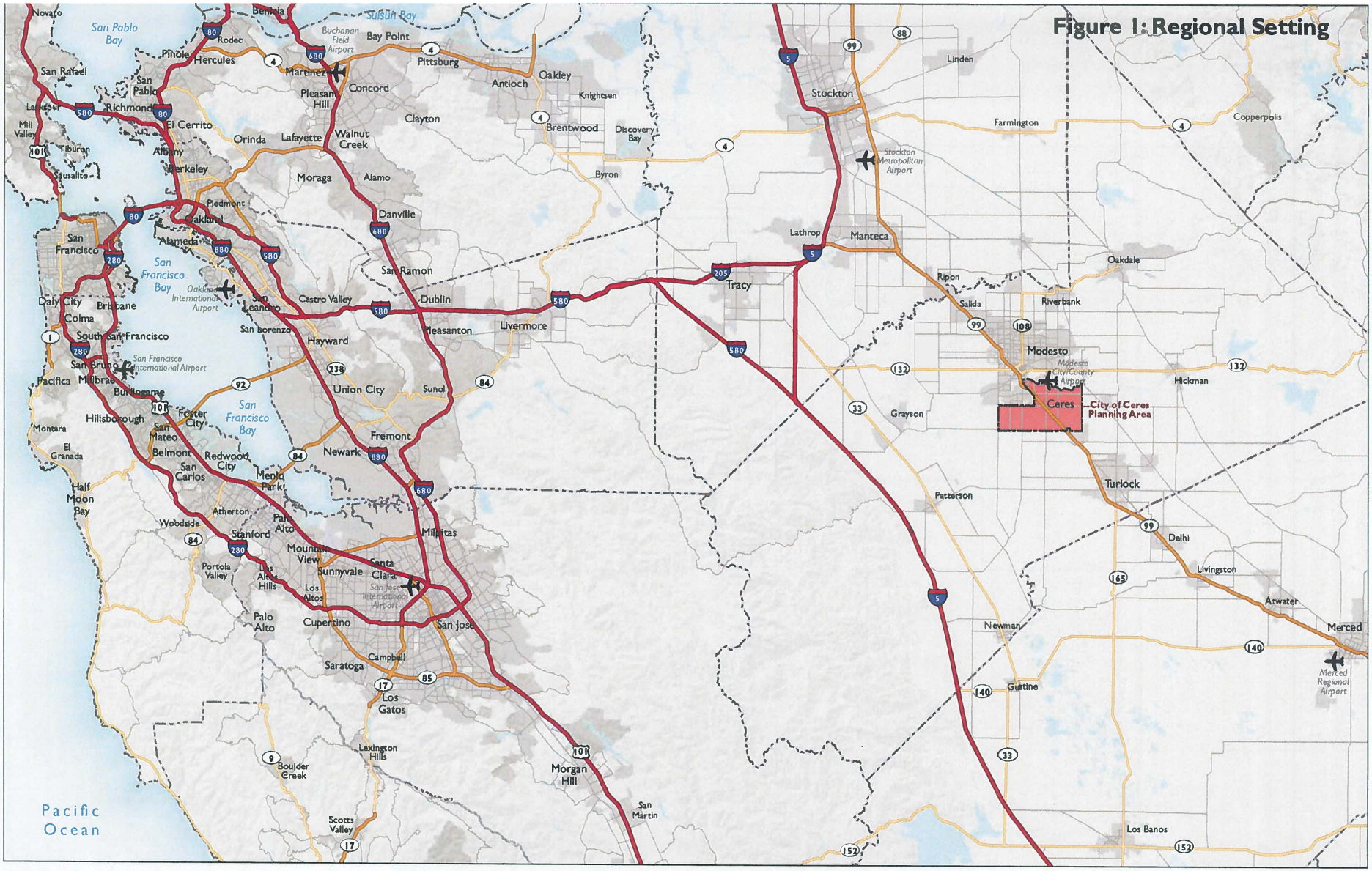
Figure 1: Regional Setting
Ceres
City of Ceres Planning Area
Pacific Ocean
Freeway
Major Highway
Minor Highway
Major/Minor Roads
County Boundary
Ceres Planning Area
Urban Areas
Water
0 5 10 20
MILES
Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.
GENERAL PLAN UPDATE
City of Ceres

Figure 2: Planning Area

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GENERAL PLAN UPDATE

Appendix D: Transportation Model Development Technical Memo

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FEHR PEERS

MEMORANDUM

Date: November 15, 2017

To: Tom Westbrook, City of Ceres

From: Kathrin Tellez, Fehr & Peers

Subject: ***City of Ceres General Plan – Model Development Documentation***

WC15-3280

This memorandum documents the development of the City of Ceres ("City") General Plan travel demand model ("Ceres Model"), which was used to evaluate the City's transportation system as envisioned under the current General Plan as well as evaluate General Plan update land use and circulation network alternatives from a transportation metric perspective. The Ceres Model study area, encompassing the city limits of the City of Ceres, as well as the General Plan Planning Area (GPPA), is shown on **Figure 1** (all figures are provided at the end of this memorandum).

The focus of this memorandum is to document changes to land use and circulation network features within the Ceres GPPA for base year conditions and discuss changes for future year conditions. A summary of model performance against validation thresholds established by the California Transportation Commission is provided for the unadjusted and adjusted model. The additional refinement and model enhancements for the Ceres Model comply with the *2017 California Regional Transportation Plan Guidelines*[1], which outline model performance expectations and validation tests for all travel demand models used by public agencies in California. Compliance with these guidelines indicates the degree to which the model is suitable for developing travel forecasts to evaluate future land use changes and transportation system improvements within the GPPA. Having a locally valid model that is able to replicate existing conditions data and responds reasonably to the types of scenarios to be evaluated in the General Plan is a critical step in providing meaningful results.

[1] http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/docs/2017RTPGuidelinesforMPOs.pdf

The following presents the model update steps, as well as the results. A summary of roadway network changes are also presented.

The resulting model was used to assess General Plan land use and circulation alternatives, and was also used to conduct the transportation analysis for inclusion in the General Plan Update Environmental Impact Report. The Ceres Model with the adopted General Plan may also be used for future land use development or infrastructure evaluation projects.

BASE YEAR MODEL DEVELOPMENT

The Ceres Model was updated to provide daily traffic flow projections on the freeway, expressway, arterial and collector roadways in support of the General Plan update, as well as analyze future land use development proposals and transportation network changes within the City. The model also has the ability to evaluate the transportation system in conjunction with planned land use and transportation system changes, provide information on regional pass-through traffic versus locally generated trips, and graphically display these results. In essence, the travel demand model serves as a tool to implement, manage and monitor the plans, projects, and programs as well as provides a tool to evaluate the potential impacts to the transportation system of proposed land use development within City of Ceres. Potential metrics that the model can provide include vehicle miles of travel, volume-to-capacity ratios, mode split, vehicle hours of delay and travel times.

To develop the model, Fehr & Peers started with the Three-County - San Joaquin, Stanislaus, and Merced (MIP 1) regional travel demand model with refined land use and circulation networks within the Modesto General Plan Planning Area, as updated for the Modesto General Plan ("Modesto Model"). The MIP 1 model was then calibrated for a 2014 base year, and provides forecasts for the year 2040, including several interim years. The Modesto Model development included updating the regional MIP 1 model to reflect local detail for the Modesto general plan. This local detail included updates to land use, TAZ structure, and roadway network characteristics. Considering Modesto's proximity to Ceres, these updates were believed to be useful starting points for the Ceres General Plan.

Using the Modesto Model as the starting point, refinements to land use inputs and roadway network characteristics within the Ceres GPPA were based on field observations, published reports, data compiled by others on the General Plan update team and American Community Survey (ACS) data.

OVERVIEW

The Ceres model utilizes the Cube modeling software package developed by Citilabs and produces daily, AM, and PM peak hour vehicle flows, for the three counties based on comprehensive land use, transportation network and socioeconomic data (SED). The model follows a four-step process consisting of trip generation, trip distribution, mode choice, and assignment. Additional detail regarding the development and structure of the original model can be found in the *Executive Summary for the Eight San Joaquin Valley MPO Traffic Models to Meet the Requirements of SB 375* (FresnoCOG, February 2012).

This section provides an overview of model updates, including changes to the transportation network, TAZ structure, and SED to develop a refined base year model, which will serve as the starting point for the development of the General Plan Model.

Transportation Network

The model roadway network was compared to the existing roadway network based on aerial photography and field verification by Fehr & Peers staff. Initial model roadway network modifications included the addition collector and some local streets, modifications to better reflect the interchange improvements at State Route 99 and E. Whitmore Road, and refinements to the model speed based on posted speed limits.

Figures 2 and **3** present the base year number of lanes and model roadway functional classification. The roadway classification shown on Figure 3 represents roadway classification types from the model which most closely aligns with the functional classification and vehicular capacity thresholds shown on the City's Circulation and Transportation Diagram for modeling purposes. The roadway classification shown on the City's Circulation and Transportation Diagram shall dictate where there are potential discrepancies. **Table 1** below shows the road miles by functional class for the City of Ceres and Ceres GPPA respectively, excluding local streets.

TABLE 1
LANE MILES BY FUNCTIONAL CLASS – BASE YEAR

Functional Class	City of Ceres	General Plan Planning Area
Freeway	12	31
Expressway	0	0
Arterial/Rural Road	49	123
Collector	52	67

Source: City of Ceres Travel Model

Table 2 below shows roadway classifications from the General Plan mapped to the model categories, along with the capacity assumptions used for the operations analysis.

TABLE 2
ROADWAY SEGMENT CAPACITIES

Type of Roadway Segment	Hourly Capacity[1]	Daily Capacity[2]
Freeway Mainline	2,000	25,000
Expressway	1,250	15,630
Principal Arterial (6 lanes)	850	10,625
Minor Arterial (4 lanes)	750	9,380
Minor Arterial (2 lane facility with center left-turn lane)	800	10,000
Major Collector (4 lane facility)	700	8,750
Major Collector (2 lane facility with center left-turn lane)	750	9,380
Downtown Collector	700	8,750
Minor Collector and Local (2 lane facility)	500	6,250
Rural Road	900	11,250

1. Vehicles per lane per hour
2. Vehicles per lane per day

Source: Fehr & Peers, 2017.

Roadway Network Checks

A series of roadway network tests were conducted to review the roadway network and the coding of associated attribute data. These tests included a connectivity check for all roadway links within the General Plan Model using the "Flag Dangling Links" tool. This tool checks every roadway link in the network and "flags" any roadway network link that does not connect to another roadway network link at both ends. This tool is also useful in identifying locations where roadway network links or centroid connectors appeared to connect to the roadway network but did not. Dangling links were only checked within the General Plan Planning Area.

A series of shortest path checks were performed using the "Path Building Tool" which returns the shortest path/distance between two points in the roadway network. This tool was used to check if the distance between two selected locations was correct and to ascertain if the route chosen was reasonable based on a combination of travel distance and speed to determine uncongested travel time. For example, the model was reviewed to ensure that freeways were preferred to local streets for longer distance trips under free-flow conditions. The resulting travel distance data was also compared to data from aerial images and the resulting travel time data was checked for reasonableness against empirical congested travel time data.

Both sets of these checks were performed and edits were performed in response.

Centroid Connector Configuration

Centroid connectors are used in the model as a representation of local streets to load vehicle trips onto the roadway network from Travel Analysis Zones (TAZs). To better approximate the local street system and connections to higher order roadways, the number and placement of centroid connectors was refined.

In the unmodified model, some centroid connectors loaded traffic to the nearest intersection of a collector or arterial roadway rather than at mid-block locations where local streets typically connect to the street system. To load trips onto the roadway network at a more localized level, centroid connectors associated with TAZs were modified to load at mid-block locations. The number and placement of centroid connectors was also modified to reflect the location of local streets and how they interact with collector and arterial roadways. Centroid connectors were only checked within the General Plan Planning Area.

TAZ Structure

Land uses within the City of Ceres GPPA are represented in the Model by approximately 184 TAZ's, as shown on **Figure 4**. TAZ boundaries were reviewed against natural and man-made boundaries, including the roadway network, railroad tracks and water features, based on Google Earth satellite images. No changes such as splitting zones or readjusting boundaries were made to the model TAZ system within the Ceres Model area.

No refinements for the presence of special generators, which are land uses whose trip making characteristics do not fall within a typical model category and must be manually entered, were made.

Socioeconomic Data

The Model utilizes various types of SED to forecast person trips generated by each TAZ. Population-related inputs include numbers of housing units stratified by structure type, household income, age of population in households, and housing size. Employment-related inputs are employee by major employment category. Review of the model SED revealed slight inconsistencies in socioeconomic data when compared to published sources, as presented in **Table 3**. For example, the total number of households and household population within the City based on model input data was lower than that reported in ACS. The number of households was factored up to match the model households to ACS, and the person per household factor was increased to better represent Ceres. Employment by category was also factored to better match the distribution of employment types. Visual inspection of aerials for the City/County boundary areas were also reviewed for employment changes. Note that the City boundaries in the model do not exactly match the City boundaries of the published data (includes County/General Plan Planning Area pockets) and thus it is not expected that the numbers will match exactly. Table 3 below compares the baseline and adjusted SED data for General Plan model with published data.

The base year number of households and total employment by TAZ are shown on **Figures 5** and **6**.

TABLE 3
2014 LAND USE DATA COMPARISON

	Unadjusted Model[1] - City of Ceres[2]	Adjusted Model[3] - City of Ceres[2]	Published Data[4,5] - City of Ceres	General Plan Planning Area Total
Total Households	12,795	14,570	13,840	18,021
Household Population	38,491	49,414	46,952	60,622
Total Employment	9,589	11,354	8,666	14,099
Office	3,473	3,439	3,216	4,218
Retail	1,357	1,763	1,367	2,203
Industrial	1,442	2,093	1,740	2,855
Other	3,317	4,059	2,343	4,823

Source:
1: SJV MIP Three-County Model, as reviewed by Fehr & Peers, October 2016.
2. Some land uses included in the City of Ceres totals reflect County Pockets
3. City of Ceres Travel Demand Model.
4. Residential: American Community Survey: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml#.
5. Commercial: *Demographic, Economic, and Fiscal Conditions in the City of Ceres*, March 2016.

Trip Generation Rates

The model utilizes the trip generation rates to determine the number of trips produced and attracted by particular land use category such as Service employment or Single Family households. Upon reviewing the trip generation rates, Fehr & Peers identified that that Food/Hotel employment was producing about 8.7 trips per employee whereas the ITE Tip Generation manual (9th Edition) recommends 32 trips per Food/Hotel employee (which accounts for the trips not only of the employee, but patron as well). The model inputs were updated such that the updated trip generation was applied to Ceres GP zones only. This resulted in improved validation as described in the next section.

Preliminary alternatives screening for future scenarios indicated that there was significant employment growth anticipated in Ceres. The model was originally developed to balance all trips to productions (e.g. household trips) but because of the growth in attractions (e.g. commercial/employment trips) the model was changed such that Ceres balanced to attractions instead. This change would prevent unintuitive results where attractions could not find productions

and would thus not generate trips, potentially underestimating their impact on the transportation network. This change was applied to both existing and all future scenarios.

MODEL VALIDATION

The Model validation process involves running the model to estimate existing travel patterns, checking the model results against actual travel patterns, and then calibrating the model input parameters in an iterative manner until model data better replicates observed data based on criteria established by the California Transportation Commission is achieved, or describing the limitations of the model if the criteria are not achieved. Two types of model validation were performed – static validation and dynamic validation.

The validation procedures and results are summarized below.

Static Validation

Static model validation measures how well the model's base year traffic volume forecasts replicate base year traffic counts. Existing roadway segment counts were collected on arterial and collector street locations as part of the Background Conditions Report. This data was supplemented by data from the California Department of Transportation (Caltrans) for freeway segments. The static model validation initially consisted of 42 local roadway link locations calculated from traffic counts and 2 Caltrans link location, for a total of 44 model link locations within and around the Model study area. Regional models are not expected to validate well for low volume roads, locations with daily count of less than 1,000 were excluded from the static validation. This resulted in total of 38 roadway link locations. A cordon line was then drawn around the City to establish east-west and north-south flows into and out of the GP. Additionally, some internal locations were included in the validation. Validation locations are shown on **Figure 7**.

The California Transportation Commission (CTC) established guidelines for determining whether a model is valid and acceptable for forecasting future year traffic and transit volumes. The sub-area validation results were compared to the validation thresholds discussed in *2017 California Regional Transportation Plan Guidelines* (CTC, January, 2011)[2] . This guidance is specifically for State routes (two-way facilities), but we are applying the same criteria to all roadways since Caltrans does not provide guidance on other facilities. The thresholds are:

[2] http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/docs/2017RTPGuidelinesforMPOs.pdf

- The two-way sum of the volumes on all roadway links for which counts are available should be within 10 percent of the counts.
- At least 75 percent of the roadway links for which counts are available should be within the maximum desirable deviation, which ranges from approximately 14 to 68 percent depending on total volume (the larger the volume, the less deviation is permitted).
- The correlation coefficient[3] between the actual ground counts and the estimated traffic volumes should be greater than 88 percent.
- The percent root mean square (RMSE[4]) should not exceed 40 percent.

The static model validation process began with the model as modified for the Modesto General Plan. Results of the initial model validation within the Ceres GPPA, are summarized in **Table 4**. Red shading indicates the acceptance criterion was not met while green shading indicates the acceptance criterion was met. Prior to the model adjustments discuss in the previous section, only one of the four validation criteria were satisfied. This is common when using a regional travel demand model to forecast more localized conditions.

After the model was iteratively calibrated with the changes as described above, model validation improved as presented in **Table 4**. The refined model meets or exceeds the guidelines for model accuracy for daily conditions within the Ceres Model for two of the four validation categories; the percent of links within Caltrans Standard Deviation improved from 61 percent to 73 percent – 75 percent is the desired standard. The percent root mean square (RMSE) metric improved with model adjustments, but did not fall below the desired threshold. In practical terms, this means that the model may over or underestimate vehicles volumes on a particular roadway, although the total level of travel through the City is within the observed range. Based on all of the guidelines it is acceptable to use this model for purposes of the General Plan analysis but specific care should be given to the model outputs to ground them in reality. One example of this is the use of existing counts to support generation of future forecasts via the difference method; this is when actual traffic counts are used to estimate future traffic volumes based on the difference between the base year and future year model. Future roadway segment forecasts were developed using the difference method. Additional model validation details are provided in **Attachment A.**

[3] Correlation coefficient: A variable that determines the degree to which two variables are associated. The value varies between -1 (-100%) and 1 (100%). A value closer to 1 suggests, in general, the model estimates are in line with observed data.

[4] Root Mean Square Error: A statistical measure for how close the estimated value is to the observed data, regardless of positive or negative direction.

TABLE 4
RESULTS OF STATIC MODEL VALIDATION
BASE YEAR TRAVEL DEMAND FORECASTING MODEL

Validation Statistic	Criterion for Acceptance[1]	Model Results Initial[2]	Model Results Calibrated[2]
		Daily	Daily
% of Links within Caltrans Standard Deviations	75%	61%	73%
2-way Sum of All Links Counted	Within 10%	-13%	-2%
Correlation Coefficient	Greater than 88%	97%	97%
RMSE	40% or less	51%	47%

Red indicates statistics not meeting criterion, orange indicates close to meeting, and green indicates meeting criterion

Source:

1. http://www.catc.ca.gov/programs/rtp/2010_RTP_Guidelines.pdf
2. City of Ceres Travel Model

Dynamic Validation

The traditional approach to the validation of travel demand models is to compare the roadway segment volumes for the model's base year to actual traffic counts collected in the same year. This approach provides information on a model's ability to reproduce a static condition. However, models are seldom used for static applications. By far the most common use of models is to forecast how a change in inputs would result in a change in traffic conditions. Therefore, another test of a model's accuracy is to focus on the model's ability to predict realistic differences in outputs as inputs are changed; in other words, "dynamic" validation rather than static validation.

Dynamic validation determines a model's sensitivity to changes in land uses and the transportation system. These tests are recommended in 2017 California Regional Transportation Plan Guidelines. The results of dynamic validation tests are inspected for reasonableness in the direction and magnitude of the changes.

The Three-County Model underwent dynamic validation tests for land use, traffic assignment, travel cost, and induced demand as part of its model development. It was found to be dynamically valid

for certain elements but overall it did not pass dynamic tests. Considering the size of Ceres in context of the entire Three-County Model, additional dynamic tests were not performed for the Ceres General Plan model. Instead adjustments were made to the base condition to ensure appropriate behavior for Ceres, such as trip generation balancing to attractions. Additionally trip lengths, VMT, mode share, and trip generation were reviewed for the future alternatives screening analysis to determine how the model was behaving with new inputs. Based on these results the base calibration was adjusted to ensure appropriate model behavior. Although formal dynamic validation was not performed, the model did respond as expected when the Faith Home Road extension from Hatch Road to Garner Road was coded into the model. Traffic shifted from parallel routes to use the new roadway extension, and overall vehicle miles of travel in the area decreased slightly to account for a shorter available travel route to existing and planned industrial development. Scenario testing also showed that if the capacity of Faith Home Road was restricted, higher future traffic volumes are predicted on Mitchell Road and State Route 99 through Ceres.

Additional detail regarding the parent Three-County Model can be obtained in the Model Development for the Eight San Joaquin Valley MPO Traffic Models to Meet the Requirements of SB 375 – Three-County Model (Fehr & Peers, February 2012).

RESULTS

Transportation metrics were developed using the model and compared against published sources, where available, including travel time by trip purpose, mode choice, and vehicle miles of travel.

TRIP BALANCING

In general, if a region (City, GP area or County) has comparable employment and housing then the number of trips produced should balance with the trips attracted. **Table 5** shows trip balance ratios for the Ceres GPPA Model area zones. The recommended guideline for productions to attractions is between 0.9 and 1.1, which are met.

TABLE 5
INTERNAL TRIP BALANCING BY TRIP PURPOSE

	Productions			
	HBW	**HBS**	**HBO**	**NHB**
Productions	536,460	308,839	1,207,073	704,310
Attractions	504,347	297,924	1,139,741	744,626
Productions/Attractions	1.06	1.04	1.06	0.95

Note: HBW= Home-Work; HBS= Home-Shop; HBO=Home-Other; NHB=Non-Home
Source: Ceres GP Model

TRAVEL TIME

Travel time measures the average time taken to complete a trip. Travel time as calculated from the City of Ceres model was compared against the California Household Travel Survey (2014) data at County level of detail. **Table 6** compares the average trip duration by trip purpose between the model and CHTS. The model estimates are within the general range of CHTS data. Additional information relating to the CHTS is discussed below.

TABLE 6
AVERAGE TRAVEL TIME (IN MINUTES) BY TRIP PURPOSE

Data Source		Purpose		
		HBW	**HBO**	**NHB**
Model Estimate	Entire Model	15.7	20.4	13.5
CHTS[1]	San Joaquin County	17.6	14.1	11.8
	Stanislaus County	17.9	13.5	12.4
	Merced County	14.5	13.3	10.9

Notes: HBW = Home Based Work, HBO = Home Based Other and NHB = Non Home Based.

Source:

1. California Household Travel Survey: http://www.dot.ca.gov/hq/tpp/offices/omsp/statewide_travel_analysis/chts.html
2. Ceres Travel Demand Model

The California Department of Transportation (Caltrans) conducts the California Household Travel Survey every ten years to obtain detailed information about the socioeconomic characteristics and travel behavior of households statewide. Regional travel models, including the Statewide Travel Demand Model, and the Statewide Integrated Inter-regional Transportation Model, use this information as a base to forecast future travel behavior. This data is also used in the validation of regional and local models.

The most recent California Household Travel Survey was conducted between February 2012 and January 2013. Over 40,000 households from all 58 California counties were surveyed. The survey includes traditional travel diaries which track each household member's movements over the course of a single day. It also includes and a smaller set of 5,700 households who also used either personal or vehicle GPS units to supplement the diary information. The combination of travel diary and GPS data allowed the survey to account for trips that are often under-reported in travel surveys, such as walking trips, non-home-based trips, and short stops during longer trips.

The survey represents 42,431 households Statewide, with 13 percent of participating households involved in the GPS data collection; approximately 32 households in Ceres were included in the survey effort. Some limitations to CHTS include only households with landlines were invited to patriciate in the survey, the survey was only administered in English and Spanish, and the sample size within Ceres is relatively small (representative of 0.2% of households). While CHTS data provides for a point of comparison that otherwise would not be available, the data limitations are acknowledged.

MODE CHOICE

Mode choice reflects the mode of transport used by residents to make a trip. The summary of modes used by City of Ceres residents is shown in the table below. For comparison the respective mode choice from the California Household Travel Survey is also shown. The comparison indicates that the model may overestimate the private vehicle mode share, including both single occupant and carpools, while underestimating walk and bike travel modes. The potential for model error was taken into consideration in the mode comparison of project alternatives.

TABLE 7
CITY OF CERES - MODE CHOICE COMPARISON (ALL TRIPS)

	CHTS[1]	Model Estimate
Drive Alone	41%	38%
Carpool	47%	51%
Transit	2%	4%
Walk/Bike/Other	10%	8%
Total	100%	100%

Source: California Household Travel Survey, 2012.

VEHICLE MILES OF TRAVEL

The Model was used to develop estimates of vehicle miles of travel (VMT) generated by land uses within the Ceres GPPA. The amount of vehicle travel per capita was then compared to the County as a whole. Pending changes to California Environmental Quality Act (CEQA) guidelines could replace traditional vehicular level of service metrics with VMT metrics.

To assess vehicle miles of travel generated by land uses in Ceres, three accounting methods were used, including the boundary method, the shared-accounting method, and the total accounting method.

Boundary Method

A boundary based estimate captures all the VMT on a roadway network within a specified geographic area (such as the city limits or General Plan Boundary) regardless of the origin and destination of the trip. A limitation of this method is that it does not capture trips that extend beyond a jurisdictions boundary and includes through traffic on regional roadway facilities over which the City has no control, such as State Route 99. However, this information can use useful in estimating total noise and particulates within a specified geographic area. Traditionally, most published data on VMT has been calculated via the boundary method.

Origin-Destination Method – Shared Accounting

An origin-destination (OD) method tracks all vehicular trips generated by the City of Ceres across the entire regional network. Four types of trips are isolated, which shares the responsibility of trips with other jurisdictions:

- Internal-Internal (II) trips: Include all trips that begin and end within the City of Ceres.
- Internal-External (IX) trips: Include one-half the distance of all trips that begin in within city limits and end outside city limits. The City of Ceres assumes half the responsibility of these kinds of trips.
- External-Internal (XI) trips: Include one-half the distance of all trips that begin outside city limits and end inside city limits. The City of Ceres assumes half the responsibility of these kinds of trips.
- External-External (XX) trips: Trips that begin and end outside the City of Ceres are not included. The City of Ceres assumes no responsibility for External-External trip type VMTs.

To estimate VMT per service population, trips with at least one trip end within the Ceres GP area are multiplied by the trip distance for all trip types to estimate VMT and then divided by the residential and working population of the City of Ceres.

Trips that have neither an origin nor destination within the City are not included in the VMT total as City General Plan policies cannot appreciably affect the amount of through traffic in a jurisdiction.

Origin-Destination Method – Total Accounting

The origin-destination (OD) total accounting method is similar to the shared accounting method, except that the entire trip length for Internal-External and External-Internal trips is captured.

VMT Results

The total VMT is then divided by the City's total service population, defined as the residential population plus the number of jobs; results are summarized in **Table 8** for the City of Ceres General Plan Planning Area and **Table 9** for Stanislaus County for comparison purposes.

TABLE 8
VEHICLE MILES OF TRAVEL SUMMARY CITY OF CERES GP

Performance Measure	Boundary Method	Shared Accounting Method	Total Accounting Method
Households		18,021	
Population		60,622	
Employment		14,099	
Daily VMT	941,822	638,807	1,268,424
Daily VMT per Household	52.26	35.45	70.39
Daily VMT per Service Population	12.80	8.55	16.98

Notes: Boundary method includes through traffic on all roadways through Ceres General Plan area including traffic on State Route 99 and other regional through trips, while shared and total accounting methods only include vehicle trips with at least one trip end in the Ceres GP.
Source: City of Ceres Travel Model, summarized by Fehr & Peers, 2016.

TABLE 9
VEHICLE MILES OF TRAVEL SUMMARY
STANISLAUS COUNTY

Performance Measure	Boundary Method	Shared Accounting Method	Total Accounting Method
Households		175,093	
Population		524,427	
Employment		193,116	
Daily VMT	9,982,059	10,032,854	15,782,908
Daily VMT per Household	57.01	57.30	90.14
Daily VMT per Service Population	13.91	13.98	22.00

Notes: Boundary method includes through traffic on all roadways through Stanislaus County, while shared and total accounting methods only include vehicle trips with at least one trip end in Stanislaus County.
Source: City of Ceres Travel Model, summarized by Fehr & Peers, 2016.

For comparison, the corresponding daily Vehicle Miles of Travel (DVMT) in Caltrans Highway Performance Monitoring System for the Stanislaus County is approximately 11,143,000.

This completes the City of Ceres General Plan Model Development Documentation. Please call Kathrin at (925) 930-7100 if you have questions.

Attachments:

Figure 1	City of Ceres General plan area
Figure 2	Existing Roadway Network – Number of Lanes
Figure 3	Existing Roadway Network – Functional Classification
Figure 4	Travel Analysis Zone Map
Figure 5	Base Year Households by TAZ
Figure 6	Base Year Employment by TAZ
Figure 7	Model Validation Locations
Attachment A	Model Validation Spreadsheet
Attachment B	Base Year and 2040 Land Use by TAZ Summary

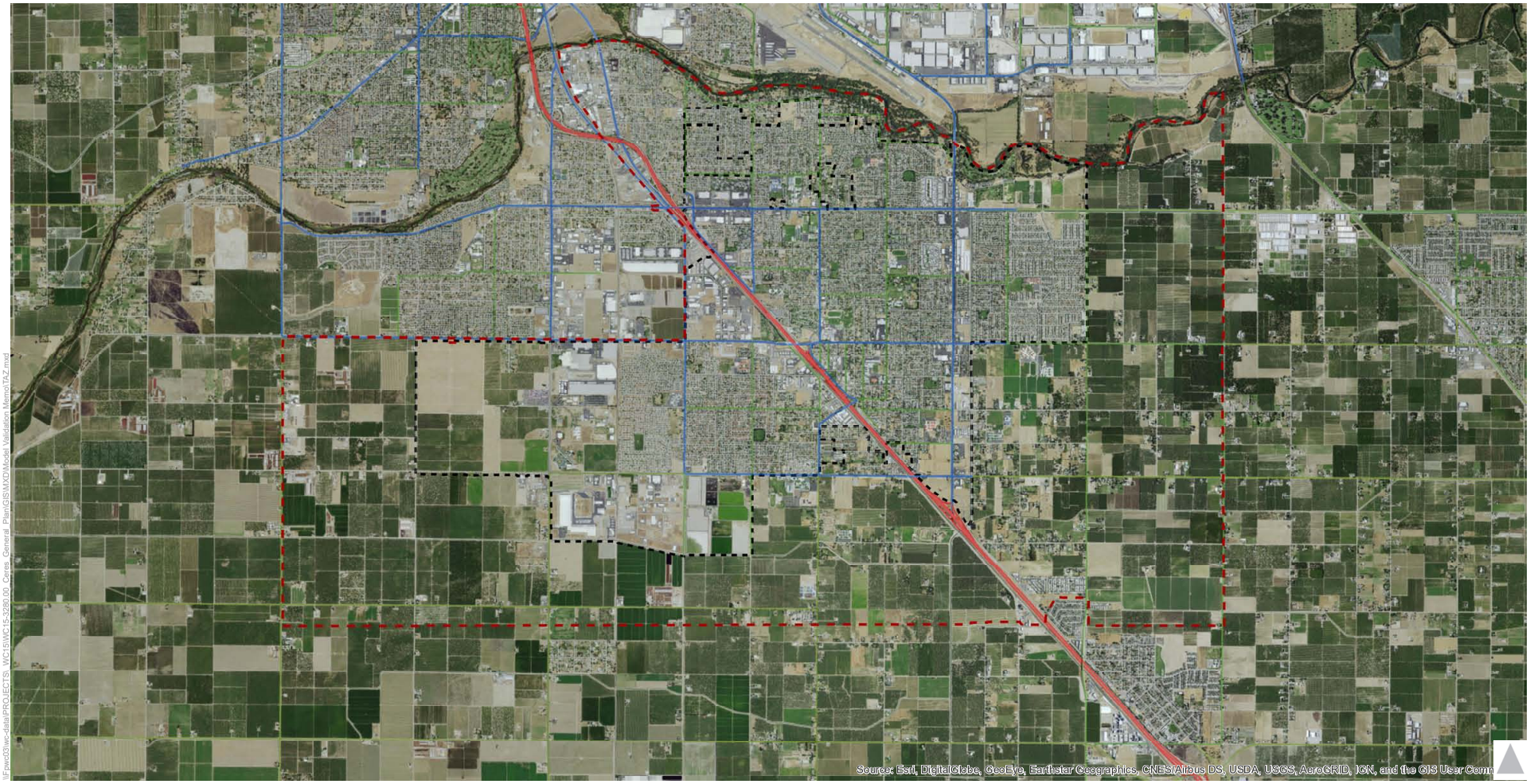
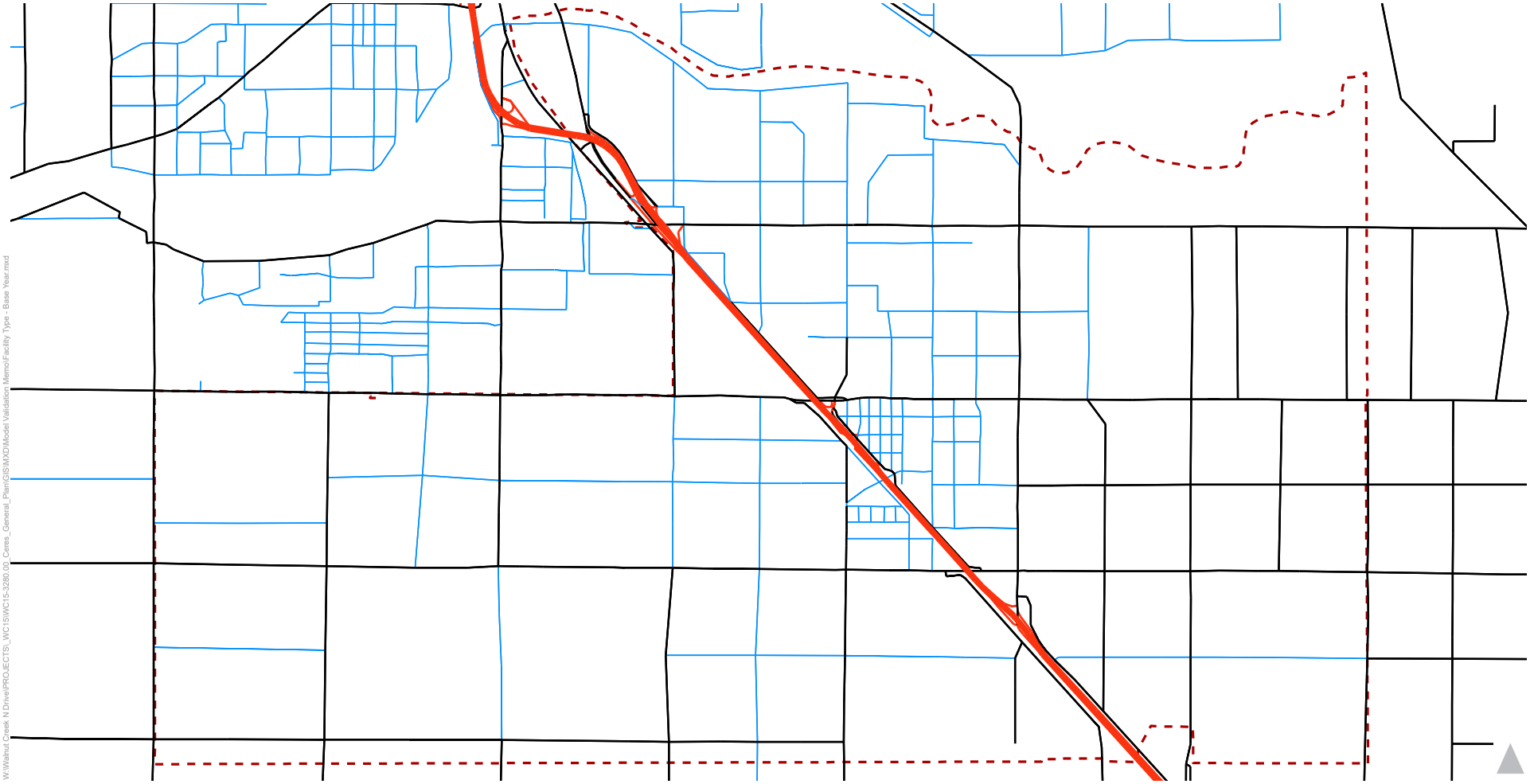


Figure 1

City of Ceres General Plan
General Plan Area

Base Year 1 2 3 4 5 General Plan Limits



Base Year

Arterial
Expressway
Freeway
Major Collector
Minor Collector
Ramp/Other

City of Ceres General Plan
Classification

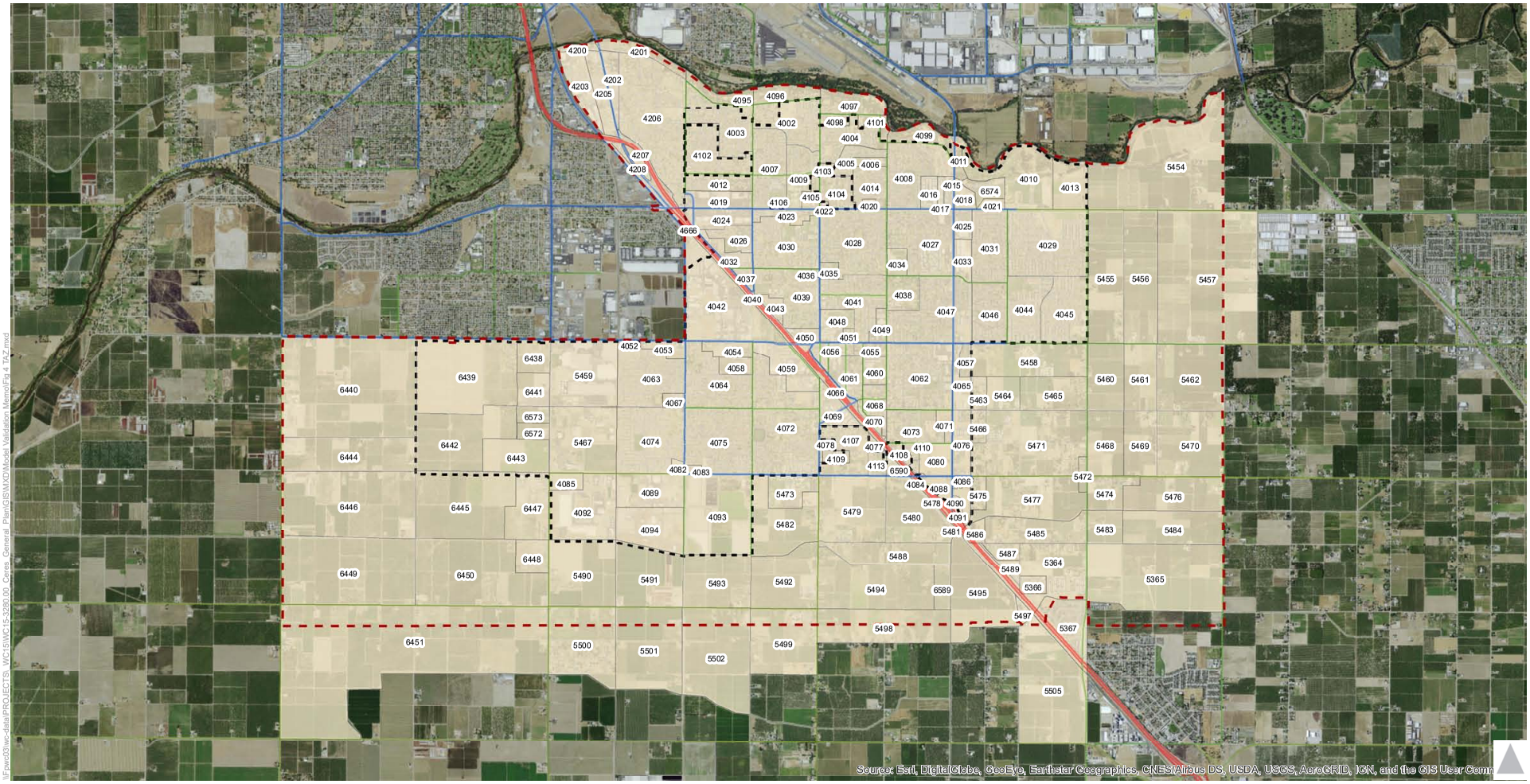


Figure 4

City of Ceres General Plan
Transportation Analysis Zones

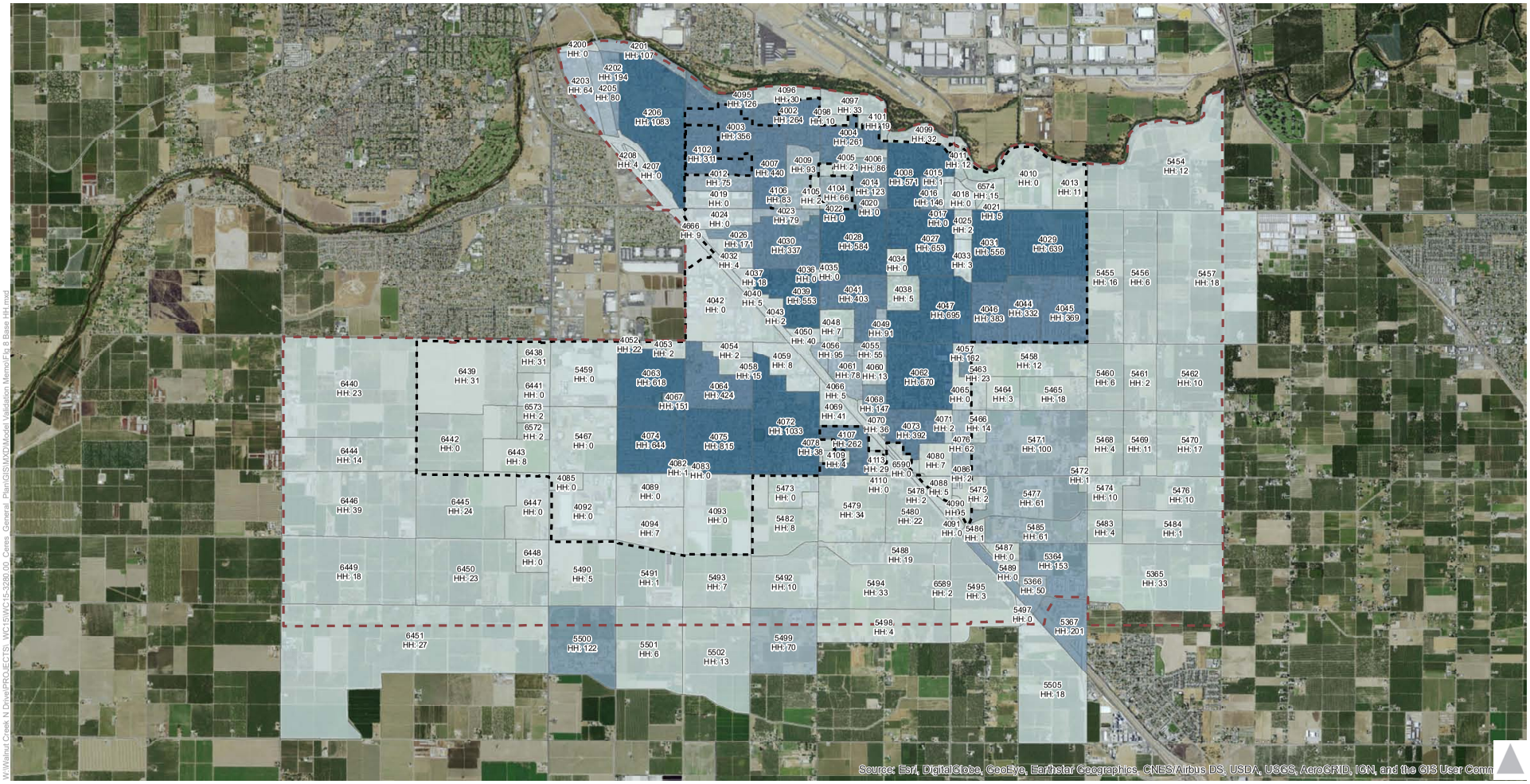
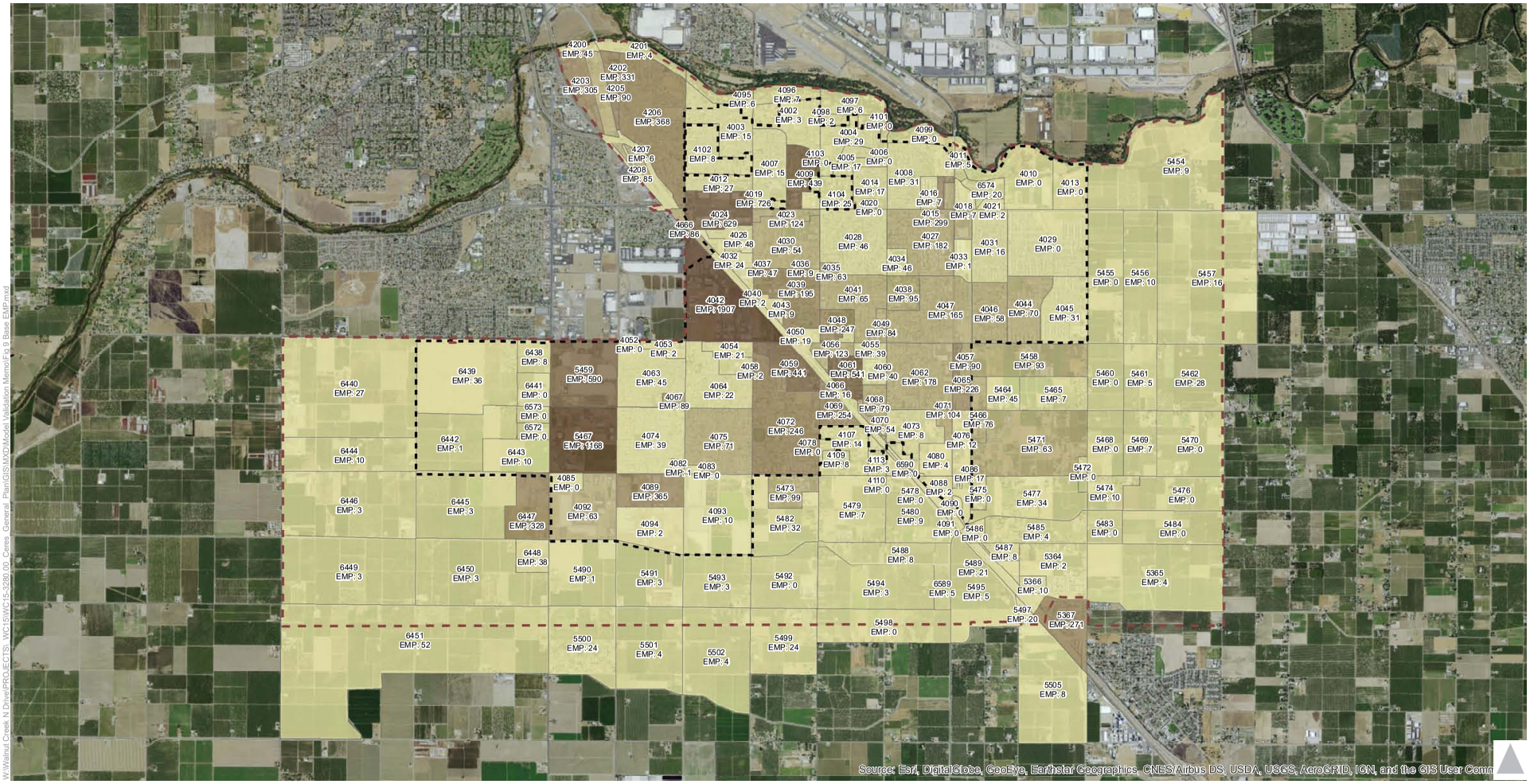


Figure 5

City of Ceres General Plan
Base Year Households by TAZ



W:\Walnut Creek N Drive\PROJECTS_WC15\WC15-3269.00_Ceres_General_Plan\GIS\MXD\Model Validation Memo\Fig 9 Base EMP.mxd

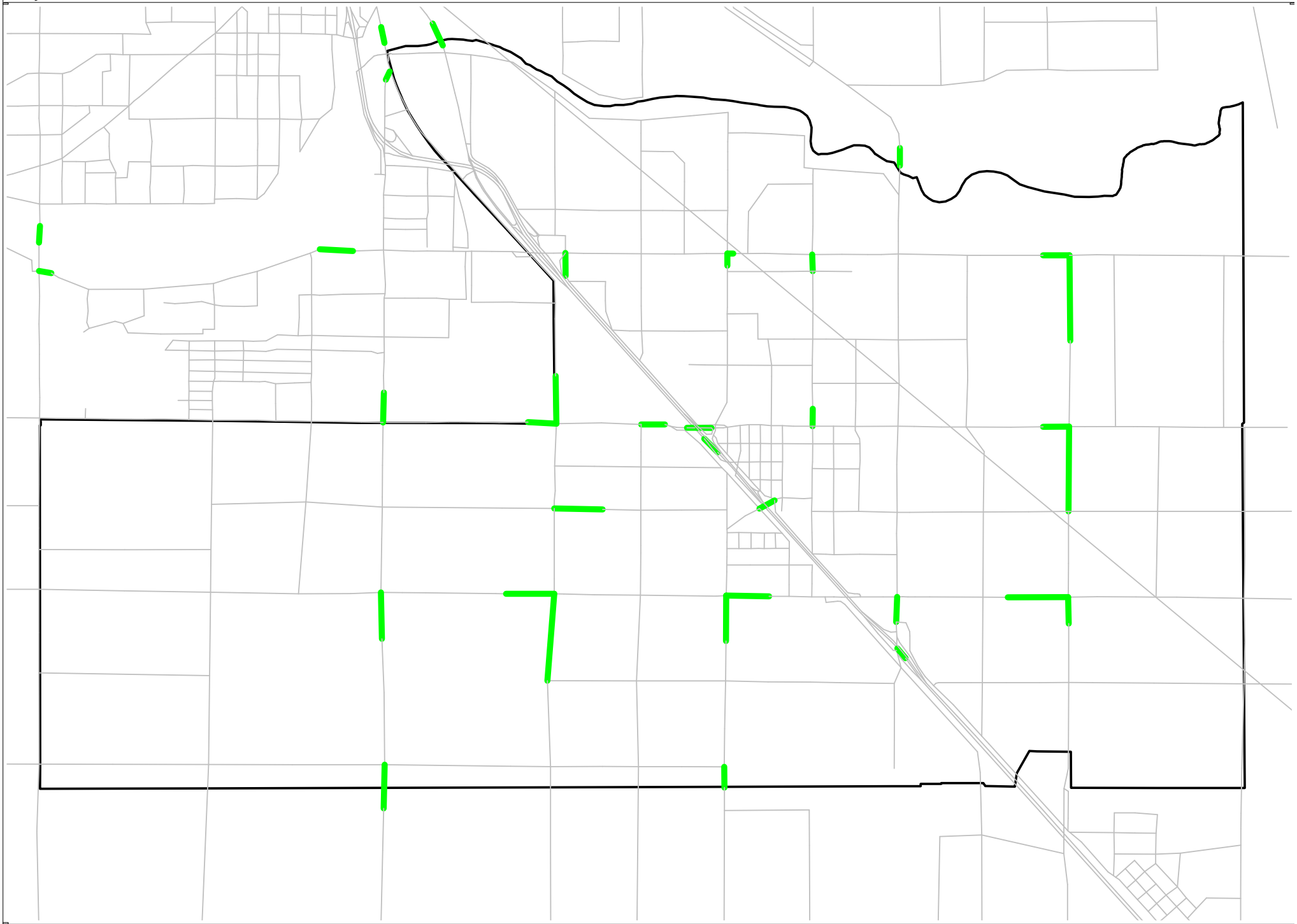
Base Year Employment

- 0 - 53
- 54 - 194
- 195 - 387
- 388 - 726
- 727 - 1,999

Figure 6

City of Ceres General Plan
Base Year Employment by TAZ

City of Ceres Model Validation Locations



6/7/2017

cube

(Licensed to Fehr & Peers)

					One-Way Validation						Two-Way Validation							
					AB Direction						Total Volume							
			Count	Model	Model	Model	Maximum	Within	Model	Difference			Model	Model	Maximum	Within	Model	Difference
A&B	A	B	AB	AB	/Count	# Deviation	Deviation	Deviation	- Count	Squared	Model	Count	/Count	# Deviation	Deviation	Deviation	- Count	Squared
23142_23774	23142	23774	8,150	4,474	0.55	-0.45	0.52	Yes	-3,676	13,513,769	8,948	16,300	0.55	-0.45	0.29	No	-7,352	54,055,077
19707_23959	19707	23959	9,750	14,133	1.45	0.45	0.52	Yes	4,383	19,206,597	28,265	19,500	1.45	0.45	0.28	No	8,765	76,826,389
19858_19895	19858	19895	21,350	28,002	1.31	0.31	0.36	Yes	6,652	44,244,973	56,003	42,700	1.31	0.31	0.21	No	13,303	176,979,890
24099_24243	24099	24243	10,050	7,728	0.77	-0.23	0.48	Yes	-2,322	5,389,374	15,457	20,100	0.77	-0.23	0.28	Yes	-4,643	21,557,494
19743_19763	19743	19763	6,350	3,970	0.63	-0.37	0.58	Yes	-2,380	5,666,706	7,939	12,700	0.63	-0.37	0.33	No	-4,761	22,666,823
25105_23232	25105	23232	5,250	2,968	0.57	-0.43	0.58	Yes	-2,282	5,209,443	5,935	10,500	0.57	-0.43	0.36	No	-4,565	20,837,772
23906_24230	23906	24230	9,400	5,095	0.54	-0.46	0.52	Yes	-4,305	18,530,288	10,191	18,800	0.54	-0.46	0.28	No	-8,609	74,121,153
20048_20046	20048	20046	7,375	9,663	1.31	0.31	0.58	Yes	2,288	5,233,219	19,325	14,750	1.31	0.31	0.31	Yes	4,575	20,932,877
20058_20059	20058	20059	5,500	5,073	0.92	-0.08	0.58	Yes	-427	182,107	10,147	11,000	0.92	-0.08	0.36	Yes	-853	728,427
20040_20100	20040	20100	3,400	1,221	0.36	-0.64	0.63	No	-2,179	4,750,086	2,441	6,800	0.36	-0.64	0.44	No	-4,359	19,000,345
20048_20087	20048	20087	3,950	2,326	0.59	-0.41	0.63	Yes	-1,624	2,637,369	4,652	7,900	0.59	-0.41	0.41	No	-3,248	10,549,475
20055_20092	20055	20092	2,950	1,454	0.49	-0.51	0.63	Yes	-1,496	2,238,001	2,908	5,900	0.49	-0.51	0.48	No	-2,992	8,952,003
19028_20058	19028	20058	1,800	1,688	0.94	-0.06	0.68	Yes	-112	12,597	3,376	3,600	0.94	-0.06	0.58	Yes	-224	50,386
23259_24234	23259	24234	12,300	8,840	0.72	-0.28	0.48	Yes	-3,460	11,974,952	17,679	24,600	0.72	-0.28	0.26	No	-6,921	47,899,808
23260_23390	23260	23390	2,950	2,213	0.75	-0.25	0.63	Yes	-737	543,124	4,426	5,900	0.75	-0.25	0.48	Yes	-1,474	2,172,498
20213_20240	20213	20240	3,500	1,273	0.36	-0.64	0.63	No	-2,227	4,959,115	2,546	7,000	0.36	-0.64	0.44	No	-4,454	19,836,461
23257_24091	23257	24091	3,000	407	0.14	-0.86	0.63	No	-2,593	6,723,587	814	6,000	0.14	-0.86	0.48	No	-5,186	26,894,347
23260_25599	23260	25599	7,250	2,653	0.37	-0.63	0.58	No	-4,597	21,128,400	5,307	14,500	0.37	-0.63	0.31	No	-9,193	84,513,601
20224_20226	20224	20226	5,252	6,197	1.18	0.18	0.58	Yes	945	893,475	12,393	10,503	1.18	0.18	0.36	Yes	1,890	3,573,902
20260_20263	20260	20263	3,689	6,565	1.78	0.78	0.63	No	2,876	8,272,573	13,129	7,377	1.78	0.78	0.44	No	5,752	33,090,290
20246_20252	20246	20252	3,450	997	0.29	-0.71	0.63	No	-2,453	6,018,209	1,994	6,900	0.29	-0.71	0.44	No	-4,906	24,072,837
20246_20399	20246	20399	2,050	1,905	0.93	-0.07	0.68	Yes	-145	20,993	3,810	4,100	0.93	-0.07	0.52	Yes	-290	83,974
20389_20391	20389	20391	1,200	1,207	1.01	0.01	0.68	Yes	7	45	2,413	2,400	1.01	0.01	0.63	Yes	13	181
20383_20390	20383	20390	4,650	4,599	0.99	-0.01	0.63	Yes	-51	2,588	9,198	9,300	0.99	-0.01	0.38	Yes	-102	10,351
20490_20492	20490	20492	3,500	4,276	1.22	0.22	0.63	Yes	776	602,887	8,553	7,000	1.22	0.22	0.44	Yes	1,553	2,411,548
20499_20501	20499	20501	5,950	5,139	0.86	-0.14	0.58	Yes	-811	657,666	10,278	11,900	0.86	-0.14	0.34	Yes	-1,622	2,630,662
25100_20517	25100	20517	2,050	165	0.08	-0.92	0.68	No	-1,885	3,554,085	330	4,100	0.08	-0.92	0.52	No	-3,770	14,216,342
20483_20560	20483	20560	2,450	4,820	1.97	0.97	0.68	No	2,370	5,619,046	9,641	4,900	1.97	0.97	0.52	No	4,741	22,476,183
20492_20585	20492	20585	1,450	271	0.19	-0.81	0.68	No	-1,179	1,389,163	543	2,900	0.19	-0.81	0.58	No	-2,357	5,556,651
20499_20561	20499	20561	2,800	1,403	0.50	-0.50	0.63	Yes	-1,397	1,951,214	2,806	5,600	0.50	-0.50	0.48	No	-2,794	7,804,858
20508_20548	20508	20548	14,800	23,077	1.56	0.56	0.44	No	8,277	68,507,306	46,154	29,600	1.56	0.56	0.24	No	16,554	274,029,225
20517_25106	20517	25106	2,050	911	0.44	-0.56	0.68	Yes	-1,139	1,297,868	1,822	4,100	0.44	-0.56	0.52	No	-2,278	5,191,471
20664_20703	20664	20703	3,850	4,090	1.06	0.06	0.63	Yes	240	57,702	8,180	7,700	1.06	0.06	0.41	Yes	480	230,807
20670_20693	20670	20693	1,750	1,185	0.68	-0.32	0.68	Yes	-565	319,035	2,370	3,500	0.68	-0.32	0.58	Yes	-1,130	1,276,141
23774_23142	23774	23142	8,150	6,772	0.83	-0.17	0.52	Yes	-1,378	1,898,507	13,544	16,300	0.83	-0.17	0.29	Yes	-2,756	7,594,029
23959_19707	23959	19707	9,750	9,457	0.97	-0.03	0.52	Yes	-293	85,755	18,914	19,500	0.97	-0.03	0.28	Yes	-586	343,021
19895_19858	19895	19858	21,350	26,661	1.25	0.25	0.36	Yes	5,311	28,211,576	53,323	42,700	1.25	0.25	0.21	No	10,623	112,846,303
24243_24099	24243	24099	10,050	7,352	0.73	-0.27	0.48	Yes	-2,698	7,278,158	14,704	20,100	0.73	-0.27	0.28	Yes	-5,396	29,112,632
19763_19743	19763	19743	6,350	5,111	0.80	-0.20	0.58	Yes	-1,239	1,536,174	10,221	12,700	0.80	-0.20	0.33	Yes	-2,479	6,144,695
23232_25105	23232	25105	5,250	2,486	0.47	-0.53	0.58	Yes	-2,764	7,641,519	4,971	10,500	0.47	-0.53	0.36	No	-5,529	30,566,078
24230_23906	24230	23906	9,400	5,560	0.59	-0.41	0.52	Yes	-3,840	14,748,293	11,119	18,800	0.59	-0.41	0.28	No	-7,681	58,993,171
20046_20048	20046	20048	6,411	9,170	1.43	0.43	0.58	Yes	2,759	7,611,504	18,340	12,822	1.43	0.43	0.33	No	5,518	30,446,018
20059_20058	20059	20058	5,500	5,342	0.97	-0.03	0.58	Yes	-158	24,825	10,685	11,000	0.97	-0.03	0.36	Yes	-315	99,301
20100_20040	20100	20040	3,400	978	0.29	-0.71	0.63	No	-2,422	5,865,094	1,956	6,800	0.29	-0.71	0.44	No	-4,844	23,460,377
20087_20048	20087	20048	3,950	2,187	0.55	-0.45	0.63	Yes	-1,763	3,108,871	4,374	7,900	0.55	-0.45	0.41	No	-3,526	12,435,486
20092_20055	20092	20055	2,950	1,322	0.45	-0.55	0.63	Yes	-1,628	2,650,018	2,644	5,900	0.45	-0.55	0.48	No	-3,256	10,600,072
20058_19028	20058	19028	1,800	1,751	0.97	-0.03	0.68	Yes	-49	2,428	3,501	3,600	0.97	-0.03	0.58	Yes	-99	9,712
24234_23259	24234	23259	12,300	9,653	0.78	-0.22	0.48	Yes	-2,647	7,006,319	19,306	24,600	0.78	-0.22	0.26	Yes	-5,294	28,025,278
23390_23260	23390	23260	2,950	2,405	0.82	-0.18	0.63	Yes	-545	297,170	4,810	5,900	0.82	-0.18	0.48	Yes	-1,090	1,188,680
20240_20213	20240	20213	3,500	1,625	0.46	-0.54	0.63	Yes	-1,875	3,516,767	3,249	7,000	0.46	-0.54	0.44	No	-3,751	14,067,069
24091_23257	24091	23257	3,000	449	0.15	-0.85	0.63	No	-2,551	6,505,298	899	6,000	0.15	-0.85	0.48	No	-5,101	26,021,193
25599_23260	25599	23260	7,250	2,611	0.36	-0.64	0.58	No	-4,639	21,518,355	5,222	14,500	0.36	-0.64	0.31	No	-9,278	86,073,420
20226_20224	20226	20224	5,252	6,037	1.15	0.15	0.58	Yes	786	617,308	12,074	10,503	1.15	0.15	0.36	Yes	1,571	2,469,232
20260_20264	20260	20264	3,689	6,888	1.87	0.87	0.63	No	3,199	10,235,176	13,775	7,377	1.87	0.87	0.44	No	6,398	40,940,702
20252_20246	20252	20246	3,450	672	0.19	-0.81	0.63	No	-2,778	7,719,405	1,343	6,900	0.19	-0.81	0.44	No	-5,557	30,877,620
20399_20246	20399	20246	2,050	1,900	0.93	-0.07	0.68	Yes	-150	22,578	3,799	4,100	0.93	-0.07	0.52	Yes	-301	90,311
20391_20389	20391	20389	1,200	830	0.69	-0.31	0.68	Yes	-370	136,627	1,661	2,400	0.69	-0.31	0.63	Yes	-739	546,508
20390_20383	20390	20383	4,650	4,041	0.87	-0.13	0.63	Yes	-609	371,343	8,081	9,300	0.87	-0.13	0.38	Yes	-1,219	1,485,371
20492_20490	20492	20490	3,500	4,085	1.17	0.17	0.63	Yes	585	341,781	8,169	7,000	1.17	0.17	0.44	Yes	1,169	1,367,124
20501_20499	20501	20499	5,950	4,284	0.72	-0.28	0.58	Yes	-1,666	2,774,539	8,569	11,900	0.72	-0.28	0.34	Yes	-3,331	11,098,157
20517_25100	20517	25100	2,050	494	0.24	-0.76	0.68	No	-1,556	2,421,041	988	4,100	0.24	-0.76	0.52	No	-3,112	9,684,162
20560_20483	20560	20483	2,450	4,734	1.93	0.93	0.68	No	2,284	5,216,652	9,468	4,900	1.93	0.93	0.52	No	4,568	20,866,606
20585_20492	20585	20492	1,450	189	0.13	-0.87	0.68	No	-1,261	1,590,987	377	2,900	0.13	-0.87	0.58	No	-2,523	6,363,949
20561_20499	20561	20499	2,800	1,462	0.52	-0.48	0.63	Yes	-1,338	1,790,182	2,924	5,600	0.52	-0.48	0.48	No	-2,676	7,160,729
20548_20508	20548	20508	14,800	18,825	1.27	0.27	0.44	Yes	4,025	16,202,229	37,650	29,600	1.27	0.27	0.24	No	8,050	64,808,915
25106_20517	25106	20517	2,050	973	0.47	-0.53	0.68	Yes	-1,077	1,160,810	1,945	4,100	0.47	-0.53	0.52	No	-2,155	4,643,239
20703_20664	20703	20664	3,850	3,937	1.02	0.02	0.63	Yes	87	7,492	7,873	7,700	1.02	0.02	0.41	Yes	173	29,969
20693_20670	20693	20670	1,750	1,231	0.70	-0.30	0.68	Yes	-519	269,419	2,462	3,500	0.70	-0.30	0.58	Yes	-1,038	1,077,676
20297_20317	20297	20317	48,875	55,473	1.13	0.13	0.26	Yes	6,598	43,534,996	110,946	97,750	1.13	0.13	0.14	Yes	13,196	174,139,983
20570_20577	20570	20577	45,500	59,198	1.30	0.30	0.27	No	13,698	187,626,857	118,395	91,000	1.30	0.30	0.14	No	27,395	750,507,427
			463,841	446,130				Model/Count Ratio =	0.96		569,315	559,180				Model/Count Ratio =	1.02	
								Percent Within Caltrans Maximum Deviation =	73%	> 75%						Percent Within Caltrans Maximum Deviation =	38%	> 75%
								Percent Root Mean Square Error =	47%	< 30%						Percent Root Mean Square Error =	47%	< 30%
								Correlation Coefficient =	0.97	> 0.88						Correlation Coefficient =	0.97	> 0.88

2014								
TAZ	Total Households	Household Population	Total Employment	Retail	Office	Industrial	Other	Ceres TAZ
4002	264	948	3	-	3	-	-	Yes
4003	356	1,267	15	-	15	-	-	Yes
4004	261	936	29	4	2	2	21	Yes
4005	21	75	17	-	11	6	-	Yes
4006	86	309	-	-	-	-	-	Yes
4007	440	1,581	15	-	-	-	15	Yes
4008	571	1,997	31	4	4	4	19	Yes
4009	93	334	439	15	2	133	289	Yes
4010	-	-	-	-	-	-	-	Yes
4011	12	42	5	1	1	1	2	Yes
4012	75	245	27	-	19	-	8	Yes
4013	11	39	-	-	-	-	-	Yes
4014	123	441	17	-	11	5	1	Yes
4015	1	4	299	15	246	38	-	Yes
4016	146	66	7	-	2	5	-	Yes
4017	-	-	151	56	82	13	-	Yes
4018	-	-	7	2	-	-	5	Yes
4019	-	1,061	726	330	96	111	189	Yes
4020	-	-	-	-	-	-	-	Yes
4021	5	18	2	-	-	-	2	Yes
4022	-	-	7	7	-	-	-	Yes
4023	79	276	124	10	50	1	63	Yes
4024	-	42	629	246	92	67	224	Yes
4025	2	7	144	81	15	31	17	Yes
4026	171	556	48	-	2	46	-	Yes
4027	653	2,245	182	60	44	35	43	Yes
4028	584	2,078	46	-	22	22	2	Yes
4029	639	85	-	-	-	-	-	Yes
4030	337	1,176	54	4	21	1	28	Yes
4031	556	1,980	16	-	-	-	16	Yes
4032	4	13	24	1	18	5	-	Yes
4033	3	10	1	1	-	-	-	Yes
4034	-	7	46	-	-	-	46	Yes
4035	-	4	63	-	63	-	-	Yes
4036	-	-	9	-	3	1	5	Yes
4037	18	59	47	12	14	4	17	Yes
4038	5	18	95	-	-	-	95	Yes
4039	553	1,876	195	5	59	10	121	Yes
4040	5	17	2	-	2	-	-	Yes
4041	403	1,426	65	-	-	-	65	Yes
4042	-	-	1,907	44	1,239	212	412	Yes
4043	2	7	9	-	2	-	7	Yes
4044	332	61	70	-	-	47	23	Yes
4045	369	1,313	31	-	25	5	1	Yes
4046	383	1,376	58	-	-	38	20	Yes
4047	695	2,476	165	19	37	-	109	Yes
4048	7	25	247	-	1	-	246	Yes
4049	91	320	84	33	9	27	15	Yes
4050	40	135	19	-	5	-	14	Yes
4051	18	63	12	-	-	-	12	Yes
4052	22	79	-	-	-	-	-	Yes
4053	2	7	2	-	2	-	-	Yes
4054	2	7	21	-	15	6	-	Yes
4055	55	191	39	12	12	3	12	Yes
4056	95	329	123	32	30	-	61	Yes
4057	162	7	90	26	13	26	25	Yes
4058	15	53	2	-	2	-	-	Yes
4059	8	28	441	1	377	63	-	Yes
4060	13	46	40	-	-	-	40	Yes
4061	78	270	541	19	-	-	522	Yes
4062	670	2,296	178	52	39	43	44	Yes
4063	618	2,193	45	22	-	-	23	Yes
4064	424	1,519	22	1	10	9	2	Yes
4065	-	391	226	40	58	28	100	Yes
4066	5	17	16	-	-	-	16	Yes
4067	151	492	89	-	-	-	89	Yes
4068	147	509	79	28	8	15	28	Yes
4069	41	137	254	11	225	17	1	Yes
4070	36	125	54	19	6	11	18	Yes
4071	2	7	104	2	60	-	42	Yes

4072	1,033	3,593	246	9	164	73	-	Yes
4073	392	1,335	8	-	7	-	1	Yes
4074	644	2,287	39	3	25	6	5	Yes
4075	815	2,925	71	3	30	29	9	Yes
4076	62	211	12	-	1	7	4	Yes
4077	41	137	2	-	-	2	-	Yes
4078	38	128	-	-	-	-	-	Yes
4079	-	-	-	-	-	-	-	Yes
4080	7	24	4	-	2	2	-	Yes
4081	-	-	25	-	25	-	-	Yes
4082	1	4	1	1	-	-	-	Yes
4083	-	-	-	-	-	-	-	Yes
4084	-	-	-	-	-	-	-	No
4085	-	-	-	-	-	-	-	Yes
4086	2	7	17	17	-	-	-	Yes
4087	2	7	-	-	-	-	-	Yes
4088	5	17	2	-	-	-	2	Yes
4089	-	-	365	110	31	131	93	Yes
4090	5	17	-	-	-	-	-	Yes
4091	-	-	-	-	-	-	-	Yes
4092	-	-	63	-	1	62	-	Yes
4093	-	24	10	-	2	-	8	Yes
4094	7	24	2	2	-	-	-	Yes
4095	126	406	6	-	-	6	-	No
4096	30	104	7	-	3	4	-	No
4097	33	107	6	-	-	-	6	No
4098	10	36	2	-	-	1	1	No
4099	32	115	-	-	-	-	-	No
4101	19	68	-	-	-	-	-	No
4102	311	1,102	8	2	-	6	-	Yes
4103	1	4	-	-	-	-	-	Yes
4104	66	237	25	-	2	22	1	Yes
4105	2	7	15	-	-	-	15	Yes
4106	83	22	43	-	-	43	-	Yes
4107	262	740	14	-	8	5	1	No
4108	23	69	-	-	-	-	-	No
4109	4	13	8	-	2	-	6	Yes
4110	-	-	-	-	-	-	-	No
4111	-	-	11	5	-	6	-	No
4113	29	82	3	1	2	-	-	No
4200	-	-	45	15	9	18	3	No
4201	107	345	4	2	-	2	-	No
4202	194	620	331	113	57	161	-	No
4203	64	204	305	101	138	66	-	No
4204	-	-	4	-	4	-	-	No
4205	80	260	90	42	16	32	-	No
4206	1,083	3,524	368	42	-	81	245	No
4207	-	-	6	-	6	-	-	No
4208	4	13	85	67	1	17	-	No
4666	9	20	86	30	11	19	26	No
5282	4	13	5	-	1	4	-	No
5291	36	115	9	-	3	6	-	No
5298	-	-	-	-	-	-	-	No
5304	-	-	4	-	-	4	-	No
5364	153	453	2	-	-	1	1	No
5365	33	111	4	-	2	-	2	No
5366	50	150	10	-	-	-	10	No
5454	12	39	9	-	-	4	5	No
5455	16	54	-	-	-	-	-	No
5456	6	18	10	-	-	-	10	No
5457	18	60	16	-	16	-	-	No
5458	12	101	93	-	-	45	48	No
5459	-	54	590	122	31	203	234	Yes
5460	6	21	-	-	-	-	-	No
5461	2	6	5	-	-	-	5	No
5462	10	35	28	-	22	6	-	No
5463	23	80	117	-	-	58	59	No
5464	3	35	45	-	-	22	23	No
5465	18	61	7	-	-	4	3	No
5466	14	47	76	-	-	45	31	No
5467	-	54	1,168	256	37	389	486	Yes
5468	4	14	-	-	-	-	-	No
5469	11	37	7	-	1	3	3	No

5470	17	58	-	-	-	-	-	No
5471	100	337	63	-	-	12	51	No
5472	1	3	-	-	-	-	-	No
5473	-	3	99	-	-	-	99	No
5474	10	33	10	2	8	-	-	No
5475	2	7	-	-	-	-	-	No
5476	10	33	-	-	-	-	-	No
5477	61	205	34	-	8	26	-	No
5478	2	6	-	-	-	-	-	No
5479	34	109	7	-	1	-	6	No
5480	22	71	9	-	9	-	-	No
5481	-	-	-	-	-	-	-	No
5482	8	109	32	-	-	-	32	No
5483	4	14	-	-	-	-	-	No
5484	1	3	-	-	-	-	-	No
5485	61	206	4	3	-	1	-	No
5486	1	3	-	-	-	-	-	No
5487	-	-	8	-	8	-	-	No
5488	19	61	8	-	4	4	-	No
5489	-	-	21	5	16	-	-	No
5490	5	16	1	-	-	-	1	No
5491	1	3	3	-	3	-	-	No
5492	10	32	-	-	-	-	-	No
5493	7	22	3	-	3	-	-	No
5494	33	107	3	-	3	-	-	No
5495	3	9	5	-	-	-	5	No
5497	-	-	20	-	-	20	-	No
5498	4	13	-	-	-	-	-	No
5499	70	224	24	-	4	8	12	No
5500	122	390	24	-	-	24	-	No
5501	6	20	4	-	1	2	1	No
5502	13	41	4	-	4	-	-	No
5503	10	32	-	-	-	-	-	No
5504	30	83	26	10	-	11	5	No
5505	18	50	8	-	8	-	-	No
5506	37	118	31	-	27	4	-	No
6438	31	109	8	3	-	5	-	Yes
6439	31	109	36	-	-	16	20	Yes
6440	23	74	27	-	-	-	27	No
6441	-	-	-	-	-	-	-	Yes
6442	-	-	1	-	1	-	-	Yes
6443	8	27	10	-	4	6	-	Yes
6444	14	45	10	-	-	5	5	No
6445	24	77	3	-	3	-	-	No
6446	39	125	3	-	-	1	2	No
6447	-	-	328	-	328	-	-	No
6448	-	-	38	-	38	-	-	No
6449	18	58	3	-	-	1	2	No
6450	23	75	3	-	3	-	-	No
6451	27	89	52	-	-	23	29	No
6452	23	75	2	2	-	-	-	No
6572	2	6	-	-	-	-	-	Yes
6573	2	6	-	-	-	-	-	Yes
6574	15	53	20	20	-	-	-	Yes
6589	2	6	5	-	-	-	5	No
6590	-	-	-	-	-	-	-	No
Total	**18,021**	**59,468**	**14,099**	**2,203**	**4,218**	**2,855**	**4,823**	

2040								
TAZ	Total Households	Household Population	Total Employment	Retail	Office	Industrial	Other	Ceres TAZ
4002	250	791	3	1	-	1	1	Yes
4003	463	1,304	36	-	22	4	10	Yes
4004	235	755	55	1	21	6	28	Yes
4005	54	171	24	1	9	2	12	Yes
4006	76	245	6	-	3	-	3	Yes
4007	398	1,284	133	1	93	13	26	Yes
4008	541	1,595	102	2	29	24	47	Yes
4009	144	463	519	38	184	8	289	Yes
4010	17	50	6	-	2	1	3	Yes
4011	-	-	-	-	-	-	-	Yes
4012	182	508	25	-	9	5	11	Yes
4013	8	26	3	-	1	1	1	Yes
4014	109	353	35	1	15	2	17	Yes
4015	34	100	243	38	51	53	101	Yes
4016	64	189	17	-	5	4	8	Yes
4017	-	-	254	135	67	18	34	Yes
4018	1	3	6	-	-	2	4	Yes
4019	354	822	648	407	145	32	64	Yes
4020	9	29	3	-	2	-	1	Yes
4021	5	16	2	-	2	-	-	Yes
4022	4	13	17	15	1	-	1	Yes
4023	103	278	218	2	167	4	45	Yes
4024	23	61	948	545	213	50	140	Yes
4025	48	135	459	401	43	1	14	Yes
4026	193	458	103	3	83	5	12	Yes
4027	639	1,781	476	233	115	12	116	Yes
4028	532	1,666	152	27	56	7	62	Yes
4029	422	1,322	91	1	2	29	59	Yes
4030	446	1,199	178	11	98	17	52	Yes
4031	507	1,592	20	3	10	2	5	Yes
4032	85	222	40	5	21	4	10	Yes
4033	63	176	66	18	29	3	16	Yes
4034	48	135	49	17	16	1	15	Yes
4035	29	90	15	2	4	2	7	Yes
4036	8	21	23	8	15	-	-	Yes
4037	34	89	45	5	17	8	15	Yes
4038	99	311	117	3	16	3	95	Yes
4039	555	1,481	572	21	88	15	448	Yes
4040	91	238	40	3	23	4	10	Yes
4041	371	1,140	188	33	40	5	110	Yes
4042	-	-	1,634	162	394	235	843	Yes
4043	48	125	20	1	12	2	5	Yes
4044	311	995	55	1	11	6	37	Yes
4045	391	1,229	70	3	27	5	35	Yes
4046	351	1,127	72	7	20	9	36	Yes
4047	633	1,989	448	179	198	12	59	Yes
4048	6	19	234	2	-	-	232	Yes
4049	84	252	182	112	50	2	18	Yes
4050	48	125	47	1	39	2	5	Yes
4051	18	54	34	15	17	-	2	Yes
4052	20	60	12	-	7	1	4	Yes
4053	35	106	44	28	9	1	6	Yes
4054	45	117	57	-	31	5	21	Yes
4055	53	152	109	11	68	7	23	Yes
4056	92	263	371	26	69	10	266	Yes
4057	48	107	39	4	22	3	10	Yes
4058	34	110	44	-	9	1	34	Yes
4059	171	486	331	4	117	72	138	Yes
4060	41	115	133	3	25	5	101	Yes
4061	78	220	1,602	127	175	18	1,282	Yes
4062	660	1,822	689	243	258	34	154	Yes
4063	567	1,685	272	4	148	23	97	Yes
4064	381	1,221	246	4	133	21	88	Yes
4065	116	316	369	152	88	7	122	Yes
4066	72	202	204	25	104	17	58	Yes
4067	163	439	106	-	13	2	91	Yes
4068	142	404	146	9	74	12	51	Yes
4069	128	341	208	38	30	43	97	Yes
4070	35	99	66	3	28	10	26	Yes
4071	34	92	173	8	148	6	11	Yes

4072	988	2,862	293	30	133	42	88	Yes
4073	390	1,054	107	14	52	13	28	Yes
4074	592	1,761	344	10	184	29	121	Yes
4075	730	2,353	342	11	182	29	120	Yes
4076	105	283	64	9	31	8	16	Yes
4077	43	110	12	-	4	2	6	Yes
4078	40	104	16	-	4	3	9	Yes
4079	6	16	4	-	1	1	2	Yes
4080	92	248	57	8	28	7	14	Yes
4081	10	27	16	1	3	4	8	Yes
4082	11	36	18	4	8	1	5	Yes
4083	9	29	11	-	6	1	4	Yes
4084	2	6	5	-	3	1	1	No
4085	2	6	4	-	1	1	2	Yes
4086	5	16	1	-	1	-	-	Yes
4087	3	10	1	-	1	-	-	Yes
4088	50	135	31	4	15	4	8	Yes
4089	9	29	420	-	290	45	85	Yes
4090	41	111	24	3	12	3	6	Yes
4091	17	46	10	1	5	1	3	Yes
4092	15	43	158	1	105	8	44	Yes
4093	21	61	78	1	6	11	60	Yes
4094	10	32	20	1	13	2	4	Yes
4095	140	398	10	-	6	1	3	No
4096	88	285	52	-	36	5	11	No
4097	94	284	37	1	16	2	18	No
4098	21	68	10	1	4	1	4	No
4099	66	204	28	1	11	2	14	No
4101	27	87	11	-	5	1	5	No
4102	386	1,091	35	6	18	3	8	Yes
4103	12	39	4	-	2	-	2	Yes
4104	69	223	48	1	32	1	14	Yes
4105	40	130	48	26	16	2	4	Yes
4106	12	39	7	-	5	1	1	Yes
4107	291	748	141	1	32	27	81	No
4108	25	68	12	2	6	1	3	No
4109	42	112	27	-	6	5	16	Yes
4110	7	20	21	1	11	2	7	No
4111	5	16	15	2	8	1	4	No
4113	52	139	33	2	7	6	18	No
4200	1	3	49	20	5	8	16	No
4201	93	269	54	3	8	12	31	No
4202	172	491	727	46	77	198	406	No
4203	57	162	569	47	109	137	276	No
4204	-	-	-	-	-	-	-	No
4205	69	201	180	19	52	36	73	No
4206	931	2,720	564	75	57	91	341	No
4207	-	-	-	-	-	-	-	No
4208	2	6	150	38	40	23	48	No
4666	-	-	-	-	-	-	-	No
5282	4	12	4	-	1	3	-	No
5291	34	101	8	-	3	5	-	No
5298	-	-	-	-	-	-	-	No
5304	-	-	3	-	-	3	-	No
5364	238	601	46	1	14	10	21	No
5365	466	1,414	103	7	30	11	55	No
5366	8	21	5	-	2	1	2	No
5454	33	92	18	-	6	4	8	No
5455	19	56	9	-	3	2	4	No
5456	13	36	8	-	2	2	4	No
5457	40	112	22	-	7	5	10	No
5458	271	838	87	7	14	19	47	No
5459	-	-	3,764	564	189	500	2,511	Yes
5460	6	19	4	-	1	1	2	No
5461	4	13	3	-	1	1	1	No
5462	15	42	19	-	10	3	6	No
5463	36	112	47	1	2	15	29	No
5464	78	241	190	2	4	62	122	No
5465	159	492	50	4	8	11	27	No
5466	39	117	101	4	94	1	2	No
5467	-	-	4,476	-	308	18	4,150	Yes
5468	10	32	4	-	1	1	2	No
5469	10	32	4	-	1	1	2	No

5470	19	62	7	-	1	2	4	No
5471	549	1,649	81	11	25	12	33	No
5472	25	75	3	-	1	1	1	No
5473	23	70	9	-	4	1	4	No
5474	9	29	4	1	-	1	2	No
5475	41	123	14	9	2	1	2	No
5476	14	45	5	-	1	1	3	No
5477	323	970	66	6	33	7	20	No
5478	35	94	22	3	10	3	6	No
5479	75	228	29	2	12	3	12	No
5480	59	179	26	1	14	2	9	No
5481	12	32	7	1	4	1	1	No
5482	61	185	25	1	10	3	11	No
5483	5	16	2	-	-	1	1	No
5484	15	49	5	-	1	1	3	No
5485	210	631	32	4	10	5	13	No
5486	36	108	4	1	2	-	1	No
5487	9	23	4	-	1	1	2	No
5488	43	131	18	1	7	2	8	No
5489	6	15	9	2	1	2	4	No
5490	17	49	33	1	5	9	18	No
5491	15	43	29	1	4	8	16	No
5492	64	194	25	1	10	3	11	No
5493	14	40	26	1	4	7	14	No
5494	93	283	37	2	15	4	16	No
5495	80	204	46	1	9	12	24	No
5497	4	13	2	-	-	1	1	No
5498	75	228	29	2	12	3	12	No
5499	78	233	29	2	12	3	12	No
5500	117	344	66	13	23	10	20	No
5501	21	61	41	1	6	11	23	No
5502	25	72	49	1	7	13	28	No
5503	65	198	26	1	10	3	12	No
5504	133	340	76	2	15	20	39	No
5505	124	318	71	2	14	18	37	No
5506	113	344	45	2	18	5	20	No
6438	-	-	960	766	192	1	1	Yes
6439	1,611	4,564	54	-	2	1	51	Yes
6440	29	87	119	39	11	23	46	No
6441	-	-	960	760	190	4	6	Yes
6442	1,959	5,441	155	-	26	26	103	Yes
6443	-	-	2,054	24	1,015	336	679	Yes
6444	12	36	51	24	4	8	15	No
6445	24	72	39	3	5	10	21	No
6446	36	108	53	4	7	14	28	No
6447	6	18	272	1	2	92	177	No
6448	2	6	33	1	1	11	20	No
6449	20	60	57	5	8	15	29	No
6450	22	66	49	4	7	13	25	No
6451	32	98	55	-	19	10	26	No
6452	22	66	21	5	4	3	9	No
6572	90	223	449	42	311	32	64	Yes
6573	90	221	449	42	311	32	64	Yes
6574	9	28	7	-	4	1	2	Yes
6589	12	37	5	-	2	1	2	No
6590	37	103	55	4	5	14	32	No
Total	**26,045**	**75,857**	**34,696**	**5,933**	**8,825**	**3,208**	**16,730**	

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Appendix E: Existing and Future Transportation Conditions Data

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FEHR PEERS

MEMORANDUM

Date: November 15, 2017

To: Sophie Martin, Dyett & Bhatia

From: Kathrin Tellez

Subject: Ceres General Plan – Existing and Future Conditions Data

WC15-3208

The purpose of this memorandum is to document existing and future transportation metrics that form the basis of the analysis for the Environmental Impact Report for the General Plan update. Data provided in this memorandum include:

- Existing morning and evening peak hour intersection turning movement volumes and intersection level of service results at 20-intersections
- Existing and General Plan Buildout daily roadway segment volumes and levels of service for 45 locations throughout the General Plan planning area
- Existing and General Plan Buildout vehicle miles of travel by speed, and vehicle miles of travel per capita metrics

INTERSECTION OPERATIONS

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at 20 intersections throughout the City of Ceres, as shown on **Figure 1**, including separate counts of pedestrians, bicyclists, and heavy trucks.

All intersection data was collected in February and March of 2016 on a typical weekday with area schools in normal session. For the study intersections, the single hour with the highest traffic volumes during the count periods was identified. Peak hour intersection volumes are summarized on **Figure 2** along with existing lane configuration and traffic control, while **Figure 3** depicts existing pedestrian and bicycle volumes.

The operations of roadway facilities can be described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (i.e., free flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F. The City of Ceres has established LOS D as the roadway standard for major roadways, and LOS C for secondary and local roadways. Potential changes to these thresholds are being considered as part of the General Plan update.

Peak hour operations of intersections were evaluated using methodologies developed by the Transportation Research Board (TRB), as documented in the 2010 *Highway Capacity Manual* (2010 HCM) for vehicles. The HCM 2010 methods calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, traffic control, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. These delay estimates are considered meaningful indicators of driver discomfort and frustration, fuel consumption, and lost travel time. The relationship between LOS and control delay is summarized in **Table 1** for signalized intersections and **Table 2** for unsignalized intersections. While the level of service calculations do consider pedestrian, bicycle and transit vehicle travel through the intersection, the results are not indicative of the experience a pedestrian, bicyclist or transit rider might experience.

Existing operations were evaluated using the methods described above, as summarized in **Table 3**. The analysis was based on the volumes, lane configurations, and traffic control presented in Figure 2. Observed peak hour factors[1] were used at all intersections for the existing analysis. Pedestrian and bicycle activity, as well as heavy trucks, were factored into the analysis. On a peak hour basis, most intersections in Ceres operate at LOS D or better, with only the Service Road at Mitchell Road intersection experiencing LOS E operations during the PM peak hour.

[1] The peak hour factor is the relationship between the peak 15-minute flow rate and the full hourly volume: PHF = Hourly volume / (4 x (volume during the peak 15 minutes of flow)). The analysis level of served is based on peak rates of flow occurring within the peak hour because substantial short term fluctuations typically occurring during an hour.

TABLE 1
SIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 *Highway Capacity Manual.*

TABLE 2
UNSIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: 2010 *Highway Capacity Manual*

TABLE 3
EXISTING CONDITIONS – INTERSECTION LOS

Intersection		Control	Peak Hour	Existing Conditions	
				Delay	LOS
1	Crows Landing Road at 7th Street	SSSC	AM PM	4 (16) 7 (20)	A (C) A (C)
2	Herndon Road at Hatch Road	Signal	AM PM	32 38	C D
3	North Central Avenue at Hatch Road	Signal	AM PM	33 29	C C
4	Mitchell Road at Hatch Road	Signal	AM PM	49 42	D D
5	Faith Home Road at Hatch Road	SSSC	AM PM	5 (30) 5 (36)	A (D) A (E)
6	Mitchell Road at Fowler Road	Signal	AM PM	23 27	C C
7	Crows Landing Road at West Whitmore Avenue	Signal	AM PM	26 46	C D
8	Morgan Road at East Whitmore Avenue	Signal	AM PM	15 20	B B
9a[4]	Central Avenue at East Whitmore Avenue	Signal	AM PM	29 31	C C
9b	Herndon Road at North Central Avenue	Signal	AM PM	42 17	D B
9c	Herndon Road at East Whitmore Avenue	Signal	AM PM	31 19	C B
10	Mitchell Road at East Whitmore Avenue	Signal	AM PM	53 46	D D
11	Faith Home Road at East Whitmore Avenue	AWSC	AM PM	15 17	B C

TABLE 3
EXISTING CONDITIONS – INTERSECTION LOS

Intersection		Control	Peak Hour	Existing Conditions	
				Delay	LOS
12	Morgan Road at Hackett Road	Signal	AM PM	7 9	A A
13	Mitchell Road at Roeding Road	Signal	AM PM	12 11	B B
14	Mitchell Road at Don Pedro Road	Signal	AM PM	3 5	A A
15	Ustick Road at West Service Road	SSSC	AM PM	2 (11) 2 (10)	A (B) A (A)
16	Crows Landing Road at West Service Road	Signal	AM PM	22 16	C B
17	Morgan Road at East Service Road	AWSC	AM PM	24 17	C C
18	Central Avenue at East Service Road	Signal	AM PM	38 19	D B
19	Mitchell Road at East Service Road	Signal	AM PM	49 **59**	D **E**
20	Faith Home Road at East Service Road	AWSC	AM PM	10 11	A B

Notes:
1 AWSC = all way stop control, SSSC = side street stop control, Signal = signalized
2 AM = weekday morning peak hour, PM = weekday evening peak hour
3 LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the method described in the 2010 Highway Capacity Manual. For side-street stop-controlled intersections, delays for worst approach and average intersection delay are shown: intersection average (worst approach).
4 HCM 2000 Methodology used; HCM 2010 is not able to calculate levels of service for some phasing types.
Source: Fehr & Peers, 2017.

ROADWAY SEGMENT OPERATIONS

The analysis of daily roadway segment operations is used to determine the overall usage of the transportation network and to assess if the appropriate right-of-way is provided to generally accommodate daily travel demands. Note that the roadway segment analysis is based on traffic counts taken at a single location or link, which is intended to be representative of the entire segment. A link connects two intersections; a segment is a series of links. The segments used in this analysis were developed based on where a series of links had common physical and traffic conditions. Different capacity thresholds used in level of service (LOS) analysis are developed for different facility types, as shown in **Table 4** and were calculated based on the methodology contained in the Highway Capacity Manual (HCM) (Transportation Research Board 2010). The HCM methodology is the prevailing measurement standard used throughout the United States. These capacity factors are reflective of a generalized roadway segment and capacity adjustments (increase or decrease) may be warranted for specific locations based on additional roadway details.

TABLE 4
CITY OF CERES GENERAL PLAN PER-LANE ROADWAY SEGMENT CAPACITIES

Type of Roadway Segment	Hourly Capacity (vplph[1])	Daily Capacity (vplpd[2])
Freeway Mainline	2,000	25,000
Expressway	1,250	15,630
Principal Arterial (6 lanes)	850	10,625
Minor Arterial (4 lanes)	750	9,380
Minor Arterial (2 lane facility with center left-turn lane)	800	10,000
Major Collector (4 lane facility)	700	8,750
Major Collector (2 lane facility with center left-turn lane)	750	9,380
Downtown Collector	700	8,750
Minor Collector and Local (2 lane facility)	500	6,250

TABLE 4
CITY OF CERES GENERAL PLAN PER-LANE ROADWAY SEGMENT CAPACITIES

Type of Roadway Segment	Hourly Capacity (vplph[1])	Daily Capacity (vplpd[2])
Rural Road	900	11,250

Notes:
1. Vehicles per lane per hour.
2. Vehicles per lane per day.

Daily traffic counts, including speed information and vehicle classification data, were collected over a 48-hour period on clear days in February and March 2016 with area schools in normal session at 41-roadway segments, with the average volume over the two days of data collection presented in **Table 5**. Volumes for Caltrans facilities were obtained from published Caltrans data. Levels of service were assessed for each of the roadway segments presented based on the existing functional classification, existing number of lanes, and the capacities presented in Table 4.

On a daily basis, most roadways through Ceres operate within the established level of service standards although there are several roadway segments that operate beyond the desired level of service standard. As the peak period intersection analysis shows that most intersections operate within established level of service ranges, these results indicate that the transportation system may be less resilient to disruption during some times of day, such as from a temporary road closure or incident, rather than requiring additional vehicular capacity. On rural roadways, vehicles may spend an increasing percentage of their travel time following slower vehicles rather than being able to travel unimpeded. On arterial roadways, vehicle platoons will likely form, making efficient use of the transportation system.

To assess future conditions with the General Plan update, Fehr & Peers used the updated City of Ceres General Plan model to develop daily roadway segment forecasts. The process which was undertaken to develop the model is detailed in a separate memorandum. Daily roadway segment forecasts were developed for the 45 locations where measured daily traffic count data is available. The base year and future year models were then run and the difference between the base year and future year model link volumes were added to the existing traffic count. This process accounts for the model error inherent in all travel demand models. The results are also shown in Table 5 and compared to existing conditions.

Roadway segments one through seven are located in the City of Modesto, while the remaining segments are either within the City of Ceres city limits, or within the General Plan Planning Area.

TABLE 5
AVERAGE WEEKDAY ROADWAY SEGMENT ANALYSIS

Roadway	Existing Conditions						General Plan			
	ADT[1]	Lanes	Class-ification	Level of Service[2]	Percent Trucks	85th Percentile Speed[3]	ADT[4]	Lanes	Classification	Level of Service[2]
1. 7th Street north of River Road (Modesto)	16,300	2	Arterial	**E**	0.1%	35	38,800	4	Arterial	**E**
2. 9th Street north of River Road (Modesto)	19,500	4	Arterial	D	2.7%	49	33,700	4	Arterial	**E**
3. Mitchell Road at Tuolumne River (Modesto)	42,700	4	Express-way	C	0.2%	44	47,000	6	Expressway	C
4. Carpenter Road at Tuolumne River (Modesto)	20,100	2	Rural	**E**	1.0%	47	41,600	4	Arterial	**E**
5. Crows Landing Road south of 7th Street (Modesto)	12,700	2	Arterial	D	0.2%	43	29,200	4	Arterial	**E**
6. West Hatch Road east of South Carpenter Road (Modesto)	10,500	2	Arterial	D	0.5%	46	19,600	4	Arterial	D
7. West Hatch Road west of Crows Landing Road (Modesto)	18,800	2	Arterial	**E**	0.6%	45	26,800	2	Arterial	**F**
8. East Hatch Road east of Central Avenue	30,900	4	Express-way	B	2.6%	51	5,900	4	Expressway	A
9. East Hatch Road west of Faith Home Road	11,000	2	Arterial	C	1.3%	57	25,200	4	Expressway	B

TABLE 5
AVERAGE WEEKDAY ROADWAY SEGMENT ANALYSIS

Roadway	Existing Conditions						General Plan			
	ADT[1]	Lanes	Class-ification	Level of Service[2]	Percent Trucks	85th Percentile Speed[3]	ADT[4]	Lanes	Classification	Level of Service[2]
10. Herndon Road south of East Hatch Road	6,800	2	Primary Collector	D	0.2%	34	9,600	2	Primary Collector	D
11. Central Avenue south of East Hatch Road	7,900	2	Arterial	D	0.1%	38	17,100	4	Arterial	D
12. Moffett Road south of East Hatch Road	5,900	2	Primary Collector	D	0.1%	33	6,000	2	Primary Collector	D
13. Faith Home Road south of East Hatch Road	3,600	2	Rural	B	1.5%	57	26,400	4	Arterial	**E**
14. Crows Landing Road north of West Whitmore Avenue	24,600	4	Arterial	D	2.3%	42	46,500	4	Arterial	**F**
15. Morgan Road north of East Whitmore Avenue	5,900	2	Arterial	C	1.3%	41	11,700	4	Arterial	C
16a. Central Ave north of E Whitmore Ave	8,500	4	Arterial	C	0.1%	34	13,500	2	Arterial	D
16b. Herndon Road north of E Whitmore Ave	3,600	2	Arterial	C	1.5%	47	4,000	2	Arterial	B
17. Moffett Road north of East Whitmore Avenue	7,000	2	Primary Collector	D	2.0%	44	7,400	2	Primary Collector	**E**

TABLE 5
AVERAGE WEEKDAY ROADWAY SEGMENT ANALYSIS

Roadway	Existing Conditions						General Plan			
	ADT[1]	Lanes	Class-ification	Level of Service[2]	Percent Trucks	85th Percentile Speed[3]	ADT[4]	Lanes	Classification	Level of Service[2]
18. West Whitmore Avenue east of South Carpenter Road	6,000	2	Rural	C	1.4%	45	6,600	4	Rural	B
19. East Whitmore Avenue west of Morgan Road	14,500	2	Arterial	**E**	1.1%	45	14,500	4	Arterial	C
20. East Whitmore Avenue east of Blaker Road	24,500	4	Arterial	D	1.2%	45	41,800	4	Arterial	**E**
21. East Whitmore Avenue west of Central Avenue	26,600	4	Arterial	D	1.4%	52	44,500	4	Arterial	**E**
22. East Whitmore Avenue west of Faith Home Road	6,900	2	Rural	C	0.1%	37	9,300	4	Arterial	C
23. Faith Home Road south of East Whitmore Avenue	4,100	2	Rural	B	0.5%	29	26,200	4	Arterial	**E**
24. Hackett Road west of Morgan Road	2,400	2	Primary Collector	B	1.6%	37	2,600	2	Primary Collector	B
25. Pine Street west of El Camino Avenue (at SR 99 Ramps)	9,300	2	Arterial	D	3.0%	47	12,800	2	Arterial	**E**
26. West Service Road east of South Carpenter Road	1,800	2	Rural	B	3.8%	48	2,000	2	Rural	B

TABLE 5
AVERAGE WEEKDAY ROADWAY SEGMENT ANALYSIS

Roadway	Existing Conditions						General Plan			
	ADT[1]	Lanes	Class-ification	Level of Service[2]	Percent Trucks	85th Percentile Speed[3]	ADT[4]	Lanes	Classification	Level of Service[2]
27. East Service Road west of Morgan Road	7,000	2	Arterial	D	1.7%	45	10,900	4	Expressway	A
28. East Service Road east of Central Avenue	11,900	2	Arterial	D	0.5%	50	19,700	4	Expressway	B
29. East Service Road west of Faith Home Road	4,100	2	Rural	B	11.4%	59	5,900	4	Expressway	A
30. Ustick Road south of West Service Road	300	2	Rural	A	2.0%	42	4,900	2	Rural	C
31. Crows Landing Road south of West Service Road	4,900	2	Rural	C	3.1%	54	9,600	4	Arterial	C
32. Morgan Road south of East Service Road	2,900	2	Arterial	B	2.4%	45	3,700	4	Arterial	B
33. Central Avenue south of East Service Road	5,600	2	Arterial	C	1.5%	49	12,900	4	Arterial	D
34. Mitchell Road south of East Service Road	29,600	4	Arterial	**E**	4.7%	62	39,700	6	Arterial	C
35. Faith Home Road south of East Service Road	4,100	2	Rural	B	1.4%	52	15,800	4	Arterial	D

TABLE 5
AVERAGE WEEKDAY ROADWAY SEGMENT ANALYSIS

Roadway	Existing Conditions						General Plan			
	ADT[1]	Lanes	Class-ification	Level of Service[2]	Percent Trucks	85th Percentile Speed[3]	ADT[4]	Lanes	Classification	Level of Service[2]
36. West Grayson Road east of South Carpenter Road	3,300	2	Rural	B	7.2%	44	6,700	2	Arterial	D
37. South Carpenter Road south of West Grayson Road	5,300	2	Rural	C	2.1%	48	6,100	4	Arterial	B
38. Crows Landing Road south of East Grayson Road	7,700	2	Rural	C	0.8%	56	13,700	4	Arterial	D
39. Morgan Road south of East Grayson Road	1,300	2	Rural	A	4.9%	58	1,700	2	Rural	B
40. Blaker Road south of East Grayson Road	400	2	Rural	A	0.1%	29	600	2	Rural	A
41. Central Avenue south of East Grayson Road	3,500	2	Rural	B	0.2%	25	5,000	2	Rural	C
42. SR 99 South of Mitchel Road	101,500	6	Freeway	C	13%	--	165,800	6	Freeway	**F**
43. SR 99 Mitchell Road to Whitmore Avenue	94,000	6	Freeway	C	13%	--	158,800	6	Freeway	**F**
44. SR 99 Whitmore Avenue to Hatch Road	105,000	6	Freeway	C	13	--	170,350	6	Freeway	**F**

TABLE 5
AVERAGE WEEKDAY ROADWAY SEGMENT ANALYSIS

Roadway	Existing Conditions						General Plan			
	ADT[1]	Lanes	Class-ification	Level of Service[2]	Percent Trucks	85th Percentile Speed[3]	ADT[4]	Lanes	Classification	Level of Service[2]
45. SR 99 North of Hatch Road	109,000	6	Freeway	C	13%	--	174,800	6	Freeway	**F**

Notes: **Bold** indicated potentially deficient operations.

1. Based on field measurements
2. LOS based on the existing classification and volume thresholds presented in Table 4.
3. 85 percent of the recorded speeds are lower or equal to the 85th percentile speed. 15 percent of the recorded speeds are above this speed
4. Based on the General Plan Update model using the difference method.

Source: Fehr & Peers, 2017.

Results of the roadway segment analysis indicate that the following roadway segments currently operate beyond the available capacity on a daily basis:

1: 7th Street north of River Road (City of Modesto)
4: Carpenter Road at Tuolumne River (City of Modesto)
7: West Hatch Road west of Crows Landing Road (City of Modesto)
19: East Whitmore Road west of Morgan Road
34: Mitchell Road south of East Service Road

With further development in the City of Ceres and surrounding communities, additional roadway segments are projected to degrade beyond the City's desired level of service for vehicles, including:

1: 7th Street north of River Road (City of Modesto)
2: 9th Street north of River Road (City of Modesto)
4: Carpenter Road at Tuolumne River (City of Modesto)
5: Crows Landing Road south of 7th Street (City of Modesto)
7: West Hatch Road west of Crows Landing Road (City of Modesto)
13: Faith Home Road south of East Hatch Road
14: Crows Landing Road north of West Whitmore Avenue
17: Moffett Road north of East Whitmore Avenue
20: East Whitmore Road east of Blaker Road
21: East Whitmore Road west of Central Avenue
23: Faith Home Road south of East Whitmore Avenue
25: Pine Street west of El Camino Avenue (at SR 99 Ramps)
42: SR 99 South of Mitchel Road (Caltrans)
43: SR 99 Mitchell Road to Whitmore Avenue (Caltrans)
44: SR 99 Whitmore Avenue to Hatch Road (Caltrans)
45: SR 99 North of Hatch Road (Caltrans)

Several of the roadways projected to operate at deficient service levels are within the City of Modesto, north of Ceres. These facilities also serve as a parallel route for State Route 99 that is projected to operate at capacity within the General Plan horizon. Mainline capacity improvements on State Route 99 could alleviate some traffic congestion on north-south roadways.

East Whitmore Avenue is projected to operate beyond its desired level of service around the State Route 99 interchange. As this interchange was recently reconstructed and additional improvements are not expected over the life of the General Plan, a level of service exemption could be considered for Whitmore Avenue in the vicinity of State Route 99.

Pine Street may also degrade to Level of Service E with the potential for increased activity within the Downtown area. As there is limited capacity to accommodate roadway widening in Downtown Ceres, a level of service threshold of LOS E could be established for intersections in the Downtown area to help maintain pedestrian friendly block sizes and intersection crossing distances, as well as encourage slow vehicular travel and the use of alternative travel modes to and within the Downtown area. A LOS E policy is not uncommon for Downtowns in the Central Valley and numerous City's allow for LOS E or F operations, including Modesto and Stockton.

East Hatch Road, east of Central Avenue, is projected to degrade to LOS F with General Plan buildout. Much of the increased traffic on the Hatch Road corridor is destined for Mitchell Road and Faith Home Road north of East Hatch Road and providing additional vehicular capacity on East Hatch Road could further promote East Hatch Road as a primary connector to Mitchell Road and Faith Home Road north of the Tuolumne River. The City of Ceres should work with Stanislaus County to ensure the southern end of the Faith Home Road corridor, such as the Keys Road interchange, is improved as part of the expressway project to reduce the amount of through traffic on East Hatch Road.

The Caltrans ***State Route 99*** Stanislaus County Corridor System Management Plan (April 2011) identifies that a 10-lane cross-section on SR 99 from the Merced County Line to Hatch Road and a 12-lane cross-section from Hatch Road to the San Joaquin County Line is required to maintain acceptable freeway operations through 2030. However, there is insufficient right-of-way and no funding to construct the improvement. Therefore, the analysis of the SR 99 mainline through the Planning Area was based on the no improvements over the current six-lane cross-section. If the freeway were widened to provide four travel lanes in each direction, operations would improve to LOS D or better trough Ceres through 2040.

VEHICLE MILES OF TRAVEL

Fehr & Peers used the updated City of Ceres General Plan model to estimate vehicle miles of travel generated by land uses in the Ceres General Plan planning area. The process which was undertaken to develop the model is detailed in a separate memorandum. To assess the VMT generated in Ceres, an origin-destination (OD) method was used which tracks all vehicular trips generated by the City of Ceres across the entire regional network. Four types of trips are isolated:

- Internal-Internal (II) trips: Includes all trips that begin and end within the City of Ceres.
- Internal-External (IX) trips: Includes all trips that begin in within city limits and end outside city limits.

- External-Internal (XI) trips: Includes all trips that begin outside city limits and end inside city limits.
- External-External (XX) trips: Trips that begin and end outside the City of Ceres are not included. The City of Ceres assumes no responsibility for External-External trip type VMTs.

Two separate accounting methods were used. The first shares the responsibility of IX or IX trips with the other jurisdiction with IX and XI trip lengths halved. The second method uses the full length of IX and IX trips. Results are presented in **Table 6** for Base Year Shared Accounting, **Table 7** for Base Year Total Accounting, **Table 8** for General Plan Shared Accounting, and **Table 9** for General Plan Total Accounting. Vehicle miles of travel metrics on a per capita basis are summarized in **Table 10**. Trips that have neither an origin nor destination within the City are not included in the VMT total as City General Plan policies cannot appreciably affect the amount of through traffic in a jurisdiction.

As shown in Table 10, vehicle miles of travel is expected to increase under the General Plan. Part of the increase is associated with the addition of more employment and retail opportunities within the City that have the potential to import vehicle trips from the surrounding communities. As new developments are proposed and evaluated, a vehicle mile of travel analysis will be required. A policy goal has been established as part of the General Plan for new developments to reduce vehicle miles of travel as compared to the baseline established at the time of analysis by 15 percent. These reductions can be established through a variety of means including providing a diversity of land uses to reduce trip lengths, provision of bicycle and pedestrian networks to shift short trips to bicycle or walking travel modes, and implementation of transportation demand management measures. The effect of these measures is difficult to evaluate at a general plan scale and are best evaluated on a project by project basis.

TABLE 6
BASE YEAR VMT
ORIGIN-DESTINATION METHOD (SHARED ACCOUNTING)

Speed Bin	City Limits		Outside City Limits/ Within General Plan Boundary		General Plan Boundary	
	#	%	#	%	#	%
0.00-7.50	77	0%	28	0%	105	0%
7.51-12.50	116	0%	52	0%	168	0%
12.51-17.50	1,114	0%	392	0%	1,506	0%
17.51-22.50	3,562	1%	1401	1%	4,963	1%
22.51-27.50	6,174	1%	2,746	1%	8,920	1%
27.51-32.50	39,110	9%	17,044	9%	56,154	9%
32.51-37.50	37,701	9%	17,125	9%	54,826	9%
37.51-42.50	98,720	22%	49,445	25%	148,165	23%
42.51-47.60	44,332	10%	17,137	9%	61,469	10%
47.61-52.50	38,098	9%	16,206	8%	54,304	9%
52.51-57.50	9,454	2%	5,357	3%	14,811	2%
57.51-62.50	25,371	6%	10,817	5%	36,188	6%
62.51-67.50	102,675	23%	46,531	24%	149,206	23%
67.51-72.50	34,464	8%	13,560	7%	48,024	8%
Total	440,967	100%	197,840	100%	638,807	100%

Source: Fehr & Peers, City of Ceres General Plan Model, 2017

TABLE 7
BASE YEAR VMT
ORIGIN-DESTINATION METHOD (TOTAL ACCOUNTING)

Speed Bin	City Limits		Outside City Limits/ Within General Plan Boundary		General Plan Boundary	
	#	%	#	%	#	%
0.00-7.50	153	0%	55	0%	208	0%
7.51-12.50	233	0%	102	0%	335	0%
12.51-17.50	2,233	0%	777	0%	3,010	0%
17.51-22.50	7,144	1%	2776	1%	9,920	1%
22.51-27.50	12,339	1%	5,436	1%	17,775	1%
27.51-32.50	76,797	9%	33,605	9%	110,402	9%
32.51-37.50	75,099	9%	33,882	9%	108,981	9%
37.51-42.50	195,700	22%	97,575	25%	293,275	23%
42.51-47.60	87,209	10%	33,815	9%	121,024	10%
47.61-52.50	75,818	9%	31,986	8%	107,804	8%
52.51-57.50	18,906	2%	10,567	3%	29,473	2%
57.51-62.50	50,868	6%	21,392	5%	72,260	6%
62.51-67.50	205,884	23%	92,040	24%	297,924	23%
67.51-72.50	69,161	8%	26,871	7%	96,032	8%
Total	877,544	100%	390,880	100%	1,268,424	100%

Source: Fehr & Peers, City of Ceres General Plan Model, 2017

TABLE 8
GENERAL PLAN BUILDOUT VMT
ORIGIN-DESTINATION METHOD (SHARED ACCOUNTING)

Speed Bin	City Limits		Outside City Limits/ Within General Plan Boundary		General Plan Boundary	
	#	%	#	%	#	%
0.00-7.50	1,110	0%	569	0%	1679	0%
7.51-12.50	1,453	0%	1003	0%	2456	0%
12.51-17.50	2,263	0%	1191	0%	3,454	0%
17.51-22.50	6,053	1%	3063	1%	9,116	1%
22.51-27.50	22,347	3%	10,044	2%	32,391	3%
27.51-32.50	74,054	11%	35,073	9%	109,127	10%
32.51-37.50	74,759	11%	41,361	10%	116,120	10%
37.51-42.50	198,818	28%	118,589	29%	317,407	28%
42.51-47.60	25,608	4%	14,599	4%	40,207	4%
47.61-52.50	45,713	6%	24,308	6%	70,021	6%
52.51-57.50	5,696	1%	2,948	1%	8,644	1%
57.51-62.50	18,276	3%	11,018	3%	29,294	3%
62.51-67.50	65,304	9%	39,894	10%	105,198	9%
67.51-72.50	162,993	23%	106,654	26%	269,647	24%
Total	704,447	100%	410,314	100%	1,114,761	100%

Source: Fehr & Peers, City of Ceres General Plan Model, 2017

TABLE 9
GENERAL PLAN BUILDOUT VMT
ORIGIN-DESTINATION METHOD (TOTAL ACCOUNTING)

Speed Bin	City Limits		Outside City Limits/ Within General Plan Boundary		General Plan Boundary	
	#	%	#	%	#	%
0.00-7.50	2,237	0%	1,126	0%	3,363	0%
7.51-12.50	2,926	0%	1,983	0%	4,909	0%
12.51-17.50	4,522	0%	2,349	0%	6,871	0%
17.51-22.50	12,154	1%	6,045	1%	18,199	1%
22.51-27.50	44,778	3%	19,811	2%	64,589	3%
27.51-32.50	145,318	10%	68,847	9%	214,165	10%
32.51-37.50	149,284	11%	81,537	10%	230,821	10%
37.51-42.50	390,003	28%	232,280	29%	622,283	28%
42.51-47.60	51,516	4%	28,838	4%	80,354	4%
47.61-52.50	91,641	7%	48,063	6%	139,704	6%
52.51-57.50	11,473	1%	5,832	1%	17,305	1%
57.51-62.50	36,805	3%	21,751	3%	58,556	3%
62.51-67.50	131,470	9%	78,786	10%	210,256	10%
67.51-72.50	328,001	23%	210,211	26%	538,212	24%
Total	1,402,128	100%	807,464	100%	2,209,592	100%

Source: Fehr & Peers, City of Ceres General Plan Model, 2017

TABLE 10
VEHICLE MILES OF TRAVEL SUMMARY CITY OF CERES GP

	Base Year		General Plan Buildout	
	Shared Accounting	**Total Accounting**	**Shared Accounting**	**Total Accounting**
Households	18,021		25,236	
Population	60,622		84,449	
Employment	14,099		34,190	
Daily VMT	638,807	1,268,424	1,114,761	2,209,592
Daily VMT per Household	35.45	70.39	44.17	87.56
Daily VMT per Service Population	8.55	16.98	9.40	18.62

Source: Fehr & Peers, 2017

This completes our base year and future year analysis for the Ceres General Plan. Please contact Kathrin at (925) 930-7100 with questions.

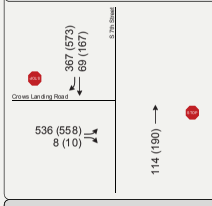
Attachments:

Figure 1 Peak Hour Intersection Study Locations
Figure 2 Peak Hour Intersection Vehicle Turning Movement Data and Traffic Control
Figure 3 Peak Hour Intersection Bicycle and Pedestrian Turning Movement Data

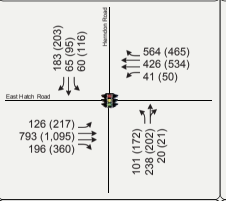
Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

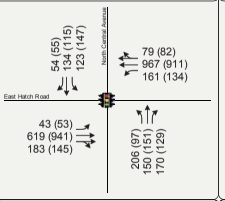
1. S 7th Street/Crows Landing Road



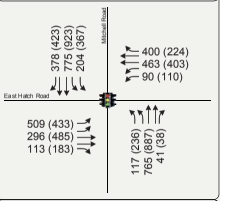
2. Herndon Road/East Hatch Road



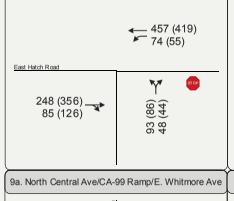
3. North Central Avenue/East Hatch Road



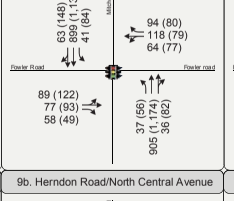
4. Mitchell Road/East Hatch Road



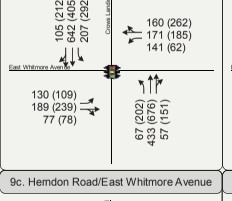
5. East Hatch Road/East Hatch Road



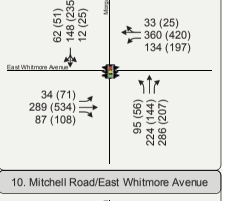
6. Mitchell Road/Fowler Road/Fowler road



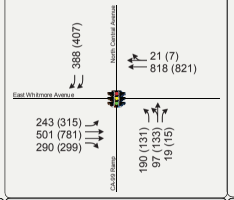
7. Crows Landing Road/East Whitmore Avenue



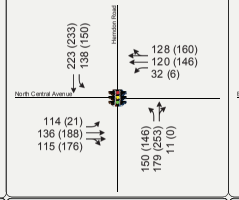
8. Morgan Road/East Whitmore Avenue



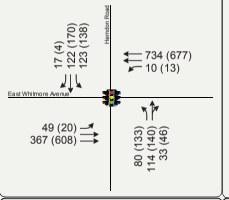
9a. North Central Ave/CA-99 Ramp/E. Whitmore Ave



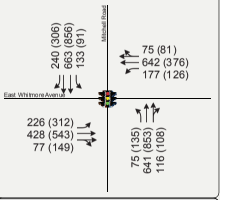
9b. Herndon Road/North Central Avenue



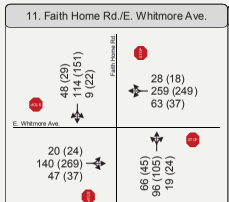
9c. Herndon Road/East Whitmore Avenue



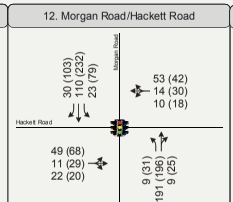
10. Mitchell Road/East Whitmore Avenue



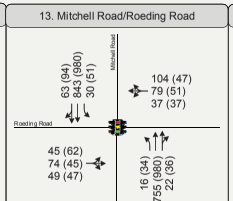
11. Faith Home Rd./E. Whitmore Ave.



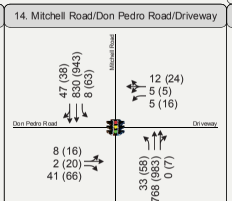
12. Morgan Road/Hackett Road



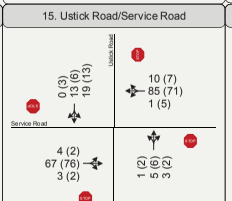
13. Mitchell Road/Roeding Road



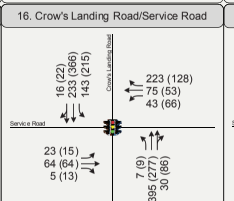
14. Mitchell Road/Don Pedro Road/Driveway



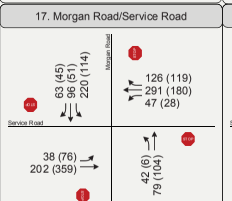
15. Ustick Road/Service Road



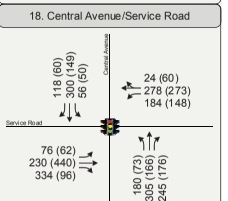
16. Crow's Landing Road/Service Road



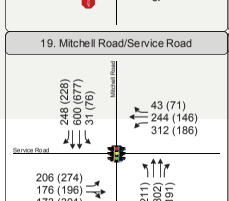
17. Morgan Road/Service Road



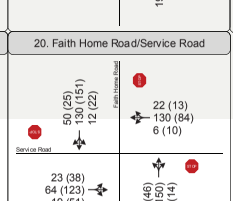
18. Central Avenue/Service Road



19. Mitchell Road/Service Road



20. Faith Home Road/Service Road



LEGEND XX (YY) AM (PM) Peak Hour Traffic Volumes | Signalized Intersection | Stop Sign | # Study Intersection

Figure 2

Existing Peak Hour Intersection Volumes, Lane Configurations and Traffic Control

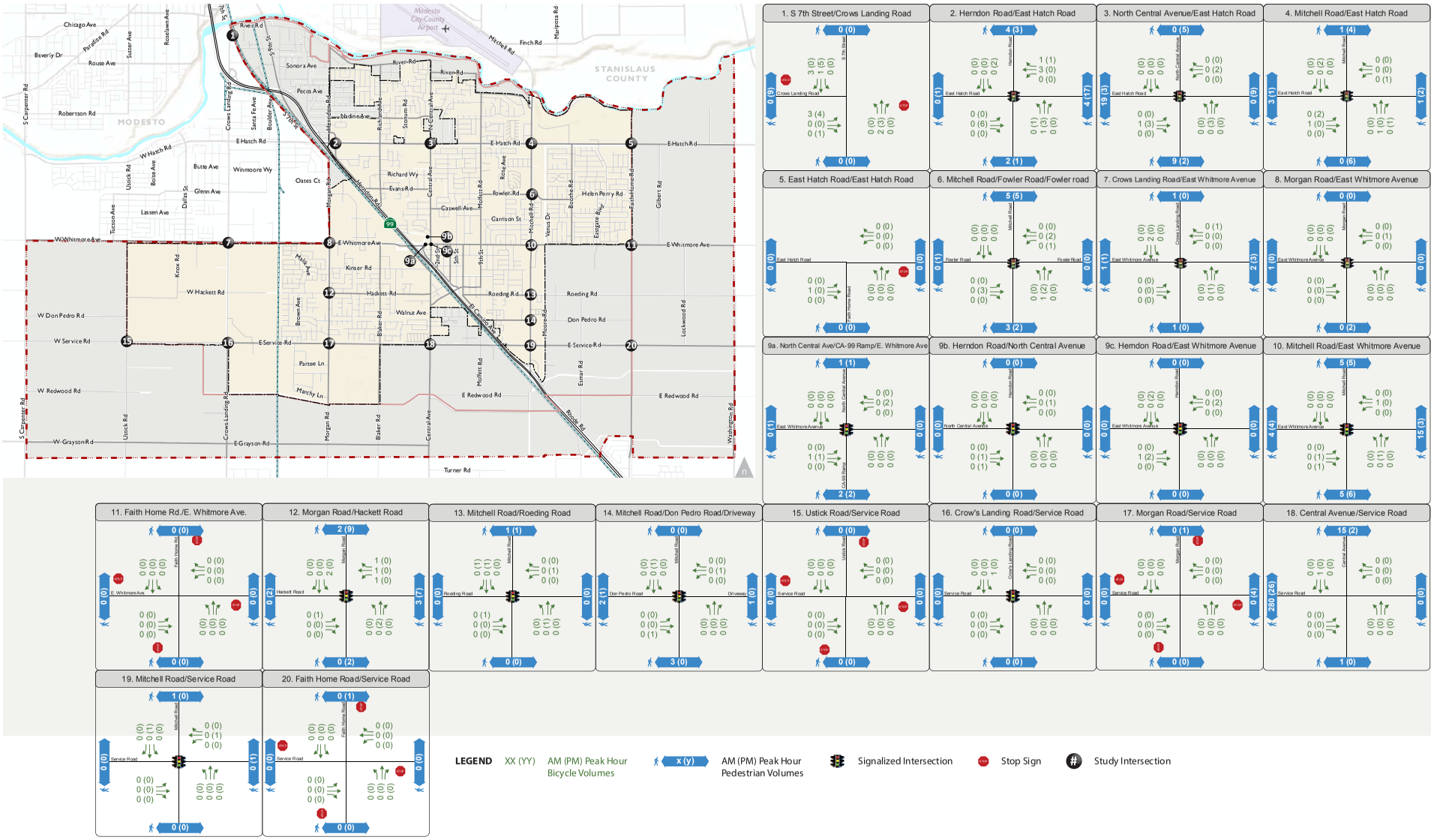


Figure 3

Existing Peak Hour Bicycle and Pedestrian Volumes

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	536	8	0	0	0	0	0	114	0	69	367
Future Vol, veh/h	0	536	8	0	0	0	0	0	114	0	69	367
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	92	91	92	92	92	91	91	92	92	91	91
Heavy Vehicles, %	1	2	1	2	2	2	1	1	2	2	1	1
Mvmt Flow	0	583	9	0	0	0	0	0	124	0	76	403

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	-	583	0	0	622	584	583	-	584	-
Stage 1	-	-	-	-	-	-	583	583	-	-	1	-
Stage 2	-	-	-	-	-	-	39	1	-	-	583	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.11	6.51	6.22	-	6.51	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	-	5.51	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.509	4.009	3.318	-	4.009	-
Pot Cap-1 Maneuver	1628	-	0	991	-	-	401	425	512	0	425	0
Stage 1	-	-	0	-	-	-	500	500	-	0	897	0
Stage 2	-	-	0	-	-	-	979	897	-	0	500	0
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1628	-	-	991	-	-	346	425	512	-	425	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	425	-	-	425	-
Stage 1	-	-	-	-	-	-	500	500	-	-	897	-
Stage 2	-	-	-	-	-	-	896	897	-	-	500	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.3	15.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	512	1628	-	991	-	-	425	-
HCM Lane V/C Ratio	0.242	-	-	-	-	-	0.178	-
HCM Control Delay (s)	14.3	0	-	0	-	-	15.3	0
HCM Lane LOS	B	A	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.9	0	-	0	-	-	0.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	793	196	41	426	564	101	238	20	60	65	183
Future Volume (veh/h)	126	793	196	41	426	564	101	238	20	60	65	183
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1776	1776	1776	1776	1776	1900	1776	1776	1776
Adj Flow Rate, veh/h	131	826	204	43	444	588	105	248	21	62	68	191
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	115	1224	546	279	1551	675	109	336	28	77	336	284
Arrive On Green	0.07	0.36	0.36	0.17	0.46	0.46	0.06	0.21	0.19	0.05	0.19	0.19
Sat Flow, veh/h	1691	3374	1504	1691	3374	1468	1691	1612	136	1691	1776	1500
Grp Volume(v), veh/h	131	826	204	43	444	588	105	0	269	62	68	191
Grp Sat Flow(s),veh/h/ln	1691	1687	1504	1691	1687	1468	1691	0	1748	1691	1776	1500
Q Serve(g_s), s	5.0	15.2	7.3	1.6	6.0	26.5	4.5	0.0	10.6	2.7	2.4	8.7
Cycle Q Clear(g_c), s	5.0	15.2	7.3	1.6	6.0	26.5	4.5	0.0	10.6	2.7	2.4	8.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	115	1224	546	279	1551	675	109	0	364	77	336	284
V/C Ratio(X)	1.14	0.68	0.37	0.15	0.29	0.87	0.96	0.00	0.74	0.80	0.20	0.67
Avail Cap(c_a), veh/h	115	1656	738	279	1702	741	109	0	787	92	799	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	19.7	17.2	26.2	12.3	17.9	34.2	0.0	27.2	34.7	25.1	27.6
Incr Delay (d2), s/veh	125.1	0.9	0.6	0.4	0.1	10.9	73.4	0.0	1.1	28.7	0.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	7.2	3.1	0.8	2.8	12.6	4.3	0.0	5.2	1.9	1.2	3.7
LnGrp Delay(d),s/veh	159.3	20.7	17.8	26.6	12.5	28.7	107.6	0.0	28.3	63.3	25.2	28.6
LnGrp LOS	F	C	B	C	B	C	F		C	E	C	C
Approach Vol, veh/h		1161			1075			374			321	
Approach Delay, s/veh		35.8			21.9			50.6			34.6	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.1	30.6	7.3	19.3	9.0	37.7	8.7	17.9
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	6.0	35.0	4.0	32.0	5.0	36.0	4.0	32.0
Max Q Clear Time (g_c+I1), s	3.6	17.2	4.7	12.6	7.0	28.5	6.5	10.7
Green Ext Time (p_c), s	0.2	7.8	0.0	1.0	0.0	4.0	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	619	183	161	967	79	206	150	170	123	134	54
Future Volume (veh/h)	43	619	183	161	967	79	206	150	170	123	134	54
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		0.98	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1792	1792	1900	1792	1792	1792	1792	1792	1792
Adj Flow Rate, veh/h	48	688	203	179	1074	88	229	167	189	137	149	60
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	59	1018	300	137	1405	115	374	428	355	278	345	285
Arrive On Green	0.03	0.40	0.37	0.08	0.44	0.41	0.10	0.24	0.24	0.05	0.19	0.19
Sat Flow, veh/h	1707	2572	759	1707	3185	261	1707	1792	1487	1707	1792	1479
Grp Volume(v), veh/h	48	455	436	179	574	588	229	167	189	137	149	60
Grp Sat Flow(s),veh/h/ln	1707	1703	1628	1707	1703	1743	1707	1792	1487	1707	1792	1479
Q Serve(g_s), s	1.9	15.2	15.4	5.5	19.6	19.7	0.1	5.4	7.7	0.0	5.1	2.4
Cycle Q Clear(g_c), s	1.9	15.2	15.4	5.5	19.6	19.7	0.1	5.4	7.7	0.0	5.1	2.4
Prop In Lane	1.00		0.47	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	674	644	137	751	769	374	428	355	278	345	285
V/C Ratio(X)	0.81	0.68	0.68	1.31	0.76	0.76	0.61	0.39	0.53	0.49	0.43	0.21
Avail Cap(c_a), veh/h	99	862	824	137	862	882	377	933	774	286	856	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	17.2	17.7	31.8	16.3	16.4	26.6	22.1	22.9	29.2	24.6	23.5
Incr Delay (d2), s/veh	9.2	1.9	2.0	181.7	4.0	4.0	2.1	0.2	0.5	0.5	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.4	7.2	9.5	9.9	10.2	4.2	2.7	3.2	2.5	2.5	1.0
LnGrp Delay(d),s/veh	42.4	19.1	19.7	213.5	20.3	20.4	28.7	22.3	23.4	29.7	24.9	23.6
LnGrp LOS	D	B	B	F	C	C	C	C	C	C	C	C
Approach Vol, veh/h		939			1341			585			346	
Approach Delay, s/veh		20.6			46.1			25.2			26.6	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	31.4	10.9	17.3	6.4	34.5	7.7	20.5
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.0	33.0	7.0	31.0	4.0	33.0	4.0	34.0
Max Q Clear Time (g_c+I1), s	7.5	17.4	2.1	7.1	3.9	21.7	2.0	9.7
Green Ext Time (p_c), s	0.0	6.5	0.3	0.6	0.0	6.8	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	509	296	113	90	463	400	117	765	41	204	775	378
Future Volume (veh/h)	509	296	113	90	463	400	117	765	41	204	775	378
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1776	1776	1776	1776	1776	1776	1776	1776	1776
Adj Flow Rate, veh/h	547	318	122	97	498	430	126	823	44	219	833	406
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	516	1403	719	211	1090	587	217	1083	477	217	1083	721
Arrive On Green	0.16	0.42	0.42	0.06	0.32	0.32	0.07	0.32	0.32	0.07	0.32	0.32
Sat Flow, veh/h	3281	3374	1489	3281	3374	1508	3281	3374	1486	3281	3374	1505
Grp Volume(v), veh/h	547	318	122	97	498	430	126	823	44	219	833	406
Grp Sat Flow(s),veh/h/ln	1640	1687	1489	1640	1687	1508	1640	1687	1486	1640	1687	1505
Q Serve(g_s), s	19.0	7.3	5.6	3.4	14.2	29.4	4.5	26.5	2.5	8.0	26.9	23.3
Cycle Q Clear(g_c), s	19.0	7.3	5.6	3.4	14.2	29.4	4.5	26.5	2.5	8.0	26.9	23.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	516	1403	719	211	1090	587	217	1083	477	217	1083	721
V/C Ratio(X)	1.06	0.23	0.17	0.46	0.46	0.73	0.58	0.76	0.09	1.01	0.77	0.56
Avail Cap(c_a), veh/h	516	1480	753	217	1173	624	217	1117	492	217	1117	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	22.8	17.6	54.5	32.5	31.5	54.8	36.8	28.7	56.4	37.0	22.5
Incr Delay (d2), s/veh	56.5	0.1	0.2	2.2	0.4	4.6	4.7	3.2	0.1	63.1	3.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	3.4	2.3	1.6	6.6	13.0	2.2	12.8	1.0	5.5	13.0	9.8
LnGrp Delay(d),s/veh	107.4	22.9	17.8	56.7	32.9	36.1	59.4	40.1	28.8	119.6	40.4	23.7
LnGrp LOS	F	C	B	E	C	D	E	D	C	F	D	C
Approach Vol, veh/h		987			1025			993			1458	
Approach Delay, s/veh		69.1			36.5			42.0			47.7	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	42.8	11.8	54.2	12.0	42.8	23.0	43.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	38.0	6.0	51.0	6.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	10.0	28.5	5.4	9.3	6.5	28.9	21.0	31.4
Green Ext Time (p_c), s	0.0	8.2	0.0	13.3	0.0	7.9	0.0	5.5

Intersection Summary	
HCM 2010 Ctrl Delay	48.6
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	248	85	74	457	93	48
Future Vol, veh/h	248	85	74	457	93	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	156	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	288	99	86	531	108	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	387	0	1041	338
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	703	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1166	-	254	702
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	489	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1166	-	235	702
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	453	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	29.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	304	-	-	1166	-
HCM Lane V/C Ratio	0.539	-	-	0.074	-
HCM Control Delay (s)	29.9	-	-	8.3	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	3	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	77	58	64	118	94	37	905	36	41	899	63
Future Volume (veh/h)	89	77	58	64	118	94	37	905	36	41	899	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1792	1900	1792	1792	1792	1792	1900	1792	1792	1900
Adj Flow Rate, veh/h	96	83	62	69	127	101	40	973	39	44	967	68
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	156	135	251	109	201	266	221	1311	53	229	1276	90
Arrive On Green	0.17	0.17	0.17	0.18	0.18	0.18	0.03	0.39	0.38	0.03	0.40	0.38
Sat Flow, veh/h	936	809	1510	620	1141	1511	1707	3335	134	1707	3228	227
Grp Volume(v), veh/h	179	0	62	196	0	101	40	497	515	44	510	525
Grp Sat Flow(s),veh/h/ln	1746	0	1510	1761	0	1511	1707	1703	1765	1707	1703	1752
Q Serve(g_s), s	6.6	0.0	2.5	7.1	0.0	4.1	1.0	17.3	17.3	1.1	17.9	17.9
Cycle Q Clear(g_c), s	6.6	0.0	2.5	7.1	0.0	4.1	1.0	17.3	17.3	1.1	17.9	17.9
Prop In Lane	0.54		1.00	0.35		1.00	1.00		0.08	1.00		0.13
Lane Grp Cap(c), veh/h	290	0	251	310	0	266	221	670	694	229	673	693
V/C Ratio(X)	0.62	0.00	0.25	0.63	0.00	0.38	0.18	0.74	0.74	0.19	0.76	0.76
Avail Cap(c_a), veh/h	530	0	458	916	0	786	266	689	714	271	689	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	25.1	26.4	0.0	25.2	14.8	18.0	18.0	14.6	18.1	18.1
Incr Delay (d2), s/veh	0.8	0.0	0.2	0.8	0.0	0.3	0.1	4.6	4.4	0.1	5.1	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.0	3.6	0.0	1.7	0.5	8.9	9.2	0.5	9.3	9.6
LnGrp Delay(d),s/veh	27.6	0.0	25.3	27.2	0.0	25.5	15.0	22.6	22.4	14.8	23.2	23.1
LnGrp LOS	C		C	C		C	B	C	C	B	C	C
Approach Vol, veh/h		241			297			1052			1079	
Approach Delay, s/veh		27.0			26.6			22.2			22.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	31.2		15.5	6.1	31.4		16.2
Change Period (Y+Rc), s	4.0	5.0		6.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	4.0	27.0		19.0	4.0	27.0		35.0
Max Q Clear Time (g_c+I1), s	3.1	19.3		8.6	3.0	19.9		9.1
Green Ext Time (p_c), s	0.0	6.9		0.5	0.0	6.4		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	189	77	141	171	160	67	433	57	207	642	105
Future Volume (veh/h)	130	189	77	141	171	160	67	433	57	207	642	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1847	1976	1776	1776	1900	1776	1776	1900
Adj Flow Rate, veh/h	141	205	84	153	186	174	73	471	62	225	698	114
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	347	333	136	398	243	227	95	760	100	272	1035	169
Arrive On Green	0.10	0.28	0.25	0.10	0.28	0.25	0.06	0.25	0.23	0.16	0.36	0.33
Sat Flow, veh/h	1691	1198	491	1691	879	822	1691	2998	393	1691	2893	472
Grp Volume(v), veh/h	141	0	289	153	0	360	73	264	269	225	407	405
Grp Sat Flow(s),veh/h/ln	1691	0	1688	1691	0	1701	1691	1687	1704	1691	1687	1678
Q Serve(g_s), s	4.4	0.0	11.7	4.8	0.0	15.2	3.3	10.8	10.9	10.0	15.9	16.0
Cycle Q Clear(g_c), s	4.4	0.0	11.7	4.8	0.0	15.2	3.3	10.8	10.9	10.0	15.9	16.0
Prop In Lane	1.00		0.29	1.00		0.48	1.00		0.23	1.00		0.28
Lane Grp Cap(c), veh/h	347	0	469	398	0	470	95	428	432	272	604	600
V/C Ratio(X)	0.41	0.00	0.62	0.38	0.00	0.77	0.76	0.62	0.62	0.83	0.67	0.67
Avail Cap(c_a), veh/h	366	0	758	398	0	741	239	779	787	542	1082	1076
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	24.8	17.5	0.0	26.4	36.3	25.8	26.0	31.7	21.2	21.5
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.2	0.0	1.0	4.7	2.1	2.1	2.5	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	5.5	2.2	0.0	7.3	1.7	5.2	5.4	4.9	7.7	7.7
LnGrp Delay(d),s/veh	18.3	0.0	25.3	17.8	0.0	27.3	41.0	27.8	28.1	34.1	23.1	23.4
LnGrp LOS	B		C	B		C	D	C	C	C	C	C
Approach Vol, veh/h		430			513			606			1037	
Approach Delay, s/veh		23.0			24.5			29.5			25.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	23.8	12.0	25.7	8.4	31.9	12.1	25.6
Change Period (Y+Rc), s	4.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	25.0	34.0	6.0	33.0	11.0	48.0	7.0	32.0
Max Q Clear Time (g_c+I1), s	12.0	12.9	6.8	13.7	5.3	18.0	6.4	17.2
Green Ext Time (p_c), s	0.3	4.1	0.0	2.4	0.2	7.6	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	289	87	134	360	33	95	224	286	12	148	62
Future Volume (veh/h)	34	289	87	134	360	33	95	224	286	12	148	62
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1900	1810	1810	1810	1900	1810	1900
Adj Flow Rate, veh/h	37	318	0	147	396	36	104	246	314	13	163	68
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	294	551	468	403	586	53	467	703	597	81	291	117
Arrive On Green	0.03	0.30	0.00	0.09	0.36	0.32	0.06	0.39	0.39	0.25	0.25	0.21
Sat Flow, veh/h	1723	1810	1538	1723	1635	149	1723	1810	1536	45	1161	466
Grp Volume(v), veh/h	37	318	0	147	0	432	104	246	314	244	0	0
Grp Sat Flow(s),veh/h/ln	1723	1810	1538	1723	0	1783	1723	1810	1536	1672	0	0
Q Serve(g_s), s	0.8	8.0	0.0	3.2	0.0	11.1	2.4	5.2	8.5	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.8	8.0	0.0	3.2	0.0	11.1	2.4	5.2	8.5	6.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.05		0.28
Lane Grp Cap(c), veh/h	294	551	468	403	0	639	467	703	597	489	0	0
V/C Ratio(X)	0.13	0.58	0.00	0.37	0.00	0.68	0.22	0.35	0.53	0.50	0.00	0.00
Avail Cap(c_a), veh/h	367	1370	1164	446	0	1416	516	1203	1021	892	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.3	15.9	0.0	12.6	0.0	14.8	13.5	11.7	12.7	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.4	0.0	0.2	0.0	0.5	0.1	0.1	0.3	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.2	0.0	1.5	0.0	5.5	1.1	2.6	3.6	3.4	0.0	0.0
LnGrp Delay(d),s/veh	14.3	17.3	0.0	12.8	0.0	15.3	13.6	11.8	13.0	19.1	0.0	0.0
LnGrp LOS	B	B		B		B	B	B	B	B		
Approach Vol, veh/h		355			579			664			244	
Approach Delay, s/veh		17.0			14.6			12.7			19.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	20.5	7.5	17.6	5.7	23.4		25.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0		6.0
Max Green Setting (Gmax), s	6.0	39.0	5.0	25.0	4.0	41.0		34.0
Max Q Clear Time (g_c+I1), s	5.2	10.0	4.4	8.8	2.8	13.1		10.5
Green Ext Time (p_c), s	0.0	4.3	0.0	3.0	0.0	4.3		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B

HCM Signalized Intersection Capacity Analysis
9: CA-99 Ramp/North Central Avenue & East Whitmore Avenue

4/20/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	501	290	0	818	21	190	97	19	0	0	388
Future Volume (vph)	243	501	290	0	818	21	190	97	19	0	0	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	0.95	1.00		0.95		0.95	0.95	1.00			0.88
Frpb, ped/bikes	1.00	1.00	0.98		1.00		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85			0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	0.98	1.00			1.00
Satd. Flow (prot)	1736	3471	1520		3457		1649	1707	1553			2733
Flt Permitted	0.95	1.00	1.00		1.00		0.95	0.98	1.00			1.00
Satd. Flow (perm)	1736	3471	1520		3457		1649	1707	1553			2733
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	276	569	330	0	930	24	216	110	22	0	0	441
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	15	0	0	369
Lane Group Flow (vph)	276	569	330	0	952	0	160	166	7	0	0	72
Confl. Peds. (#/hr)	1		2	2		1						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Free		NA		Prot	NA	Perm			Prot
Protected Phases	5	2			6		3	8				4
Permitted Phases			Free						8			
Actuated Green, G (s)	14.0	48.6	87.7		30.6		10.7	27.1	27.1			12.4
Effective Green, g (s)	14.0	50.6	87.7		32.6		10.7	29.1	29.1			14.4
Actuated g/C Ratio	0.16	0.58	1.00		0.37		0.12	0.33	0.33			0.16
Clearance Time (s)	4.0	6.0			6.0		4.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	4.0			4.0		3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	277	2002	1520		1285		201	566	515			448
v/s Ratio Prot	c0.16	0.16			c0.28		c0.10	c0.04				0.03
v/s Ratio Perm			0.22					0.05	0.00			
v/c Ratio	1.00	0.28	0.22		0.74		0.80	0.29	0.01			0.16
Uniform Delay, d1	36.8	9.4	0.0		23.9		37.4	21.7	19.7			31.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00			1.00
Incremental Delay, d2	52.7	0.1	0.3		2.5		19.2	0.3	0.0			0.2
Delay (s)	89.6	9.5	0.3		26.4		56.7	22.0	19.7			31.6
Level of Service	F	A	A		C		E	C	B			C
Approach Delay (s)		25.7			26.4			37.8			31.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	428	77	177	642	75	75	641	116	133	663	240
Future Volume (veh/h)	226	428	77	177	642	75	75	641	116	133	663	240
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1900	1810	1810	1900	1810	1810	1810
Adj Flow Rate, veh/h	257	486	88	201	730	85	85	728	132	151	753	273
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	212	904	163	196	933	109	107	1009	183	131	1244	550
Arrive On Green	0.12	0.31	0.29	0.11	0.30	0.28	0.06	0.35	0.33	0.08	0.36	0.36
Sat Flow, veh/h	1723	2909	524	1723	3097	360	1723	2901	526	1723	3438	1519
Grp Volume(v), veh/h	257	286	288	201	405	410	85	431	429	151	753	273
Grp Sat Flow(s),veh/h/ln	1723	1719	1714	1723	1719	1738	1723	1719	1708	1723	1719	1519
Q Serve(g_s), s	13.0	14.5	14.7	12.0	22.7	22.8	5.1	23.0	23.1	8.0	18.9	14.7
Cycle Q Clear(g_c), s	13.0	14.5	14.7	12.0	22.7	22.8	5.1	23.0	23.1	8.0	18.9	14.7
Prop In Lane	1.00		0.31	1.00		0.21	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	212	534	532	196	518	523	107	598	594	131	1244	550
V/C Ratio(X)	1.21	0.54	0.54	1.02	0.78	0.78	0.80	0.72	0.72	1.15	0.61	0.50
Avail Cap(c_a), veh/h	212	652	650	196	636	643	114	636	632	131	1304	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	30.1	30.4	46.7	33.7	33.9	48.8	29.9	30.2	48.7	27.5	26.2
Incr Delay (d2), s/veh	129.8	0.3	0.3	70.9	4.0	4.0	26.7	4.2	4.2	126.3	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	7.0	7.0	9.5	11.4	11.5	3.2	11.6	11.6	8.4	9.0	6.3
LnGrp Delay(d),s/veh	176.0	30.4	30.7	117.8	37.7	37.9	75.5	34.1	34.4	175.0	28.4	27.2
LnGrp LOS	F	C	C	F	D	D	E	C	C	F	C	C
Approach Vol, veh/h		831			1016			945			1177	
Approach Delay, s/veh		75.5			53.6			38.0			46.9	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	40.7	16.0	36.7	10.5	42.1	17.0	35.7
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	8.0	37.0	12.0	38.0	7.0	38.0	13.0	37.0
Max Q Clear Time (g_c+I1), s	10.0	25.1	14.0	16.7	7.1	20.9	15.0	24.8
Green Ext Time (p_c), s	0.0	9.4	0.0	5.4	0.0	12.7	0.0	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	52.5
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	140	47	63	259	28	66	96	19	9	114	48
Future Vol, veh/h	20	140	47	63	259	28	66	96	19	9	114	48
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	163	55	73	301	33	77	112	22	10	133	56
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.8	18.7	13	12.4
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	10%	18%	5%
Vol Thru, %	53%	68%	74%	67%
Vol Right, %	10%	23%	8%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	181	207	350	171
LT Vol	66	20	63	9
Through Vol	96	140	259	114
RT Vol	19	47	28	48
Lane Flow Rate	210	241	407	199
Geometry Grp	1	1	1	1
Degree of Util (X)	0.369	0.397	0.648	0.341
Departure Headway (Hd)	6.31	5.941	5.736	6.18
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	570	609	631	581
Service Time	4.356	3.956	3.746	4.228
HCM Lane V/C Ratio	0.368	0.396	0.645	0.343
HCM Control Delay	13	12.8	18.7	12.4
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	1.7	1.9	4.7	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	11	22	10	14	53	9	191	9	23	110	30
Future Volume (veh/h)	49	11	22	10	14	53	9	191	9	23	110	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		0.97	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	51	11	23	10	15	55	9	199	9	24	115	31
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	374	31	64	191	50	171	591	588	27	529	620	513
Arrive On Green	0.16	0.16	0.12	0.16	0.16	0.12	0.02	0.34	0.26	0.02	0.34	0.34
Sat Flow, veh/h	912	197	411	177	323	1101	1757	1751	79	1757	1845	1526
Grp Volume(v), veh/h	85	0	0	80	0	0	9	0	208	24	115	31
Grp Sat Flow(s),veh/h/ln	1520	0	0	1602	0	0	1757	0	1830	1757	1845	1526
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	1.1	0.3
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	2.1	0.0	1.1	0.3
Prop In Lane	0.60		0.27	0.12		0.69	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	469	0	0	412	0	0	591	0	615	529	620	513
V/C Ratio(X)	0.18	0.00	0.00	0.19	0.00	0.00	0.02	0.00	0.34	0.05	0.19	0.06
Avail Cap(c_a), veh/h	2198	0	0	2295	0	0	831	0	1845	770	1859	1539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	9.6	0.0	0.0	7.3	0.0	6.2	8.2	5.8	5.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.1	0.1	0.6	0.1
LnGrp Delay(d),s/veh	9.5	0.0	0.0	9.7	0.0	0.0	7.3	0.0	6.7	8.2	6.0	5.6
LnGrp LOS	A			A			A		A	A	A	A
Approach Vol, veh/h		85			80			217			170	
Approach Delay, s/veh		9.5			9.7			6.7			6.3	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.6	12.3		7.9	4.6	12.3		7.9
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	4.6	23.0		33.0	4.0	23.0		33.0
Max Q Clear Time (g_c+I1), s	2.0	4.1		3.1	2.0	3.1		3.0
Green Ext Time (p_c), s	0.0	1.3		0.6	0.0	0.8		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	74	49	37	79	104	16	755	22	30	843	63
Future Volume (veh/h)	45	74	49	37	79	104	16	755	22	30	843	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	1900	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	51	84	56	42	90	118	18	858	25	34	958	72
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	172	215	120	133	168	190	31	1442	42	123	1543	116
Arrive On Green	0.25	0.25	0.23	0.25	0.25	0.23	0.02	0.42	0.38	0.07	0.48	0.43
Sat Flow, veh/h	297	856	478	174	670	754	1723	3412	99	1723	3242	244
Grp Volume(v), veh/h	191	0	0	250	0	0	18	432	451	34	508	522
Grp Sat Flow(s),veh/h/ln	1632	0	0	1598	0	0	1723	1719	1792	1723	1719	1767
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.5	9.1	9.2	0.9	10.3	10.4
Cycle Q Clear(g_c), s	4.4	0.0	0.0	6.4	0.0	0.0	0.5	9.1	9.2	0.9	10.3	10.4
Prop In Lane	0.27		0.29	0.17		0.47	1.00		0.06	1.00		0.14
Lane Grp Cap(c), veh/h	507	0	0	491	0	0	31	727	757	123	818	841
V/C Ratio(X)	0.38	0.00	0.00	0.51	0.00	0.00	0.59	0.60	0.60	0.28	0.62	0.62
Avail Cap(c_a), veh/h	1464	0	0	1484	0	0	146	1132	1180	183	1168	1200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	0.0	15.8	0.0	0.0	23.0	10.5	10.5	20.7	9.2	9.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	6.4	1.1	1.1	0.4	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	2.9	0.0	0.0	0.3	4.5	4.7	0.4	5.0	5.2
LnGrp Delay(d),s/veh	15.1	0.0	0.0	16.1	0.0	0.0	29.4	11.6	11.6	21.2	10.3	10.4
LnGrp LOS	B			B			C	B	B	C	B	B
Approach Vol, veh/h		191			250			901			1064	
Approach Delay, s/veh		15.1			16.1			12.0			10.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	23.9		15.8	4.8	26.4		15.8
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	5.0	29.0		41.0	4.0	30.0		41.0
Max Q Clear Time (g_c+I1), s	2.9	11.2		6.4	2.5	12.4		8.4
Green Ext Time (p_c), s	0.0	6.7		2.1	0.0	8.0		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.1
HCM 2010 LOS	B

HCM Signalized Intersection Capacity Analysis
14: Mitchell Road & Don Pedro Road/Driveway

4/20/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	2	41	5	5	12	33	768	0	8	830	47
Future Volume (vph)	8	2	41	5	5	12	33	768	0	8	830	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.90		1.00	1.00		1.00	0.99	
Flt Protected		0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1722	1503	1615	1524		1702	3406		1702	3374	
Flt Permitted		0.83	1.00	0.91	0.98		0.29	1.00		0.34	1.00	
Satd. Flow (perm)		1481	1503	1545	1497		521	3406		605	3374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	2	45	5	5	13	36	835	0	9	902	51
RTOR Reduction (vph)	0	0	40	0	11	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	11	5	4	8	0	36	835	0	9	948	0
Confl. Peds. (#/hr)			3	3			2		1	1		2
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		3.9	3.9	3.9	3.9		24.2	24.2		24.2	24.2	
Effective Green, g (s)		4.4	4.4	4.4	4.4		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.12	0.12	0.12	0.12		0.67	0.67		0.67	0.67	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		175	178	183	177		346	2267		402	2246	
v/s Ratio Prot								0.25			c0.28	
v/s Ratio Perm		c0.01	0.00	0.00	0.01		0.07			0.01		
v/c Ratio		0.06	0.03	0.02	0.04		0.10	0.37		0.02	0.42	
Uniform Delay, d1		14.5	14.5	14.4	14.5		2.2	2.7		2.1	2.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.1	0.0	0.1		0.1	0.1		0.0	0.1	
Delay (s)		14.7	14.5	14.5	14.6		2.4	2.8		2.1	3.0	
Level of Service		B	B	B	B		A	A		A	A	
Approach Delay (s)		14.6			14.6			2.8			3.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	37.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	67	3	1	85	10	1	5	3	19	13	0
Future Vol, veh/h	4	67	3	1	85	10	1	5	3	19	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	5	79	4	1	100	12	1	6	4	22	15	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	112	0	0	82	0	0	206	204	81	203	200	106
Stage 1	-	-	-	-	-	-	90	90	-	108	108	-
Stage 2	-	-	-	-	-	-	116	114	-	95	92	-
Critical Hdwy	4.18	-	-	4.18	-	-	7.18	6.58	6.28	7.18	6.58	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.18	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.18	5.58	-
Follow-up Hdwy	2.272	-	-	2.272	-	-	3.572	4.072	3.372	3.572	4.072	3.372
Pot Cap-1 Maneuver	1441	-	-	1478	-	-	739	682	963	742	685	932
Stage 1	-	-	-	-	-	-	903	809	-	883	794	-
Stage 2	-	-	-	-	-	-	874	790	-	897	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1441	-	-	1478	-	-	724	679	963	732	682	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	724	679	-	732	682	-
Stage 1	-	-	-	-	-	-	899	806	-	879	793	-
Stage 2	-	-	-	-	-	-	856	789	-	884	804	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	9.8	10.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	759	1441	-	-	1478	-	-	711
HCM Lane V/C Ratio	0.014	0.003	-	-	0.001	-	-	0.053
HCM Control Delay (s)	9.8	7.5	0	-	7.4	0	-	10.3
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	64	5	43	75	223	7	395	30	143	233	16
Future Volume (veh/h)	23	64	5	43	75	223	7	395	30	143	233	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1727	1727	1727	1727	1727	1727	1900	1727	1727	1900
Adj Flow Rate, veh/h	26	71	6	48	83	248	8	439	33	159	259	18
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	40	463	393	65	489	415	14	793	59	171	1094	76
Arrive On Green	0.02	0.27	0.27	0.04	0.28	0.28	0.01	0.26	0.21	0.10	0.35	0.31
Sat Flow, veh/h	1645	1727	1468	1645	1727	1468	1645	3095	232	1645	3110	215
Grp Volume(v), veh/h	26	71	6	48	83	248	8	232	240	159	136	141
Grp Sat Flow(s),veh/h/ln	1645	1727	1468	1645	1727	1468	1645	1641	1686	1645	1641	1684
Q Serve(g_s), s	0.8	1.5	0.1	1.4	1.7	7.0	0.2	5.9	6.0	4.6	2.8	2.9
Cycle Q Clear(g_c), s	0.8	1.5	0.1	1.4	1.7	7.0	0.2	5.9	6.0	4.6	2.8	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.13
Lane Grp Cap(c), veh/h	40	463	393	65	489	415	14	420	432	171	577	592
V/C Ratio(X)	0.65	0.15	0.02	0.74	0.17	0.60	0.58	0.55	0.56	0.93	0.24	0.24
Avail Cap(c_a), veh/h	137	1687	1434	137	1687	1434	137	1296	1332	171	1330	1365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	13.4	12.9	22.9	13.0	14.9	23.8	15.5	15.6	21.4	11.0	11.1
Incr Delay (d2), s/veh	6.4	0.2	0.0	6.1	0.2	2.0	13.3	0.4	0.4	48.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7	0.1	0.7	0.9	3.0	0.2	2.7	2.8	4.4	1.3	1.3
LnGrp Delay(d),s/veh	29.6	13.7	13.0	28.9	13.2	16.8	37.0	15.9	16.1	69.6	11.1	11.2
LnGrp LOS	C	B	B	C	B	B	D	B	B	E	B	B
Approach Vol, veh/h		103			379			480			436	
Approach Delay, s/veh		17.7			17.6			16.3			32.5	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	16.9	4.4	20.9	5.2	17.6	9.0	16.3
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.0	45.0	4.0	37.0	4.0	45.0	5.0	36.0
Max Q Clear Time (g_c+I1), s	3.4	3.5	2.2	4.9	2.8	9.0	6.6	8.0
Green Ext Time (p_c), s	0.0	2.6	0.0	2.4	0.0	2.6	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	23.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	202	24	47	291	126	42	79	19	220	96	63
Future Vol, veh/h	38	202	24	47	291	126	42	79	19	220	96	63
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	45	238	28	55	342	148	49	93	22	259	113	74
Number of Lanes	1	1	0	1	1	1	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	2
HCM Control Delay	24.3	27.8	15.5	21.6
HCM LOS	C	D	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	81%	0%	89%	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	19%	0%	11%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	98	38	226	47	291	126	220	96	63
LT Vol	42	0	38	0	47	0	0	220	0	0
Through Vol	0	79	0	202	0	291	0	0	96	0
RT Vol	0	19	0	24	0	0	126	0	0	63
Lane Flow Rate	49	115	45	266	55	342	148	259	113	74
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.137	0.298	0.116	0.645	0.136	0.792	0.313	0.653	0.269	0.162
Departure Headway (Hd)	9.957	9.302	9.321	8.733	8.835	8.323	7.607	9.086	8.573	7.856
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	360	386	385	415	406	435	473	399	419	457
Service Time	7.719	7.064	7.073	6.485	6.583	6.071	5.354	6.836	6.323	5.605
HCM Lane V/C Ratio	0.136	0.298	0.117	0.641	0.135	0.786	0.313	0.649	0.27	0.162
HCM Control Delay	14.3	16	13.3	26.1	13	36.2	13.8	27.5	14.5	12.1
HCM Lane LOS	B	C	B	D	B	E	B	D	B	B
HCM 95th-tile Q	0.5	1.2	0.4	4.4	0.5	7	1.3	4.5	1.1	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	230	334	184	278	24	180	305	245	56	300	118
Future Volume (veh/h)	76	230	334	184	278	24	180	305	245	56	300	118
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.62	1.00		0.49
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	89	271	393	216	327	28	212	359	288	66	353	139
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	116	442	364	254	532	46	248	688	365	84	516	214
Arrive On Green	0.07	0.24	0.24	0.14	0.32	0.29	0.14	0.37	0.37	0.05	0.28	0.28
Sat Flow, veh/h	1757	1845	1519	1757	1672	143	1757	1845	979	1757	1845	767
Grp Volume(v), veh/h	89	271	393	216	0	355	212	359	288	66	353	139
Grp Sat Flow(s),veh/h/ln	1757	1845	1519	1757	0	1815	1757	1845	979	1757	1845	767
Q Serve(g_s), s	4.1	10.7	12.2	9.8	0.0	13.6	9.7	12.4	11.5	3.0	14.0	9.2
Cycle Q Clear(g_c), s	4.1	10.7	12.2	9.8	0.0	13.6	9.7	12.4	11.5	3.0	14.0	9.2
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	442	364	254	0	577	248	688	365	84	516	214
V/C Ratio(X)	0.76	0.61	1.08	0.85	0.00	0.62	0.85	0.52	0.79	0.78	0.68	0.65
Avail Cap(c_a), veh/h	116	652	537	321	0	885	257	697	370	86	517	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	27.8	12.1	34.2	0.0	23.8	34.4	20.0	6.6	38.6	26.3	12.9
Incr Delay (d2), s/veh	23.3	2.0	60.6	13.4	0.0	1.5	21.7	0.3	9.9	33.5	3.1	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.7	12.3	5.7	0.0	7.1	6.2	6.3	5.0	2.3	7.5	2.6
LnGrp Delay(d),s/veh	61.0	29.8	72.6	47.6	0.0	25.3	56.1	20.3	16.5	72.2	29.4	18.2
LnGrp LOS	E	C	F	D		C	E	C	B	E	C	B
Approach Vol, veh/h		753			571			859			558	
Approach Delay, s/veh		55.8			33.8			27.9			31.7	
Approach LOS		E			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	23.7	15.6	26.9	9.4	30.1	7.9	34.6
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.9	27.0	12.0	21.0	4.0	38.0	4.0	29.0
Max Q Clear Time (g_c+I1), s	11.8	14.2	11.7	16.0	6.1	15.6	5.0	14.4
Green Ext Time (p_c), s	0.1	3.4	0.0	2.2	0.0	2.7	0.0	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	176	173	312	244	43	169	552	153	31	600	248
Future Volume (veh/h)	206	176	173	312	244	43	169	552	153	31	600	248
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1810	1810	1810	1810	1810	1810	1810
Adj Flow Rate, veh/h	237	202	199	359	280	0	194	634	176	36	690	0
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	269	241	237	382	639	543	216	1070	478	45	728	326
Arrive On Green	0.16	0.29	0.27	0.22	0.35	0.00	0.13	0.31	0.31	0.03	0.21	0.00
Sat Flow, veh/h	1723	838	825	1723	1810	1538	1723	3438	1538	1723	3438	1538
Grp Volume(v), veh/h	237	0	401	359	280	0	194	634	176	36	690	0
Grp Sat Flow(s),veh/h/ln	1723	0	1663	1723	1810	1538	1723	1719	1538	1723	1719	1538
Q Serve(g_s), s	14.0	0.0	23.6	21.3	12.3	0.0	11.5	16.2	9.2	2.2	20.6	0.0
Cycle Q Clear(g_c), s	14.0	0.0	23.6	21.3	12.3	0.0	11.5	16.2	9.2	2.2	20.6	0.0
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	0	478	382	639	543	216	1070	478	45	728	326
V/C Ratio(X)	0.88	0.00	0.84	0.94	0.44	0.00	0.90	0.59	0.37	0.81	0.95	0.00
Avail Cap(c_a), veh/h	431	0	656	382	662	563	216	1070	478	100	728	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.9	0.0	35.2	39.8	25.7	0.0	44.8	30.2	27.8	50.3	40.4	0.0
Incr Delay (d2), s/veh	7.5	0.0	5.2	30.9	0.2	0.0	34.5	1.1	0.7	11.9	21.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	11.5	13.3	6.2	0.0	7.6	7.8	4.0	1.2	12.0	0.0
LnGrp Delay(d),s/veh	50.4	0.0	40.4	70.7	25.9	0.0	79.3	31.3	28.5	62.2	62.0	0.0
LnGrp LOS	D		D	E	C		E	C	C	E	E	
Approach Vol, veh/h		638			639			1004			726	
Approach Delay, s/veh		44.1			51.0			40.1			62.0	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	36.3	27.0	33.9	17.0	26.0	20.2	40.7
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	27.0	23.0	39.0	13.0	20.0	26.0	36.0
Max Q Clear Time (g_c+I1), s	4.2	18.2	23.3	25.6	13.5	22.6	16.0	14.3
Green Ext Time (p_c), s	0.0	6.5	0.0	2.1	0.0	0.0	0.2	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	48.6
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	64	19	6	130	22	58	133	8	12	130	50
Future Vol, veh/h	23	64	19	6	130	22	58	133	8	12	130	50
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	72	21	7	146	25	65	149	9	13	146	56
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	9.9	10.3	9.9
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	22%	4%	6%
Vol Thru, %	67%	60%	82%	68%
Vol Right, %	4%	18%	14%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	199	106	158	192
LT Vol	58	23	6	12
Through Vol	133	64	130	130
RT Vol	8	19	22	50
Lane Flow Rate	224	119	178	216
Geometry Grp	1	1	1	1
Degree of Util (X)	0.31	0.175	0.25	0.289
Departure Headway (Hd)	4.987	5.277	5.079	4.828
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	713	684	698	736
Service Time	3.078	3.277	3.176	2.92
HCM Lane V/C Ratio	0.314	0.174	0.255	0.293
HCM Control Delay	10.3	9.4	9.9	9.9
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.3	0.6	1	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	136	115	32	120	128	150	179	11	138	223	53
Future Volume (veh/h)	114	136	115	32	120	128	150	179	11	138	223	53
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	134	160	135	38	141	151	176	211	13	162	262	62
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	140	433	339	171	439	382	140	394	24	247	418	99
Arrive On Green	0.08	0.23	0.21	0.10	0.25	0.23	0.08	0.23	0.19	0.14	0.28	0.25
Sat Flow, veh/h	1792	1893	1483	1792	1787	1557	1792	1752	108	1792	1467	347
Grp Volume(v), veh/h	134	150	145	38	141	151	176	0	224	162	0	324
Grp Sat Flow(s),veh/h/ln	1792	1787	1589	1792	1787	1557	1792	0	1860	1792	0	1814
Q Serve(g_s), s	3.8	3.6	4.0	1.0	3.3	4.2	4.0	0.0	5.4	4.4	0.0	8.0
Cycle Q Clear(g_c), s	3.8	3.6	4.0	1.0	3.3	4.2	4.0	0.0	5.4	4.4	0.0	8.0
Prop In Lane	1.00		0.93	1.00		1.00	1.00		0.06	1.00		0.19
Lane Grp Cap(c), veh/h	140	408	363	171	439	382	140	0	419	247	0	516
V/C Ratio(X)	0.96	0.37	0.40	0.22	0.32	0.39	1.25	0.00	0.54	0.66	0.00	0.63
Avail Cap(c_a), veh/h	140	944	840	210	1014	884	140	0	1165	247	0	1136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.5	16.6	17.1	21.4	15.8	16.5	23.5	0.0	17.5	20.9	0.0	16.1
Incr Delay (d2), s/veh	61.8	0.8	1.0	0.2	0.6	0.9	159.9	0.0	0.4	4.9	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	1.9	1.9	0.5	1.7	1.9	8.2	0.0	2.8	2.5	0.0	4.0
LnGrp Delay(d),s/veh	85.3	17.4	18.2	21.6	16.4	17.5	183.5	0.0	17.9	25.8	0.0	16.6
LnGrp LOS	F	B	B	C	B	B	F		B	C		B
Approach Vol, veh/h		429			330			400			486	
Approach Delay, s/veh		38.8			17.5			90.8			19.6	
Approach LOS		D			B			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	15.7	8.0	18.5	8.0	16.5	11.0	15.5
Change Period (Y+Rc), s	4.0	5.0	4.0	6.0	4.0	5.0	4.0	6.0
Max Green Setting (Gmax), s	6.9	26.0	4.0	30.0	4.0	28.0	4.0	30.0
Max Q Clear Time (g_c+I1), s	13.0	6.0	6.0	10.0	5.8	6.2	6.4	7.4
Green Ext Time (p_c), s	0.1	2.3	0.0	1.2	0.0	2.4	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	41.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	367	91	10	734	160	80	114	33	123	122	17
Future Volume (veh/h)	49	367	91	10	734	160	80	114	33	123	122	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.96	1.00		0.92	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	58	432	107	12	864	188	94	134	39	145	144	20
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	73	1122	275	21	1072	233	120	370	108	142	530	421
Arrive On Green	0.04	0.41	0.38	0.01	0.38	0.35	0.07	0.28	0.25	0.08	0.29	0.29
Sat Flow, veh/h	1740	2728	668	1740	2812	612	1740	1333	388	1740	1827	1452
Grp Volume(v), veh/h	58	273	266	12	533	519	94	0	173	145	144	20
Grp Sat Flow(s),veh/h/ln	1740	1736	1661	1740	1736	1688	1740	0	1721	1740	1827	1452
Q Serve(g_s), s	2.4	8.1	8.4	0.5	20.1	20.3	3.9	0.0	6.0	6.0	4.5	0.7
Cycle Q Clear(g_c), s	2.4	8.1	8.4	0.5	20.1	20.3	3.9	0.0	6.0	6.0	4.5	0.7
Prop In Lane	1.00		0.40	1.00		0.36	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	73	714	683	21	662	644	120	0	477	142	530	421
V/C Ratio(X)	0.80	0.38	0.39	0.58	0.81	0.81	0.78	0.00	0.36	1.02	0.27	0.05
Avail Cap(c_a), veh/h	95	714	683	95	685	667	237	0	703	142	647	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	15.1	15.5	36.1	20.3	20.6	33.6	0.0	21.5	33.7	20.1	18.8
Incr Delay (d2), s/veh	22.4	0.5	0.5	9.4	7.2	7.4	4.2	0.0	0.7	80.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.0	3.9	0.3	11.0	10.7	2.0	0.0	2.9	6.0	2.3	0.3
LnGrp Delay(d),s/veh	57.2	15.6	16.0	45.5	27.5	28.1	37.8	0.0	22.2	114.8	20.2	18.8
LnGrp LOS	E	B	B	D	C	C	D		C	F	C	B
Approach Vol, veh/h		597			1064			267			309	
Approach Delay, s/veh		19.8			28.0			27.7			64.5	
Approach LOS		B			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	34.2	9.1	25.3	7.1	32.0	10.0	24.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.0	27.0	10.0	24.0	4.0	27.0	6.0	28.0
Max Q Clear Time (g_c+I1), s	2.5	10.4	5.9	6.5	4.4	22.3	8.0	8.0
Green Ext Time (p_c), s	0.0	11.7	0.0	1.7	0.0	3.4	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	558	10	0	0	0	0	0	190	0	167	573
Future Vol, veh/h	0	558	10	0	0	0	0	0	190	0	167	573
Conflicting Peds, #/hr	0	0	0	0	0	0	9	0	0	0	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	92	98	92	92	92	98	98	92	92	98	98
Heavy Vehicles, %	1	2	1	2	2	2	1	1	2	2	1	1
Mvmt Flow	0	607	10	0	0	0	0	0	207	0	170	585

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	-	607	0	0	702	608	607	-	608	-
Stage 1	-	-	-	-	-	-	607	607	-	-	1	-
Stage 2	-	-	-	-	-	-	95	1	-	-	607	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.11	6.51	6.22	-	6.51	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	-	5.51	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.509	4.009	3.318	-	4.009	-
Pot Cap-1 Maneuver	1628	-	0	971	-	-	354	412	496	0	412	0
Stage 1	-	-	0	-	-	-	485	488	-	0	897	0
Stage 2	-	-	0	-	-	-	914	897	-	0	488	0
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1614	-	-	971	-	-	238	412	496	-	412	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	412	-	-	412	-
Stage 1	-	-	-	-	-	-	485	488	-	-	897	-
Stage 2	-	-	-	-	-	-	734	897	-	-	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	17.3	19.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	496	1614	-	971	-	-	412	-
HCM Lane V/C Ratio	0.416	-	-	-	-	-	0.414	-
HCM Control Delay (s)	17.3	0	-	0	-	-	19.8	0
HCM Lane LOS	C	A	-	A	-	-	C	A
HCM 95th %tile Q(veh)	2	0	-	0	-	-	2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	1095	360	50	534	465	172	202	21	116	95	203
Future Volume (veh/h)	217	1095	360	50	534	465	172	202	21	116	95	203
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	226	1141	375	52	556	484	179	210	22	121	99	211
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	1495	657	130	1318	575	159	330	35	222	439	360
Arrive On Green	0.12	0.42	0.42	0.07	0.37	0.37	0.09	0.20	0.19	0.13	0.24	0.24
Sat Flow, veh/h	1774	3539	1556	1774	3539	1544	1774	1650	173	1774	1863	1528
Grp Volume(v), veh/h	226	1141	375	52	556	484	179	0	232	121	99	211
Grp Sat Flow(s),veh/h/ln	1774	1770	1556	1774	1770	1544	1774	0	1823	1774	1863	1528
Q Serve(g_s), s	11.0	24.6	16.4	2.5	10.5	25.6	8.0	0.0	10.4	5.7	3.8	10.9
Cycle Q Clear(g_c), s	11.0	24.6	16.4	2.5	10.5	25.6	8.0	0.0	10.4	5.7	3.8	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	218	1495	657	130	1318	575	159	0	365	222	439	360
V/C Ratio(X)	1.03	0.76	0.57	0.40	0.42	0.84	1.13	0.00	0.64	0.54	0.23	0.59
Avail Cap(c_a), veh/h	218	1703	749	130	1466	639	159	0	673	222	688	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	22.0	19.6	39.5	20.9	25.6	40.7	0.0	32.8	36.7	27.5	30.3
Incr Delay (d2), s/veh	70.2	2.1	1.1	2.8	0.3	9.7	109.5	0.0	0.7	1.5	0.1	0.6
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	12.3	7.2	1.3	5.2	12.5	8.7	0.0	5.3	2.9	2.0	4.6
LnGrp Delay(d),s/veh	109.5	24.1	20.8	42.3	21.2	35.4	150.2	0.0	33.5	38.2	27.6	30.8
LnGrp LOS	F	C	C	D	C	D	F		C	D	C	C
Approach Vol, veh/h		1742			1092			411			431	
Approach Delay, s/veh		34.4			28.5			84.3			32.2	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	41.7	15.2	21.9	15.0	37.3	12.0	25.1
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	5.0	42.0	8.0	32.0	11.0	36.0	8.0	32.0
Max Q Clear Time (g_c+I1), s	4.5	26.6	7.7	12.4	13.0	27.6	10.0	12.9
Green Ext Time (p_c), s	0.1	10.2	0.0	0.9	0.0	4.4	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	941	145	134	911	82	97	151	129	147	115	55
Future Volume (veh/h)	53	941	145	134	911	82	97	151	129	147	115	55
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	56	991	153	141	959	86	102	159	136	155	121	58
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	1384	214	109	1360	122	342	342	282	261	285	238
Arrive On Green	0.10	0.45	0.42	0.06	0.42	0.38	0.09	0.18	0.18	0.06	0.15	0.15
Sat Flow, veh/h	1774	3061	472	1774	3277	294	1774	1863	1536	1774	1863	1555
Grp Volume(v), veh/h	56	573	571	141	518	527	102	159	136	155	121	58
Grp Sat Flow(s),veh/h/ln	1774	1770	1763	1774	1770	1801	1774	1863	1536	1774	1863	1555
Q Serve(g_s), s	1.9	17.1	17.2	4.0	15.8	15.8	0.0	5.0	5.2	0.0	3.8	2.1
Cycle Q Clear(g_c), s	1.9	17.1	17.2	4.0	15.8	15.8	0.0	5.0	5.2	0.0	3.8	2.1
Prop In Lane	1.00		0.27	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	175	800	797	109	735	748	342	342	282	261	285	238
V/C Ratio(X)	0.32	0.72	0.72	1.29	0.71	0.71	0.30	0.46	0.48	0.59	0.42	0.24
Avail Cap(c_a), veh/h	175	950	947	109	923	939	342	1029	848	269	1029	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	14.5	14.7	30.6	15.8	15.9	25.6	23.7	23.8	28.5	25.0	24.3
Incr Delay (d2), s/veh	0.4	2.5	2.5	184.9	2.3	2.2	0.2	0.4	0.5	2.2	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	8.8	8.9	7.5	8.1	8.2	1.7	2.6	2.2	2.8	2.0	0.9
LnGrp Delay(d),s/veh	27.7	16.9	17.2	215.4	18.0	18.1	25.8	24.1	24.3	30.7	25.4	24.5
LnGrp LOS	C	B	B	F	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1200			1186			397			334	
Approach Delay, s/veh		17.6			41.5			24.6			27.7	
Approach LOS		B			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	33.5	9.7	14.0	10.4	31.1	7.7	16.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.0	33.0	4.0	34.0	5.0	32.0	4.0	34.0
Max Q Clear Time (g_c+I1), s	6.0	19.2	2.0	5.8	3.9	17.8	2.0	7.2
Green Ext Time (p_c), s	0.0	7.7	0.1	0.5	0.0	7.1	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	433	485	183	110	403	224	236	887	38	367	923	423
Future Volume (veh/h)	433	485	183	110	403	224	236	887	38	367	923	423
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	442	495	187	112	411	229	241	905	39	374	942	432
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	1116	648	244	916	575	345	1270	560	376	1302	776
Arrive On Green	0.13	0.32	0.32	0.07	0.26	0.26	0.10	0.36	0.36	0.11	0.37	0.37
Sat Flow, veh/h	3442	3539	1553	3442	3539	1552	3442	3539	1561	3442	3539	1560
Grp Volume(v), veh/h	442	495	187	112	411	229	241	905	39	374	942	432
Grp Sat Flow(s),veh/h/ln	1721	1770	1553	1721	1770	1552	1721	1770	1561	1721	1770	1560
Q Serve(g_s), s	14.0	12.2	8.8	3.4	10.7	12.0	7.4	24.2	1.8	11.9	25.2	21.2
Cycle Q Clear(g_c), s	14.0	12.2	8.8	3.4	10.7	12.0	7.4	24.2	1.8	11.9	25.2	21.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	439	1116	648	244	916	575	345	1270	560	376	1302	776
V/C Ratio(X)	1.01	0.44	0.29	0.46	0.45	0.40	0.70	0.71	0.07	0.99	0.72	0.56
Avail Cap(c_a), veh/h	439	1546	837	251	1353	766	345	1321	583	376	1353	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	29.9	21.3	49.0	34.1	25.7	47.8	30.3	23.2	48.9	29.9	19.3
Incr Delay (d2), s/veh	44.9	0.4	0.3	1.9	0.5	0.6	6.8	2.0	0.1	45.0	2.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	6.0	3.8	1.7	5.3	5.2	3.9	12.2	0.8	8.0	12.7	9.3
LnGrp Delay(d),s/veh	92.9	30.3	21.7	50.9	34.6	26.4	54.6	32.3	23.2	93.9	32.0	20.4
LnGrp LOS	F	C	C	D	C	C	D	C	C	F	C	C
Approach Vol, veh/h		1124			752			1185			1748	
Approach Delay, s/veh		53.5			34.5			36.5			42.4	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	43.4	11.8	38.6	15.0	44.4	18.0	32.4
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	39.0	6.0	46.0	9.0	40.0	12.0	40.0
Max Q Clear Time (g_c+I1), s	13.9	26.2	5.4	14.2	9.4	27.2	16.0	14.0
Green Ext Time (p_c), s	0.0	11.2	0.0	12.1	0.0	11.2	0.0	11.1

Intersection Summary	
HCM 2010 Ctrl Delay	42.3
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	356	126	55	419	86	44
Future Vol, veh/h	356	126	55	419	86	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	156	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	424	150	65	499	102	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	574	0	1129	499
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	630	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	999	-	226	572
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	531	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	999	-	211	572
Mov Cap-2 Maneuver	-	-	-	-	211	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	496	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	35.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	268	-	-	999	-
HCM Lane V/C Ratio	0.577	-	-	0.066	-
HCM Control Delay (s)	35.3	-	-	8.9	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	3.3	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	93	49	77	79	80	56	1174	82	84	1132	148
Future Volume (veh/h)	122	93	49	77	79	80	56	1174	82	84	1132	148
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	124	95	50	79	81	82	57	1198	84	86	1155	151
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	136	267	129	133	222	202	1501	105	219	1438	187
Arrive On Green	0.17	0.17	0.17	0.14	0.14	0.14	0.04	0.45	0.44	0.04	0.46	0.44
Sat Flow, veh/h	1026	786	1545	898	920	1541	1774	3350	235	1774	3149	411
Grp Volume(v), veh/h	219	0	50	160	0	82	57	632	650	86	648	658
Grp Sat Flow(s),veh/h/ln	1811	0	1545	1818	0	1541	1774	1770	1815	1774	1770	1790
Q Serve(g_s), s	9.5	0.0	2.3	6.9	0.0	4.0	1.5	25.6	25.7	2.2	26.2	26.4
Cycle Q Clear(g_c), s	9.5	0.0	2.3	6.9	0.0	4.0	1.5	25.6	25.7	2.2	26.2	26.4
Prop In Lane	0.57		1.00	0.49		1.00	1.00		0.13	1.00		0.23
Lane Grp Cap(c), veh/h	313	0	267	262	0	222	202	793	813	219	808	817
V/C Ratio(X)	0.70	0.00	0.19	0.61	0.00	0.37	0.28	0.80	0.80	0.39	0.80	0.81
Avail Cap(c_a), veh/h	455	0	388	783	0	664	225	805	826	226	808	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	29.5	33.5	0.0	32.3	16.6	19.8	19.9	16.8	19.5	19.6
Incr Delay (d2), s/veh	1.1	0.0	0.1	0.9	0.0	0.4	0.3	5.9	5.8	0.4	6.1	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	1.0	3.5	0.0	1.7	0.7	13.8	14.1	1.1	14.1	14.4
LnGrp Delay(d),s/veh	33.6	0.0	29.7	34.4	0.0	32.7	16.9	25.7	25.7	17.3	25.6	25.8
LnGrp LOS	C		C	C		C	B	C	C	B	C	C
Approach Vol, veh/h		269			242			1339			1392	
Approach Delay, s/veh		32.9			33.8			25.3			25.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	41.4		18.4	6.9	42.1		16.0
Change Period (Y+Rc), s	4.0	5.0		6.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	4.0	37.0		19.0	4.0	37.0		35.0
Max Q Clear Time (g_c+I1), s	4.2	27.7		11.5	3.5	28.4		8.9
Green Ext Time (p_c), s	0.0	8.7		0.5	0.0	8.2		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	239	78	62	185	262	202	676	151	292	405	212
Future Volume (veh/h)	109	239	78	62	185	262	202	676	151	292	405	212
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1918	1976	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	112	246	80	64	191	270	208	697	156	301	418	219
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	226	410	133	325	210	296	418	872	195	330	574	298
Arrive On Green	0.08	0.31	0.29	0.06	0.29	0.28	0.24	0.31	0.29	0.19	0.26	0.24
Sat Flow, veh/h	1757	1334	434	1757	715	1010	1757	2832	633	1757	2229	1155
Grp Volume(v), veh/h	112	0	326	64	0	461	208	431	422	301	328	309
Grp Sat Flow(s),veh/h/ln	1757	0	1768	1757	0	1725	1757	1752	1713	1757	1752	1632
Q Serve(g_s), s	5.1	0.0	18.5	2.9	0.0	30.4	12.1	26.6	26.7	19.8	20.1	20.6
Cycle Q Clear(g_c), s	5.1	0.0	18.5	2.9	0.0	30.4	12.1	26.6	26.7	19.8	20.1	20.6
Prop In Lane	1.00		0.25	1.00		0.59	1.00		0.37	1.00		0.71
Lane Grp Cap(c), veh/h	226	0	543	325	0	506	418	540	527	330	451	420
V/C Ratio(X)	0.50	0.00	0.60	0.20	0.00	0.91	0.50	0.80	0.80	0.91	0.73	0.74
Avail Cap(c_a), veh/h	227	0	543	336	0	512	418	654	639	462	728	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	0.0	34.9	26.8	0.0	40.8	38.8	37.4	37.8	46.9	40.0	40.8
Incr Delay (d2), s/veh	0.6	0.0	1.3	0.1	0.0	19.9	0.3	6.5	6.7	14.9	3.2	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	9.3	1.4	0.0	17.3	5.9	13.8	13.7	11.0	10.1	9.7
LnGrp Delay(d),s/veh	30.2	0.0	36.2	26.9	0.0	60.7	39.2	44.0	44.5	61.8	43.1	44.4
LnGrp LOS	C		D	C		E	D	D	D	E	D	D
Approach Vol, veh/h		438			525			1061			938	
Approach Delay, s/veh		34.7			56.6			43.3			49.5	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.1	40.3	11.3	40.2	32.1	34.4	12.9	38.6
Change Period (Y+Rc), s	4.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	31.0	42.0	6.0	34.0	26.0	47.0	7.0	33.0
Max Q Clear Time (g_c+I1), s	21.8	28.7	4.9	20.5	14.1	22.6	7.1	32.4
Green Ext Time (p_c), s	0.3	5.6	0.0	2.7	0.6	5.4	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	534	108	197	420	25	56	144	207	25	235	51
Future Volume (veh/h)	71	534	108	197	420	25	56	144	207	25	235	51
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	76	568	0	210	447	27	60	153	220	27	250	54
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	356	762	648	304	732	44	345	666	566	77	361	75
Arrive On Green	0.04	0.41	0.00	0.06	0.43	0.40	0.04	0.36	0.36	0.27	0.27	0.24
Sat Flow, veh/h	1757	1845	1568	1757	1720	104	1757	1845	1568	83	1360	281
Grp Volume(v), veh/h	76	568	0	210	0	474	60	153	220	331	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1823	1757	1845	1568	1724	0	0
Q Serve(g_s), s	1.8	18.5	0.0	4.0	0.0	14.3	1.7	4.1	7.4	4.8	0.0	0.0
Cycle Q Clear(g_c), s	1.8	18.5	0.0	4.0	0.0	14.3	1.7	4.1	7.4	12.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	0.08		0.16
Lane Grp Cap(c), veh/h	356	762	648	304	0	776	345	666	566	512	0	0
V/C Ratio(X)	0.21	0.75	0.00	0.69	0.00	0.61	0.17	0.23	0.39	0.65	0.00	0.00
Avail Cap(c_a), veh/h	403	1069	908	304	0	1030	376	912	775	708	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.5	17.6	0.0	19.4	0.0	15.8	17.7	15.8	16.8	23.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.4	0.0	5.5	0.0	0.3	0.1	0.1	0.2	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	9.8	0.0	2.6	0.0	7.2	0.8	2.1	3.2	6.2	0.0	0.0
LnGrp Delay(d),s/veh	13.6	20.0	0.0	25.0	0.0	16.1	17.8	15.8	17.0	25.6	0.0	0.0
LnGrp LOS	B	C		C		B	B	B	B	C		
Approach Vol, veh/h		644			684			433			331	
Approach Delay, s/veh		19.2			18.8			16.7			25.6	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	33.2	6.8	22.8	7.1	34.1		29.5
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0		6.0
Max Green Setting (Gmax), s	4.0	39.0	4.0	25.0	5.0	38.0		33.0
Max Q Clear Time (g_c+I1), s	6.0	20.5	3.7	14.2	3.8	16.3		9.4
Green Ext Time (p_c), s	0.0	6.3	0.0	2.6	0.0	6.8		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	781	299	0	821	7	131	133	15	0	0	407
Future Volume (vph)	315	781	299	0	821	7	131	133	15	0	0	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	0.95	1.00		0.95		0.95	0.95	1.00			0.88
Frpb, ped/bikes	1.00	1.00	0.98		1.00		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00	0.85			0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	0.99	1.00			1.00
Satd. Flow (prot)	1770	3539	1550		3534		1681	1751	1583			2787
Flt Permitted	0.95	1.00	1.00		1.00		0.95	0.99	1.00			1.00
Satd. Flow (perm)	1770	3539	1550		3534		1681	1751	1583			2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	325	805	308	0	846	7	135	137	15	0	0	420
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	10	0	0	333
Lane Group Flow (vph)	325	805	308	0	852	0	100	172	5	0	0	87
Confl. Peds. (#/hr)	1		2	2		1	1					1
Confl. Bikes (#/hr)			1			2						
Turn Type	Prot	NA	Free		NA		Prot	NA	Perm			Prot
Protected Phases	5	2			6		3	8				4
Permitted Phases			Free						8			
Actuated Green, G (s)	14.1	46.3	86.2		28.2		8.0	27.9	27.9			15.9
Effective Green, g (s)	14.1	48.3	86.2		30.2		8.0	29.9	29.9			17.9
Actuated g/C Ratio	0.16	0.56	1.00		0.35		0.09	0.35	0.35			0.21
Clearance Time (s)	4.0	6.0			6.0		4.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	4.0			4.0		3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	289	1982	1550		1238		156	607	549			578
v/s Ratio Prot	c0.18	0.23			c0.24		c0.06	c0.03				0.03
v/s Ratio Perm			0.20					0.07	0.00			
v/c Ratio	1.12	0.41	0.20		0.69		0.64	0.28	0.01			0.15
Uniform Delay, d1	36.1	10.8	0.0		24.0		37.7	20.4	18.4			27.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00			1.00
Incremental Delay, d2	90.8	0.2	0.3		1.8		8.7	0.3	0.0			0.1
Delay (s)	126.8	11.0	0.3		25.7		46.4	20.6	18.5			28.1
Level of Service	F	B	A		C		D	C	B			C
Approach Delay (s)		34.9			25.7			29.5			28.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	86.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	312	543	149	126	376	81	135	853	108	91	856	306
Future Volume (veh/h)	312	543	149	126	376	81	135	853	108	91	856	306
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	325	566	155	131	392	84	141	889	112	95	892	319
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	273	795	217	161	659	140	128	1191	150	120	1320	589
Arrive On Green	0.16	0.29	0.27	0.09	0.23	0.21	0.07	0.38	0.36	0.07	0.38	0.38
Sat Flow, veh/h	1757	2709	739	1757	2874	610	1757	3126	394	1757	3505	1563
Grp Volume(v), veh/h	325	365	356	131	238	238	141	498	503	95	892	319
Grp Sat Flow(s),veh/h/ln	1757	1752	1696	1757	1752	1731	1757	1752	1768	1757	1752	1563
Q Serve(g_s), s	15.0	17.9	18.2	7.1	11.7	11.9	7.0	23.7	23.8	5.1	20.5	15.4
Cycle Q Clear(g_c), s	15.0	17.9	18.2	7.1	11.7	11.9	7.0	23.7	23.8	5.1	20.5	15.4
Prop In Lane	1.00		0.44	1.00		0.35	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	273	514	498	161	402	397	128	668	673	120	1320	589
V/C Ratio(X)	1.19	0.71	0.71	0.81	0.59	0.60	1.11	0.75	0.75	0.79	0.68	0.54
Avail Cap(c_a), veh/h	273	763	739	219	709	700	128	691	697	128	1382	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	30.4	30.9	43.0	33.1	33.5	44.7	25.8	26.0	44.2	25.1	23.5
Incr Delay (d2), s/veh	115.5	0.7	0.7	11.4	0.5	0.5	110.8	4.7	4.6	24.2	1.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.0	8.7	8.6	3.9	5.7	5.8	7.3	12.4	12.5	3.3	10.2	6.9
LnGrp Delay(d),s/veh	156.2	31.1	31.6	54.3	33.6	34.1	155.5	30.5	30.7	68.5	26.6	24.7
LnGrp LOS	F	C	C	D	C	C	F	C	C	E	C	C
Approach Vol, veh/h		1046			607			1142			1306	
Approach Delay, s/veh		70.1			38.3			46.0			29.2	
Approach LOS		E			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	40.7	12.8	32.3	11.0	40.3	19.0	26.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	7.0	36.0	12.0	40.0	7.0	36.0	15.0	37.0
Max Q Clear Time (g_c+I1), s	17.1	25.8	9.1	20.2	9.0	22.5	17.0	13.9
Green Ext Time (p_c), s	0.0	8.9	0.0	4.6	0.0	11.4	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.7
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	17.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	269	37	37	249	18	45	105	24	22	151	29
Future Vol, veh/h	24	269	37	37	249	18	45	105	24	22	151	29
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	309	43	43	286	21	52	121	28	25	174	33
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	19.5	18.2	13.8	14.6
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	7%	12%	11%
Vol Thru, %	60%	82%	82%	75%
Vol Right, %	14%	11%	6%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	174	330	304	202
LT Vol	45	24	37	22
Through Vol	105	269	249	151
RT Vol	24	37	18	29
Lane Flow Rate	200	379	349	232
Geometry Grp	1	1	1	1
Degree of Util (X)	0.375	0.641	0.6	0.427
Departure Headway (Hd)	6.744	6.085	6.181	6.622
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	532	592	584	541
Service Time	4.814	4.144	4.241	4.689
HCM Lane V/C Ratio	0.376	0.64	0.598	0.429
HCM Control Delay	13.8	19.5	18.2	14.6
HCM Lane LOS	B	C	C	B
HCM 95th-tile Q	1.7	4.6	4	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	29	20	18	30	42	31	196	25	79	232	103
Future Volume (veh/h)	68	29	20	18	30	42	31	196	25	79	232	103
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.98	0.99		0.96	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	32	22	20	33	46	34	213	27	86	252	112
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	98	53	193	129	151	484	521	66	537	639	538
Arrive On Green	0.20	0.20	0.17	0.20	0.20	0.17	0.05	0.32	0.25	0.07	0.34	0.34
Sat Flow, veh/h	775	489	262	228	642	755	1774	1613	204	1774	1863	1567
Grp Volume(v), veh/h	128	0	0	99	0	0	34	0	240	86	252	112
Grp Sat Flow(s),veh/h/ln	1527	0	0	1626	0	0	1774	0	1818	1774	1863	1567
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	3.0	1.5
Cycle Q Clear(g_c), s	1.9	0.0	0.0	1.5	0.0	0.0	0.0	0.0	3.1	0.0	3.0	1.5
Prop In Lane	0.58		0.17	0.20		0.46	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	499	0	0	473	0	0	484	0	587	537	639	538
V/C Ratio(X)	0.26	0.00	0.00	0.21	0.00	0.00	0.07	0.00	0.41	0.16	0.39	0.21
Avail Cap(c_a), veh/h	1874	0	0	1986	0	0	639	0	1546	656	1584	1333
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	0.0	10.2	0.0	0.0	9.7	0.0	7.9	9.7	7.3	6.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.1	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.7	0.0	0.0	0.2	0.0	1.6	0.6	1.6	0.7
LnGrp Delay(d),s/veh	10.3	0.0	0.0	10.3	0.0	0.0	9.7	0.0	8.5	9.7	7.9	7.1
LnGrp LOS	B			B			A		A	A	A	A
Approach Vol, veh/h		128			99			274			450	
Approach Delay, s/veh		10.3			10.3			8.7			8.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	13.5		9.9	5.4	14.1		9.9
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	4.0	23.0		33.0	4.0	23.0		33.0
Max Q Clear Time (g_c+I1), s	2.0	5.1		3.9	2.0	5.0		3.5
Green Ext Time (p_c), s	0.0	1.6		0.9	0.0	2.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	45	47	37	51	47	34	980	36	51	980	94
Future Volume (veh/h)	62	45	47	37	51	47	34	980	36	51	980	94
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	63	46	48	38	52	48	35	1000	37	52	1000	96
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	110	90	164	139	106	56	1670	62	102	1649	158
Arrive On Green	0.19	0.19	0.16	0.19	0.19	0.16	0.03	0.48	0.44	0.06	0.51	0.47
Sat Flow, veh/h	517	592	489	324	749	572	1757	3444	127	1757	3225	310
Grp Volume(v), veh/h	157	0	0	138	0	0	35	509	528	52	543	553
Grp Sat Flow(s),veh/h/ln	1598	0	0	1645	0	0	1757	1752	1819	1757	1752	1782
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.9	9.3	9.3	1.3	9.7	9.8
Cycle Q Clear(g_c), s	3.6	0.0	0.0	3.1	0.0	0.0	0.9	9.3	9.3	1.3	9.7	9.8
Prop In Lane	0.40		0.31	0.28		0.35	1.00		0.07	1.00		0.17
Lane Grp Cap(c), veh/h	410	0	0	409	0	0	56	850	882	102	896	911
V/C Ratio(X)	0.38	0.00	0.00	0.34	0.00	0.00	0.63	0.60	0.60	0.51	0.61	0.61
Avail Cap(c_a), veh/h	1553	0	0	1599	0	0	159	1232	1278	199	1271	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	16.1	0.0	0.0	21.1	8.3	8.3	20.2	7.6	7.8
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	4.3	1.0	0.9	1.5	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	1.5	0.0	0.0	0.5	4.6	4.8	0.6	4.8	4.9
LnGrp Delay(d),s/veh	16.4	0.0	0.0	16.3	0.0	0.0	25.4	9.2	9.2	21.6	8.6	8.7
LnGrp LOS	B			B			C	A	A	C	A	A
Approach Vol, veh/h		157			138			1072			1148	
Approach Delay, s/veh		16.4			16.3			9.8			9.2	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	25.4		12.2	5.4	26.6		12.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	5.0	29.0		41.0	4.0	30.0		41.0
Max Q Clear Time (g_c+I1), s	3.3	11.3		5.6	2.9	11.8		5.1
Green Ext Time (p_c), s	0.0	8.1		1.3	0.0	8.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

HCM Signalized Intersection Capacity Analysis
14: Mitchell Road & Don Pedro Road/Driveway

4/20/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	20	66	16	5	24	58	983	7	63	943	38
Future Volume (vph)	16	20	66	16	5	24	58	983	7	63	943	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.98	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1804	1547	1665	1531		1752	3501		1752	3482	
Flt Permitted		0.84	1.00	0.73	0.97		0.25	1.00		0.25	1.00	
Satd. Flow (perm)		1549	1547	1283	1488		467	3501		462	3482	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	21	69	17	5	25	61	1035	7	66	993	40
RTOR Reduction (vph)	0	0	35	0	21	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	38	34	14	12	0	61	1041	0	66	1029	0
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		5.3	5.3	5.3	5.3		22.3	22.3		22.3	22.3	
Effective Green, g (s)		5.8	5.8	5.8	5.8		22.8	22.8		22.8	22.8	
Actuated g/C Ratio		0.16	0.16	0.16	0.16		0.62	0.62		0.62	0.62	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		245	245	203	235		290	2180		287	2169	
v/s Ratio Prot								c0.30			0.30	
v/s Ratio Perm		c0.02	0.02	0.01	0.01		0.13			0.14		
v/c Ratio		0.16	0.14	0.07	0.05		0.21	0.48		0.23	0.47	
Uniform Delay, d1		13.3	13.2	13.1	13.1		3.0	3.7		3.0	3.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.3	0.1	0.1		0.4	0.2		0.4	0.2	
Delay (s)		13.6	13.5	13.2	13.2		3.4	3.9		3.4	3.9	
Level of Service		B	B	B	B		A	A		A	A	
Approach Delay (s)		13.5			13.2			3.8			3.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	36.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	76	2	5	71	7	2	6	2	13	6	3
Future Vol, veh/h	2	76	2	5	71	7	2	6	2	13	6	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	79	2	5	74	7	2	6	2	14	6	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	81	0	0	81	0	0	177	176	80	177	173	78
Stage 1	-	-	-	-	-	-	84	84	-	88	88	-
Stage 2	-	-	-	-	-	-	93	92	-	89	85	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1517	-	-	1517	-	-	785	717	980	785	720	983
Stage 1	-	-	-	-	-	-	924	825	-	920	822	-
Stage 2	-	-	-	-	-	-	914	819	-	918	824	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1517	-	-	1517	-	-	775	714	980	776	717	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	775	714	-	776	717	-
Stage 1	-	-	-	-	-	-	923	824	-	919	820	-
Stage 2	-	-	-	-	-	-	901	817	-	908	823	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	9.8	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	768	1517	-	-	1517	-	-	781
HCM Lane V/C Ratio	0.014	0.001	-	-	0.003	-	-	0.029
HCM Control Delay (s)	9.8	7.4	0	-	7.4	0	-	9.7
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	64	13	66	53	128	9	277	86	215	366	22
Future Volume (veh/h)	15	64	13	66	53	128	9	277	86	215	366	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1792	1792	1792	1792	1792	1792	1900	1792	1792	1900
Adj Flow Rate, veh/h	17	72	15	74	60	144	10	311	97	242	411	25
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	29	311	264	91	375	319	18	647	198	299	1360	82
Arrive On Green	0.02	0.17	0.17	0.05	0.21	0.21	0.01	0.25	0.21	0.18	0.42	0.37
Sat Flow, veh/h	1707	1792	1524	1707	1792	1524	1707	2569	787	1707	3263	198
Grp Volume(v), veh/h	17	72	15	74	60	144	10	204	204	242	214	222
Grp Sat Flow(s),veh/h/ln	1707	1792	1524	1707	1792	1524	1707	1703	1654	1707	1703	1758
Q Serve(g_s), s	0.5	1.6	0.4	2.0	1.3	3.8	0.3	4.7	4.9	6.3	3.9	3.9
Cycle Q Clear(g_c), s	0.5	1.6	0.4	2.0	1.3	3.8	0.3	4.7	4.9	6.3	3.9	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.11
Lane Grp Cap(c), veh/h	29	311	264	91	375	319	18	429	417	299	710	732
V/C Ratio(X)	0.59	0.23	0.06	0.82	0.16	0.45	0.56	0.48	0.49	0.81	0.30	0.30
Avail Cap(c_a), veh/h	148	1824	1551	148	1824	1551	148	1401	1361	554	1807	1865
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	16.4	15.9	21.6	14.9	15.9	22.7	14.7	15.2	18.3	9.0	9.1
Incr Delay (d2), s/veh	6.8	0.5	0.1	6.6	0.3	1.4	9.9	0.3	0.3	2.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.8	0.2	1.1	0.6	1.7	0.2	2.2	2.3	3.1	1.8	1.9
LnGrp Delay(d),s/veh	29.4	17.0	16.1	28.3	15.2	17.4	32.6	15.0	15.5	20.3	9.1	9.2
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	A	A
Approach Vol, veh/h		104			278			418			678	
Approach Delay, s/veh		18.9			19.8			15.7			13.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	12.0	4.5	23.2	4.8	13.7	12.1	15.6
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.0	45.0	4.0	47.0	4.0	45.0	15.0	36.0
Max Q Clear Time (g_c+I1), s	4.0	3.6	2.3	5.9	2.5	5.8	8.3	6.9
Green Ext Time (p_c), s	0.0	1.8	0.0	2.8	0.0	1.8	0.2	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	17
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	76	359	17	28	180	119	6	104	33	114	51	45
Future Vol, veh/h	76	359	17	28	180	119	6	104	33	114	51	45
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	77	363	17	28	182	120	6	105	33	115	52	45
Number of Lanes	1	1	0	1	1	1	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	2
HCM Control Delay	23.1	12.8	13.6	12.5
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	76%	0%	95%	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	24%	0%	5%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	137	76	376	28	180	119	114	51	45
LT Vol	6	0	76	0	28	0	0	114	0	0
Through Vol	0	104	0	359	0	180	0	0	51	0
RT Vol	0	33	0	17	0	0	119	0	0	45
Lane Flow Rate	6	138	77	380	28	182	120	115	52	45
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.014	0.296	0.157	0.722	0.061	0.367	0.219	0.263	0.11	0.088
Departure Headway (Hd)	8.374	7.693	7.379	6.841	7.782	7.274	6.563	8.21	7.701	6.988
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	427	466	487	528	460	495	547	438	465	512
Service Time	6.126	5.445	5.119	4.582	5.53	5.022	4.31	5.959	5.45	4.737
HCM Lane V/C Ratio	0.014	0.296	0.158	0.72	0.061	0.368	0.219	0.263	0.112	0.088
HCM Control Delay	11.2	13.7	11.5	25.4	11	14.2	11.2	13.9	11.4	10.4
HCM Lane LOS	B	B	B	D	B	B	B	B	B	B
HCM 95th-tile Q	0	1.2	0.6	5.9	0.2	1.7	0.8	1	0.4	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	440	96	148	273	60	73	166	176	50	149	60
Future Volume (veh/h)	62	440	96	148	273	60	73	166	176	50	149	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	65	463	101	156	287	63	77	175	185	53	157	63
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	286	646	548	198	440	97	99	449	361	70	419	328
Arrive On Green	0.16	0.34	0.34	0.11	0.29	0.26	0.06	0.24	0.24	0.04	0.22	0.22
Sat Flow, veh/h	1792	1881	1594	1792	1494	328	1792	1881	1512	1792	1881	1473
Grp Volume(v), veh/h	65	463	101	156	0	350	77	175	185	53	157	63
Grp Sat Flow(s),veh/h/ln	1792	1881	1594	1792	0	1822	1792	1881	1512	1792	1881	1473
Q Serve(g_s), s	1.9	12.8	1.6	5.1	0.0	10.0	2.5	4.7	3.7	1.7	4.2	1.1
Cycle Q Clear(g_c), s	1.9	12.8	1.6	5.1	0.0	10.0	2.5	4.7	3.7	1.7	4.2	1.1
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	646	548	198	0	537	99	449	361	70	419	328
V/C Ratio(X)	0.23	0.72	0.18	0.79	0.00	0.65	0.78	0.39	0.51	0.75	0.37	0.19
Avail Cap(c_a), veh/h	286	1041	882	330	0	1221	270	978	786	120	820	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	17.1	5.1	25.8	0.0	18.5	27.8	19.1	6.9	28.4	19.7	5.4
Incr Delay (d2), s/veh	0.1	2.1	0.2	2.6	0.0	1.9	5.0	0.2	0.4	6.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	6.9	1.1	2.7	0.0	5.3	1.4	2.5	2.3	1.0	2.2	0.8
LnGrp Delay(d),s/veh	22.0	19.2	5.3	28.5	0.0	20.5	32.8	19.3	7.3	34.4	19.9	5.5
LnGrp LOS	C	B	A	C		C	C	B	A	C	B	A
Approach Vol, veh/h		629			506			437			273	
Approach Delay, s/veh		17.3			22.9			16.6			19.4	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	24.5	7.3	17.3	13.5	21.6	6.3	18.2
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.6	31.0	9.0	24.0	4.0	38.0	4.0	29.0
Max Q Clear Time (g_c+I1), s	7.1	14.8	4.5	6.2	3.9	12.0	3.7	6.7
Green Ext Time (p_c), s	0.1	3.7	0.0	1.4	0.0	2.8	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	196	301	186	146	71	211	802	191	76	677	228
Future Volume (veh/h)	274	196	301	186	146	71	211	802	191	76	677	228
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	298	213	327	202	159	0	229	872	208	83	736	0
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	326	245	377	143	495	421	245	1099	491	82	773	346
Arrive On Green	0.19	0.37	0.35	0.08	0.27	0.00	0.14	0.31	0.31	0.05	0.22	0.00
Sat Flow, veh/h	1757	657	1009	1757	1845	1568	1757	3505	1565	1757	3505	1568
Grp Volume(v), veh/h	298	0	540	202	159	0	229	872	208	83	736	0
Grp Sat Flow(s),veh/h/ln	1757	0	1667	1757	1845	1568	1757	1752	1565	1757	1752	1568
Q Serve(g_s), s	14.3	0.0	26.0	7.0	5.9	0.0	11.1	19.6	9.1	4.0	17.8	0.0
Cycle Q Clear(g_c), s	14.3	0.0	26.0	7.0	5.9	0.0	11.1	19.6	9.1	4.0	17.8	0.0
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	326	0	622	143	495	421	245	1099	491	82	773	346
V/C Ratio(X)	0.91	0.00	0.87	1.41	0.32	0.00	0.94	0.79	0.42	1.02	0.95	0.00
Avail Cap(c_a), veh/h	326	0	793	143	685	583	245	1099	491	82	773	346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	0.0	25.6	39.6	25.2	0.0	36.7	27.0	23.4	41.1	33.1	0.0
Incr Delay (d2), s/veh	28.3	0.0	7.0	222.7	0.1	0.0	39.7	4.3	0.8	104.5	21.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	0.0	13.1	12.2	3.0	0.0	8.1	10.1	4.0	4.3	10.9	0.0
LnGrp Delay(d),s/veh	62.7	0.0	32.7	262.3	25.3	0.0	76.4	31.3	24.2	145.7	54.7	0.0
LnGrp LOS	E		C	F	C		E	C	C	F	D	
Approach Vol, veh/h		838			361			1309			819	
Approach Delay, s/veh		43.3			157.9			38.1			63.9	
Approach LOS		D			F			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	31.0	11.0	36.1	16.0	23.0	20.0	27.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.0	25.0	7.0	39.0	12.0	17.0	16.0	30.0
Max Q Clear Time (g_c+I1), s	6.0	21.6	9.0	28.0	13.1	19.8	16.3	7.9
Green Ext Time (p_c), s	0.0	3.0	0.0	2.1	0.0	0.0	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	58.8
HCM 2010 LOS	E

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	123	51	10	84	13	46	150	14	22	151	25
Future Vol, veh/h	38	123	51	10	84	13	46	150	14	22	151	25
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	128	53	10	88	14	48	156	15	23	157	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.4	9.4	10.5	10.2
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	18%	9%	11%
Vol Thru, %	71%	58%	79%	76%
Vol Right, %	7%	24%	12%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	212	107	198
LT Vol	46	38	10	22
Through Vol	150	123	84	151
RT Vol	14	51	13	25
Lane Flow Rate	219	221	111	206
Geometry Grp	1	1	1	1
Degree of Util (X)	0.312	0.308	0.165	0.292
Departure Headway (Hd)	5.142	5.141	5.343	5.105
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	702	704	673	707
Service Time	3.148	3.141	3.365	3.112
HCM Lane V/C Ratio	0.312	0.314	0.165	0.291
HCM Control Delay	10.5	10.4	9.4	10.2
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.3	1.3	0.6	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	188	176	6	146	160	146	253	0	150	233	25
Future Volume (veh/h)	21	188	176	6	146	160	146	253	0	150	233	25
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	21	192	180	6	149	163	149	258	0	153	238	26
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	41	462	406	12	433	376	190	436	0	202	398	43
Arrive On Green	0.02	0.26	0.23	0.01	0.24	0.22	0.11	0.23	0.00	0.11	0.24	0.19
Sat Flow, veh/h	1792	1788	1570	1792	1787	1554	1792	1881	0	1792	1667	182
Grp Volume(v), veh/h	21	192	180	6	149	163	149	258	0	153	0	264
Grp Sat Flow(s),veh/h/ln	1792	1787	1571	1792	1787	1554	1792	1881	0	1792	0	1849
Q Serve(g_s), s	0.5	3.7	4.0	0.1	2.8	3.7	3.3	5.0	0.0	3.4	0.0	5.2
Cycle Q Clear(g_c), s	0.5	3.7	4.0	0.1	2.8	3.7	3.3	5.0	0.0	3.4	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.10
Lane Grp Cap(c), veh/h	41	462	406	12	433	376	190	436	0	202	0	441
V/C Ratio(X)	0.52	0.42	0.44	0.52	0.34	0.43	0.78	0.59	0.00	0.76	0.00	0.60
Avail Cap(c_a), veh/h	175	1221	1073	175	1221	1061	219	1423	0	262	0	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.8	12.6	13.2	20.3	12.8	13.6	17.9	14.0	0.0	17.6	0.0	14.0
Incr Delay (d2), s/veh	3.7	0.8	1.1	12.8	0.7	1.1	12.6	0.5	0.0	6.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.9	1.9	0.1	1.4	1.7	2.3	2.6	0.0	2.0	0.0	2.7
LnGrp Delay(d),s/veh	23.5	13.5	14.3	33.1	13.5	14.7	30.5	14.5	0.0	23.8	0.0	14.4
LnGrp LOS	C	B	B	C	B	B	C	B		C		B
Approach Vol, veh/h		393			318			407			417	
Approach Delay, s/veh		14.4			14.5			20.3			17.9	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	14.6	8.3	13.8	4.9	13.9	8.6	13.5
Change Period (Y+Rc), s	4.0	5.0	4.0	6.0	4.0	5.0	4.0	6.0
Max Green Setting (Gmax), s	4.3	27.0	5.0	30.0	4.0	27.0	6.0	29.0
Max Q Clear Time (g_c+I1), s	2.5	6.0	5.3	7.2	2.5	5.7	5.4	7.0
Green Ext Time (p_c), s	0.0	3.1	0.0	1.0	0.0	2.6	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	16.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	608	143	13	677	170	133	140	46	138	170	4
Future Volume (veh/h)	20	608	143	13	677	170	133	140	46	138	170	4
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	20	614	144	13	684	172	134	141	46	139	172	4
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	1204	282	23	1168	293	172	272	89	174	380	315
Arrive On Green	0.02	0.42	0.39	0.01	0.42	0.39	0.10	0.20	0.17	0.10	0.20	0.20
Sat Flow, veh/h	1774	2832	663	1774	2787	700	1774	1341	438	1774	1863	1545
Grp Volume(v), veh/h	20	383	375	13	434	422	134	0	187	139	172	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1725	1774	1770	1717	1774	0	1779	1774	1863	1545
Q Serve(g_s), s	0.7	9.7	9.9	0.4	11.6	11.7	4.5	0.0	5.8	4.7	5.0	0.1
Cycle Q Clear(g_c), s	0.7	9.7	9.9	0.4	11.6	11.7	4.5	0.0	5.8	4.7	5.0	0.1
Prop In Lane	1.00		0.38	1.00		0.41	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	33	752	733	23	742	720	172	0	361	174	380	315
V/C Ratio(X)	0.60	0.51	0.51	0.57	0.59	0.59	0.78	0.00	0.52	0.80	0.45	0.01
Avail Cap(c_a), veh/h	116	838	817	116	838	813	377	0	871	174	700	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	12.9	13.3	30.1	13.7	14.1	27.0	0.0	22.0	27.0	21.4	19.5
Incr Delay (d2), s/veh	6.2	0.8	0.8	7.9	1.1	1.2	2.9	0.0	1.6	21.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.8	4.8	0.3	5.8	5.8	2.3	0.0	3.0	3.3	2.6	0.1
LnGrp Delay(d),s/veh	36.0	13.7	14.0	37.9	14.8	15.2	29.9	0.0	23.6	48.2	21.7	19.5
LnGrp LOS	D	B	B	D	B	B	C		C	D	C	B
Approach Vol, veh/h		778			869			321			315	
Approach Delay, s/veh		14.4			15.4			26.3			33.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	30.0	9.9	16.5	5.2	29.7	10.0	16.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	4.8	27.0	13.0	21.0	4.0	27.0	6.0	28.0
Max Q Clear Time (g_c+I1), s	2.4	11.9	6.5	7.0	2.7	13.7	6.7	7.8
Green Ext Time (p_c), s	0.0	10.8	0.1	1.7	0.0	9.8	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Appendix F: Wastewater Evaluation of General Plan Alternatives

WEST YOST ASSOCIATES
Consulting Engineers

TECHNICAL MEMORANDUM

DATE: February 7, 2017

Project No.: 295-10-15-05
SENT VIA: EMAIL

TO: Ella Wise, Dyett & Bhatia

FROM: Doug Moore, PE, RCE #C58122

REVIEWED BY: Elizabeth Drayer, PE, RCE #C46782

SUBJECT: City of Ceres General Plan Update, Land Use Alternatives - Wastewater Evaluation

Presented in this Technical Memorandum (TM) is an evaluation of the wastewater infrastructure needed for the three General Plan Update (GPU) Land Use Alternatives (LUAs) for the City of Ceres (City). This TM includes the following sections:

- Land Uses
- Current and Projected Wastewater Flows
- Collection System Infrastructure Requirements
- Wastewater Treatment and Export Infrastructure Requirements
- Wastewater Treatment and Export Costs
- Conclusions

LAND USES

The City's existing land uses are shown on Figure 1 and summarized in Table 1. Land uses for buildout of the current General Plan are shown on Figure 2 and summarized in Table 1. The land uses for the GPU LUAs 1, 2 and 3 are shown on Figures 3, 4 and 5, respectively. The land uses for the GPU LUAs 1, 2 and 3 are also in Table 1. The land use data (e.g., GIS mapping and gross area data) were provided by Dyett and Bhatia. The land use regions are shown in Attachment A, also received from Dyett and Bhatia.

Table 1. Land Uses

Exisiting Land Uses			Current General Plan				Alternative 1				Alternative 2				Alternative 3			
Land Use Designation	Area, acres	Sewered Acres, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area , acres	Conversion Factor to Net Area	Net Area, acres
Inside Current SOI (Excluding Whitmore Ranch Specific Plan)																		
Ag Residential/Rural Residential	404.7	2.0	Business Park	111.0	0.80	88.8	Business Park	0.1	0.80	0.1	Business Park	0.1	0.80	0.1	Business Park	0.1	0.80	0.1
Agriculture	155.1	-	Community Commercial	40.8	0.80	32.6	Community Commercial	40.8	0.80	32.6	Community Commercial	40.8	0.80	32.6	Community Commercial	40.8	0.80	32.6
Auto Commercial	19.8	-	Community Facilities	15.5	0.80	12.4	Community Facilities	15.5	0.80	12.4	Community Facilities	15.5	0.80	12.4	Community Facilities	15.5	0.80	12.4
Duplex/Two Family Residential	30.5	-	General Industrial	74.6	0.80	59.7	General Industrial	74.6	0.80	59.7	General Industrial	74.6	0.80	59.7	General Industrial	74.6	0.80	59.7
Educational Facility	96.3	-	High Density Residential	37.8	0.80	30.3	High Density Residential	37.8	0.80	30.3	High Density Residential	16.7	0.80	13.3	High Density Residential	37.8	0.80	30.3
General Industrial	104.7	-	Highway Commercial	12.5	0.80	10.0	Highway Commercial	12.5	0.80	10.0	Highway Commercial	12.5	0.80	10.0	Highway Commercial	12.5	0.80	10.0
General/Retail Commercial	11.6	1.0	Industrial Reserve	76.5	1.00	76.5	Industrial Reserve	1.4	1.00	1.4	Industrial Reserve	1.4	1.00	1.4	Industrial Reserve	1.4	1.00	1.4
Hospital/Nursing Facility	1.5	-	Light Industrial	48.1	0.80	38.5	Light Industrial	48.1	0.80	38.5	Light Industrial	48.1	0.80	38.5	Light Industrial	48.1	0.80	38.5
Light Industrial	55.0	-	Low Density Residential	913.8	0.85	776.7	Low Density Residential	913.8	0.85	776.7	Low Density Residential	913.8	0.85	776.7	Low Density Residential	894.6	0.85	760.4
Mixed Use Residential	13.3	-	Medium Density Residential	157.5	0.80	126.0	Medium Density Residential	157.5	0.80	126.0	Medium Density Residential	157.5	0.80	126.0	Medium Density Residential	157.5	0.80	126.0
Mobile Homes	20.9	-	Medium High Density Residential	87.0	0.80	69.6	Medium High Density Residential	87.0	0.80	69.6	Medium High Density Residential	83.0	0.80	66.4	Medium High Density Residential	87.0	0.80	69.6
Multi Family Residential	32.5	-	Neighborhood Commercial	9.9	0.80	7.9	Neighborhood Commercial	9.9	0.80	7.9	Neighborhood Commercial	9.9	0.80	7.9	Neighborhood Commercial	29.0	0.80	23.2
Parks/Open Space/Greenways	2.7	-	Railroad ROW	7.8	1.00	7.8	Railroad ROW	7.8	1.00	7.8	Railroad ROW	7.8	1.00	7.8	Railroad ROW	7.8	1.00	7.8
Public Facility	15.5	-	Regional Commercial	-	0.80	-	Regional Commercial	140.2	0.80	112.2	Regional Commercial	91.9	0.80	73.5	Regional Commercial	140.2	0.80	112.2
Religious Facilities/Institutional	55.3	1.0	Right of Way	1.7	1.00	1.7	Right of Way	1.7	1.00	1.7	Right of Way	1.7	1.00	1.7	Right of Way	1.7	1.00	1.7
Road ROW	19.3	-	Schools	95.1	0.80	76.0	Schools	95.1	0.80	76.0	Schools	95.1	0.80	76.0	Schools	95.1	0.80	76.0
Single Family Residential	836.9	2.2	Service Commercial	117.2	0.80	93.8	Service Commercial	117.2	0.80	93.8	Service Commercial	190.7	0.80	152.6	Service Commercial	117.2	0.80	93.8
Utilities	2.8	-	Very Low Density Residential	185.9	0.80	148.7	Very Low Density Residential	185.9	0.80	148.7	Very Low Density Residential	185.9	0.80	148.7	Very Low Density Residential	185.9	0.80	148.7
Vacant	143.5	-	Commercial Recreation	29.4	0.80	23.5	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-
Subtotal	2,021.9	6.2	Subtotal	2,021.9		1,680.4	Subtotal	1,946.8		1,605.3	Subtotal	1,946.8		1,605.3	Subtotal	1,946.8		1,604.3
Outside Current SOI																		
Ag Residential/Rural Residential	2,547.7	-	Agriculture	3,513.9	0.80	2,811.1	Agriculture	3,513.9	0.80	2,811.1	Agriculture	3,455.2	0.80	2,764.2	Agriculture	3,388.1	0.80	2,710.5
Agriculture	2,616.4	-	General Industrial	-	0.80	-	General Industrial	-	0.80	-	General Industrial	180.6	0.80	144.5	General Industrial	81.4	0.80	65.2
Auto Commercial	4.6	-	Highway Commercial	6.8	0.80	5.4	Highway Commercial	6.8	0.80	5.4	Highway Commercial	6.8	0.80	5.4	Highway Commercial	6.8	0.80	5.4
Duplex/Two Family Residential	13.9	-	Industrial Reserve	310.0	0.80	248.0	Industrial Reserve	18.7	0.80	15.0	Industrial Reserve	16.3	0.80	13.0	Industrial Reserve	31.2	0.80	25.0
Educational Facility	19.6	-	Low Density Residential	243.2	0.80	194.6	Low Density Residential	243.2	0.80	194.6	Low Density Residential	172.5	0.80	138.0	Low Density Residential	427.6	0.80	342.1
General Industrial	67.4	-	Medium Density Residential	10.7	0.80	8.5	Medium Density Residential	10.7	0.80	8.5	Medium Density Residential	10.7	0.80	8.5	Medium Density Residential	10.7	0.80	8.5
Golf Course	15.5	-	Parks	20.1	0.80	16.1	Parks	20.1	0.80	16.1	Parks	20.1	0.80	16.1	Parks	20.1	0.80	16.1
Mixed Use Residential	6.0	-	Regional Commercial	-	0.80	-	Regional Commercial	145.8	0.80	116.6	Regional Commercial	121.3	0.80	97.1	Regional Commercial	155.3	0.80	124.3
Mobile Homes	46.5	-	Residential Agriculture	123.3	0.80	98.7	Residential Agriculture	123.3	0.80	98.7	Residential Agriculture	123.3	0.80	98.7	Residential Agriculture	-	0.80	-
Multi Family Residential	8.3	-	Regional Parks	-	0.80	-	Regional Parks	-	0.80	-	Regional Parks	-	0.80	-	Regional Parks	56.2	0.80	44.9
Parks/Open Space/Greenways	31.0	-	Residential Reserve	506.9	0.80	405.6	Residential Reserve	506.9	0.80	405.6	Residential Reserve	506.9	0.80	405.6	Residential Reserve	506.9	0.80	405.6
Religious Facilities/Institutional	0.7	-	Right of Way	11.9	0.80	9.5	Right of Way	11.9	0.80	9.5	Right of Way	11.9	0.80	9.5	Right of Way	11.9	0.80	9.5
Road ROW	1.0	-	Schools	19.6	0.80	15.7	Schools	19.6	0.80	15.7	Schools	19.6	0.80	15.7	Schools	19.6	0.80	15.7
Service Station	2.2	-	Service Commercial	9.1	0.80	7.2	Service Commercial	9.1	0.80	7.2	Service Commercial	43.1	0.80	34.5	Service Commercial	9.1	0.80	7.2
Single Family Residential	239.3	-	Very Low Density Residential	518.5	0.80	414.8	Very Low Density Residential	518.5	0.80	414.8	Very Low Density Residential	518.5	0.80	414.8	Very Low Density Residential	90.6	0.80	72.5
Utilities	10.3	-	Commercial Recreation	145.8	0.80	116.6	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-
Vacant	7.7	-			0.80	-			0.80	-			0.80	-			0.80	-
Subtotal	5,637.9	-	Subtotal	5,439.8		4,351.8	Subtotal	5,148.5		4,118.8	Subtotal	5,206.9		4,165.5	Subtotal	4,815.5		3,852.4
West Landing Specific Plan																		
Ag Residential/Rural Residential	136.4	-	Business Park	72.7	0.80	58.2	Business Park	72.7	0.80	58.2	Business Park	72.7	0.80	58.2	Business Park	72.7	0.80	58.2
Agriculture	320.2	-	Community Commercial	17.1	0.80	13.7	Community Commercial	17.1	0.80	13.7	Community Commercial	17.1	0.80	13.7	Community Commercial	17.1	0.80	13.7
Duplex/Two Family Residential	0.6	0.6	Community Facilities	178.0	0.80	142.4	Community Facilities	178.0	0.80	142.4	Community Facilities	178.0	0.80	142.4	Community Facilities	178.0	0.80	142.4
General Industrial	109.2	109.2	General Industrial	127.7	0.80	102.1	General Industrial	127.7	0.80	102.1	General Industrial	127.7	0.80	102.1	General Industrial	127.7	0.80	102.1
General/Retail Commercial	18.9	18.9	High Density Residential	26.0	0.80	20.8	High Density Residential	26.0	0.80	20.8	High Density Residential	26.0	0.80	20.8	High Density Residential	26.0	0.80	20.8
Mixed Use Residential	0.7	0.7	Low Density Residential	187.5	0.80	150.0	Low Density Residential	187.5	0.80	150.0	Low Density Residential	187.5	0.80	150.0	Low Density Residential	187.5	0.80	150.0
Public Facility	178.0	178.0	Medium Density Residential	57.8	0.80	46.2	Medium Density Residential	57.8	0.80	46.2	Medium Density Residential	57.8	0.80	46.2	Medium Density Residential	57.8	0.80	46.2
Religious Facilities/Institutional	1.6	1.6	Medium High Density Residential	38.8	0.80	31.1	Medium High Density Residential	38.8	0.80	31.1	Medium High Density Residential	38.8	0.80	31.1	Medium High Density Residential	38.8	0.80	31.1
Single Family Residential	18.8	18.8	Neighborhood Commercial	35.4	0.80	28.3	Neighborhood Commercial	35.4	0.80	28.3	Neighborhood Commercial	35.4	0.80	28.3	Neighborhood Commercial	35.4	0.80	28.3
Utilities	0.1	-	Office	18.4	0.80	14.7	Office	18.4	0.80	14.7	Office	18.4	0.80	14.7	Office	18.4	0.80	14.7
Vacant	92.3	-	Parks	46.9	0.80	37.5	Parks	46.9	0.80	37.5	Parks	46.9	0.80	37.5	Parks	46.9	0.80	37.5
			Regional Commercial	36.4	0.80	29.1	Regional Commercial	36.4	0.80	29.1	Regional Commercial	36.4	0.80	29.1	Regional Commercial	36.4	0.80	29.1
			Schools	16.0	0.80	12.8	Schools	16.0	0.80	12.8	Schools	16.0	0.80	12.8	Schools	16.0	0.80	12.8
			Very Low Density Residential	18.1	0.80	14.5	Very Low Density Residential	18.1	0.80	14.5	Very Low Density Residential	18.1	0.80	14.5	Very Low Density Residential	18.1	0.80	14.5
Subtotal	876.8	327.8	Subtotal	876.8		701.5	Subtotal	876.8		701.5	Subtotal	876.8		701.5	Subtotal	876.8		701.5
Whitmore Ranch Specific Plan																		
Educational Facility	39.4	39.4	Low Density Residential	28.9	0.80	23.1	Low Density Residential	28.9	0.80	23.1	Low Density Residential	28.9	0.80	23.1	Low Density Residential	28.9	0.80	23.1
Mixed Use Residential	4.4	4.4	Medium Density Residential	12.8	0.80	10.3	Medium Density Residential	12.8	0.80	10.3	Medium Density Residential	12.8	0.80	10.3	Medium Density Residential	12.8	0.80	10.3
Single Family Residential	4.8	4.8	Medium High Density Residential	6.0	0.80	4.8	Medium High Density Residential	6.0	0.80	4.8	Medium High Density Residential	6.0	0.80	4.8	Medium High Density Residential	6.0	0.80	4.8
Vacant	46.2	-	Parks	7.7	0.80	6.2	Parks	7.7	0.80	6.2	Parks	7.7	0.80	6.2	Parks	7.7	0.80	6.2
			Schools	39.4	1.00	39.4	Schools	39.4	1.00	39.4	Schools	39.4	1.00	39.4	Schools	39.4	1.00	39.4
Subtotal	94.8	48.7	Subtotal	94.8		83.8	Subtotal	94.8		83.8	Subtotal	94.8		83.8	Subtotal	94.8		83.8

Table 1. Land Uses

Exisiting Land Uses			Current General Plan				Alternative 1				Alternative 2				Alternative 3			
Land Use Designation	Area, acres	Sewered Acres, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area , acres	Conversion Factor to Net Area	Net Area , acres
Within Current City Limits (Excluding West Landing Specific Plan)																		
Ag Residential/Rural Residential	61.8	104.0	Business Park	23.7	1.00	23.7	Business Park	23.7	1.00	23.7	Business Park	23.7	1.00	23.7	Business Park	23.7	1.00	23.7
Auto Commercial	34.6	34.6	Commercial Recreation	55.5	0.90	49.9	Commercial Recreation	55.5	0.90	49.9	Commercial Recreation	55.5	0.90	49.9	Commercial Recreation	55.5	0.90	49.9
Cemetery	22.1	-	Community Commercial	218.3	1.00	218.3	Community Commercial	218.3	1.00	218.3	Community Commercial	218.3	1.00	218.3	Community Commercial	218.3	1.00	218.3
Duplex/Two Family Residential	38.4	38.4	Community Facilities	245.3	0.80	196.3	Community Facilities	245.3	0.80	196.3	Community Facilities	245.3	0.80	196.3	Community Facilities	245.3	0.80	196.3
Educational Facility	203.2	203.2	Downtown Mixed Use	13.3	1.00	13.3	Downtown Mixed Use	13.3	1.00	13.3	Downtown Mixed Use	13.3	1.00	13.3	Downtown Mixed Use	13.3	1.00	13.3
General Industrial	324.4	324.4	Downtown Office	10.9	1.00	10.9	Downtown Office	10.9	1.00	10.9	Downtown Office	10.9	1.00	10.9	Downtown Office	10.9	1.00	10.9
General/Retail Commercial	173.4	173.4	Downtown Residential	27.4	1.00	27.4	Downtown Residential	27.4	1.00	27.4	Downtown Residential	27.4	1.00	27.4	Downtown Residential	27.4	1.00	27.4
Golf Course	65.5	-	General Industrial	335.2	1.00	335.2	General Industrial	335.2	1.00	335.2	General Industrial	335.2	1.00	335.2	General Industrial	387.7	1.00	387.7
Hospital/Nursing Facility	5.8	5.8	High Density Residential	30.3	1.00	30.3	High Density Residential	30.3	1.00	30.3	High Density Residential	30.3	1.00	30.3	High Density Residential	30.3	1.00	30.3
Light Industrial	98.9	98.9	Highway Commercial	82.8	1.00	82.8	Highway Commercial	82.8	1.00	82.8	Highway Commercial	82.8	1.00	82.8	Highway Commercial	82.8	1.00	82.8
Mixed Use Residential	13.5	13.5	Light Industrial	178.0	1.00	178.0	Light Industrial	178.0	1.00	178.0	Light Industrial	178.0	1.00	178.0	Light Industrial	178.0	1.00	178.0
Mobile Homes	79.5	79.5	Low Density Residential	1,626.2	1.00	1,626.2	Low Density Residential	1,626.2	1.00	1,626.2	Low Density Residential	1,626.2	1.00	1,626.2	Low Density Residential	1,626.2	1.00	1,626.2
Multi Family Residential	141.5	141.5	Medium Density Residential	332.1	1.00	332.1	Medium Density Residential	332.1	1.00	332.1	Medium Density Residential	332.1	1.00	332.1	Medium Density Residential	332.1	1.00	332.1
Office	39.4	39.4	Medium High Density Residential	64.6	1.00	64.6	Medium High Density Residential	64.6	1.00	64.6	Medium High Density Residential	64.6	1.00	64.6	Medium High Density Residential	64.6	1.00	64.6
Parks/Open Space/Greenways	156.3	-	Neighborhood Commercial	25.8	1.00	25.8	Neighborhood Commercial	25.8	1.00	25.8	Neighborhood Commercial	25.8	1.00	25.8	Neighborhood Commercial	25.8	1.00	25.8
Public Facility	20.9	20.9	Office	26.4	1.00	26.4	Office	26.4	1.00	26.4	Office	26.4	1.00	26.4	Office	26.4	1.00	26.4
Public Parking	0.8	-	Parks	174.1	0.90	156.7	Parks	174.1	0.90	156.7	Parks	174.1	0.90	156.7	Parks	174.1	0.90	156.7
Religious Facilities/Institutional	85.2	85.2	Regional Commercial	95.2	1.00	95.2	Regional Commercial	95.2	1.00	95.2	Regional Commercial	95.2	1.00	95.2	Regional Commercial	95.2	1.00	95.2
Road ROW	1.1	-	Right of Way	1.1	1.00	1.1	Right of Way	1.1	1.00	1.1	Right of Way	1.1	1.00	1.1	Right of Way	1.1	1.00	1.1
Service Station	11.4	11.4	Schools	158.0	1.00	158.0	Schools	158.0	1.00	158.0	Schools	158.0	1.00	158.0	Schools	158.0	1.00	158.0
Single Family Residential	1,821.2	1,821.2	Service Commercial	39.8	1.00	39.8	Service Commercial	39.8	1.00	39.8	Service Commercial	39.8	1.00	39.8	Service Commercial	39.8	1.00	39.8
Townhomes	13.7	13.7	Very Low Density Residential	196.5	0.90	176.8	Very Low Density Residential	196.5	0.90	176.8	Very Low Density Residential	196.5	0.90	176.8	Very Low Density Residential	144.0	0.90	129.6
Utilities	204.5	-																
Vacant	343.3	-																
Subtotal	3,960.3	3,208.9	Total	3,960.5		3,868.9	Total	3,960.5		3,868.9	Total	3,960.5		3,868.9	Total	3,960.5		3,874.1
Grand Total	**12,591.8**	**3,591.6**	**Grand Total**	**12,393.9**			**Grand Total**	**12,027.5**			**Grand Total**	**12,085.9**			**Grand Total**	**11,694.5**		

Notes:
1. It is assumed that only 10% of the industrial reserve and none of the residential reserve will be developed at buildout.
2. Sewered acres for the existing condition within SOI, but excluding Whitmore Ranch Specific Plan, were estimated from GIS.

CURRENT AND PROJECTED FUTURE WASTEWATER FLOWS

The City's Sewer System Master Plan (Master Plan) dated July, 2013 reported the following:

- The Average Sanitary Flow (ASF) flow to the City's Wastewater Treatment Plant (WWTP) was 3.03 million gallons per day (mgd), based on influent data from 1999 to 2008.
- The Average Dry Weather Flow (ADWF) flow to the City's WWTP was 3.07 mgd.
- The Peak Day Flow (PDF) was 4.07 mgd.
- In the master plan, wastewater generation rates were based on the amount of flow per equivalent dwelling unit (EDU). Based on an evaluation of recorded influent flows at the City's WWTP in 2007, a wastewater generation rate of 260 gallons per day per EDU (gpd/EDU) was developed.
- EDU densities for various land uses were also provided.
- A peaking factor of 1.5 was established, to determine the peak hourly flow, excluding infiltration and inflow (I/I).
- A unitless EDU factor of 0.87 was developed for Medium, Medium High, and High Density Residential developments.
- To account for infiltration and inflow (I/I), a factor of 1,500 gpd/acre was recommended. I/I accounts for rainfall and groundwater that leaks into the wastewater system.

Based on the City's 1997 General Plan land uses, the Master Plan (Table 2-9) projected the following:

- An ASF of 10.2 mgd at the City's WWTP, with an additional 1.3 mgd from the North Ceres Sewer Service Area (NCSSA) going to the City of Modesto (Modesto).
- A PDF of 15.3 mgd at the City's WWTP, with an additional PDF of 1.9 mgd from the NCSSA to Modesto.
- A Peak Hour Flow (PHF) of 26 mgd from the City, with a PHF of 4.0 mgd from the NCSSA to Modesto.

Table 1, above, presents the land use data in a format suitable for estimating wastewater flows, where gross areas are multiplied by a conversion factor to obtain the net area of development, in acres.

Table 2 presents the wastewater flow factors used for this wastewater flow projection, as discussed below:

- The wastewater flow factors for various land uses were developed from the EDU densities and the EDU factor of 260 gpd/EDU, provided by the Master Plan. For schools, the Master Plan specified 48 students/acre, but no flow factor. Therefore, a generally accepted factor of 25 gpd/student was used, yielding a flow factor of 1,200 gpd/acre. The same flow was assumed for other educational, religious and hospital facilities. Because of the State-mandated water conservation requirements, the residential flow factor is expected to decrease in the future, but flow factors for future flows should be conservative (slightly high) to allow for variations from the actual historical flows.
- To calculate the PHF, the average day flow was multiplied by the peaking factor of 1.5 specified in the Master Plan and I/I of 1,500 gpd/acre was added. I/I was not included for land uses not receiving sewer service, including Railroad Right of Way, Right of Way, Agriculture, Residential Reserve, and undeveloped Industrial Reserve.

The ASF projection presented in Table 3 was calculated by multiplying the net area for each land use type from Table 1 by the appropriate flow factor from Table 2.

- For the current General Plan land use flow projection in Table 3, ASFs were calculated for all of the Residential Reserve areas and for all of the Industrial Reserve areas. This is the same approach as was used in the Master Plan. This approach provides a reasonable comparison between the ASF calculated in Table 3 for buildout of the current General Plan (9.3 mgd) and the ASF calculated in the Master Plan (10.2 mgd).
- As recommended by Dyett and Bhatia, for the LUAs it was assumed that none of the Residential Reserve and only a small area of the Industrial Reserve land uses would develop at buildout. Consequently, the flow projections for the LUAs include no ASF from the Residential Reserve land use and only a small ASF from the small area of Industrial Reserve projected to develop.

As shown in Table 3, the total existing conditions ASF to the City's WWTP is estimated at 3.6 mgd, which includes approximately 1.0 mgd that flows into the City's WWTP, but is subsequently sent to the City of Turlock (Turlock) WWTP. This value also reflects the fact that about 25 percent of the City falls within the NCSSA and the Master Plan projected the ASF from the NCSSA would reach 1.3 mgd at buildout. Wastewater from the NCSSA flows to Modesto's Sutter WWTP. Also, 280 connections within the City are served by local septic systems. The estimated existing ASF of 3.6 mgd is significantly higher than the 2.7 mgd flow reported by the City in 2016, and somewhat higher than the 3.03 mgd ASF reported for 2007 in the Master Plan. However, conservatism in the flow factors designated by the Master Plan are a likely and expected cause of these higher flow estimates.

The buildout PHFs for existing land use, the current General Plan, and each of the growth areas are presented in Table 4. The PHFs are used for planning and sizing the trunk sewers needed to serve the GPU LUAs. As shown in Table 4, the total PHF for the City at buildout of the current General Plan was estimated to be 27.8 mgd, which compares well with the total PHF at buildout estimated in the Master Plan of 30.0 mgd. The PHFs for the LUAs range from 24.5 mgd to 25.0 mgd, with PHFs to the City's WWTP ranging from 20.3 mgd to 20.7 mgd.

Table 2 Sewer Flow Factors			
Existing Land Use Flow Factors		Future Land Use Flow Factors	
Existing Land Uses	flow factor, gpd/acre	Future Land Uses	flow factor, gpd/acre
Ag Residential/Rural Residential	104	Agriculture	-
Agriculture	-	Business Park	468
Auto Commercial	36	Commercial Recreation	36
Cemetery	-	Community Commercial	468
Duplex/Two Family Residential	1,560	Community Facilities	988
Educational Facility	-	Downtown Mixed Use	468
General Industrial	1,326	Downtown Office	988
General/Retail Commercial	468	Downtown Residential	2,470
Golf Course	-	General Industrial	1,326
Hospital/Nursing Facility	-	High Density Residential	4,185
Light Industrial	1,326	Highway Commercial	468
Mixed Use Residential	2,470	Industrial Reserve	1,326
Mobile Homes	2,470	Light Industrial	1,326
Multi Family Residential	4,810	Low Density Residential	1,560
Office	988	Medium Density Residential	2,149
Parks/Open Space/Greenways	-	Medium High Density Residential	3,110
Public Facility	988	Neighborhood Commercial	468
Public Parking	-	Office	988
Religious Facilities/Institutional	-	Parks	-
Road ROW	-	Railroad ROW	-
Service Station	468	Regional Commercial	468
Single Family Residential	1,560	Regional Parks	-
Townhomes	2,470	Residential Agriculture	104
Utilities	-	Residential Reserve	2,340
Vacant	-	Right of Way	-
		Schools	1,200
		Service Commercial	468
		Very Low Density Residential	1,040

Notes:
1. Buildout Condition Flow Factors are based on EDU densities provided in Table 2-2 multiplied by the wastewater generation rate of 260 gpd/EDU, from the City of Ceres Sewer Master Plan (July 2013), prepared by Stantec.
2. EDU densities for land uses not specified in the Master Plan were inferred from similar land uses.
3. A flow factor for Schools was assumed at 1,200 gpd/acre

Table 3. Average Sanitary Flows

Existing Land Uses				Current General Plan				Alternative 1				Alternative 2				Alternative 3			
Land Use Designation	Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd	Current General Plan	Net Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd	Land Use Designation	Net Area, acres	Flow Factor, GPD/acre,	Sewer Flows, gpd	Land Use Designation	Net Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd	Land Use Designation	Net Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd
Inside Current SOI (Excluding Whitmore Ranch Specific Plan)																			
Ag Residential/Rural Residential	2.0	104	208	Business Park	88.8	468	41,543	Business Park	0.1	468	25	Business Park	0.1	468	25	Business Park	0.1	468	25
Agriculture	-	-	-	Community Commercial	32.6	468	15,268	Community Commercial	32.6	468	15,268	Community Commercial	32.6	468	15,268	Community Commercial	32.6	468	15,268
Auto Commercial	-	36	-	Community Facilities	12.4	988	12,254	Community Facilities	12.4	988	12,254	Community Facilities	12.4	988	12,254	Community Facilities	12.4	988	12,254
Duplex/Two Family Residential	-	1,560	-	General Industrial	59.7	1,326	79,158	General Industrial	59.7	1,326	79,158	General Industrial	59.7	1,326	79,158	General Industrial	59.7	1,326	79,158
Educational Facility	-	-	-	High Density Residential	30.3	4,185	126,661	High Density Residential	30.3	4,185	126,661	High Density Residential	13.3	4,185	55,776	High Density Residential	30.3	4,185	126,661
General Industrial	-	1,326	-	Highway Commercial	10.0	468	4,683	Highway Commercial	10.0	468	4,683	Highway Commercial	10.0	468	4,683	Highway Commercial	10.0	468	4,683
General/Retail Commercial	1.0	468	468	Industrial Reserve	76.5	1,326	101,391	Industrial Reserve	1.4	1,326	1,856	Industrial Reserve	1.4	1,326	1,856	Industrial Reserve	1.4	1,326	1,856
Hospital/Nursing Facility	-	-	-	Light Industrial	38.5	1,326	51,017	Light Industrial	38.5	1,326	51,017	Light Industrial	38.5	1,326	51,017	Light Industrial	38.5	1,326	51,017
Light Industrial	-	1,326	-	Low Density Residential	776.7	1,560	1,211,639	Low Density Residential	776.7	1,560	1,211,639	Low Density Residential	776.7	1,560	1,211,639	Low Density Residential	760.4	1,560	1,186,266
Mixed Use Residential	-	2,470	-	Medium Density Residential	126.0	2,149	270,744	Medium Density Residential	126.0	2,149	270,744	Medium Density Residential	126.0	2,149	270,744	Medium Density Residential	126.0	2,149	270,744
Mobile Homes	-	2,470	-	Medium High Density Residential	69.6	3,110	216,382	Medium High Density Residential	69.6	3,110	216,382	Medium High Density Residential	66.4	3,110	206,466	Medium High Density Residential	69.6	3,110	216,382
Multi Family Residential	-	4,810	-	Neighborhood Commercial	7.9	468	3,697	Neighborhood Commercial	7.9	468	3,697	Neighborhood Commercial	7.9	468	3,697	Neighborhood Commercial	23.2	468	10,861
Parks/Open Space/Greenways	-	-	-	Railroad ROW	7.8	-	-	Railroad ROW	7.8	-	-	Railroad ROW	7.8	-	-	Railroad ROW	7.8	-	-
Public Facility	-	988	-	Regional Commercial	-	468	-	Regional Commercial	112.2	468	52,508	Regional Commercial	73.5	468	34,397	Regional Commercial	112.2	468	52,508
Religious Facilities/Institutional	1.0	-	-	Right of Way	1.7	-	-	Right of Way	1.7	-	-	Right of Way	1.7	-	-	Right of Way	1.7	-	-
Road ROW	-	-	-	Schools	76.0	1,200	91,250	Schools	76.0	1,200	91,250	Schools	76.0	1,200	91,250	Schools	76.0	1,200	91,250
Single Family Residential	2.2	1,560	3,432	Service Commercial	93.8	468	43,880	Service Commercial	93.8	468	43,880	Service Commercial	152.6	468	71,411	Service Commercial	93.8	468	43,880
Utilities	-	-	-	Very Low Density Residential	148.7	1,040	154,687	Very Low Density Residential	148.7	1,040	154,687	Very Low Density Residential	148.7	1,040	154,687	Very Low Density Residential	148.7	1,040	154,687
Vacant	-	-	-	Commercial Recreation	23.5	36	855	Commercial Recreation	-	36	-	Commercial Recreation	-	36	-	Commercial Recreation	-	36	-
Subtotal	6.2		4,108	Subtotal	1,680.4		2,425,109	Subtotal	1,605.3		2,335,710	Subtotal	1,605.3		2,264,328	Subtotal	1,604.3		2,317,501
Outside Current SOI																			
Ag Residential/Rural Residential	-	104	-	Agriculture	2,811.1	-	-	Agriculture	2,811.1	-	-	Agriculture	2,764.2	-	-	Agriculture	2,710.5	-	-
Agriculture	-	-	-	General Industrial	-	1,326	-	General Industrial	-	1,326	-	General Industrial	144.5	1,326	191,621	General Industrial	65.2	1,326	86,402
Auto Commercial	-	36	-	Highway Commercial	5.4	468	2,546	Highway Commercial	5.4	468	2,546	Highway Commercial	5.4	468	2,546	Highway Commercial	5.4	468	2,546
Duplex/Two Family Residential	-	1,560	-	Industrial Reserve	248.0	1,326	328,848	Industrial Reserve	15.0	1,326	19,837	Industrial Reserve	13.0	1,326	17,291	Industrial Reserve	25.0	1,326	33,097
Educational Facility	-	-	-	Low Density Residential	194.6	1,560	303,560	Low Density Residential	194.6	1,560	303,560	Low Density Residential	138.0	1,560	215,246	Low Density Residential	342.1	1,560	533,651
General Industrial	-	1,326	-	Medium Density Residential	8.5	2,149	18,322	Medium Density Residential	8.5	2,149	18,322	Medium Density Residential	8.5	2,149	18,322	Medium Density Residential	8.5	2,149	18,322
Golf Course	-	-	-	Parks	16.1	-	-	Parks	16.1	-	-	Parks	16.1	-	-	Parks	16.1	-	-
Mixed Use Residential	-	2,470	-	Regional Commercial	-	468	-	Regional Commercial	116.6	468	54,573	Regional Commercial	97.1	468	45,421	Regional Commercial	124.3	468	58,153
Mobile Homes	-	2,470	-	Residential Agriculture	98.7	104	10,262	Residential Agriculture	98.7	104	10,262	Residential Agriculture	98.7	104	10,262	Residential Agriculture	-	104	-
Multi Family Residential	-	4,810	-	Regional Parks	-	-	-	Regional Parks	-	-	-	Regional Parks	-	-	-	Regional Parks	44.9	-	-
Parks/Open Space/Greenways	-	-	-	Residential Reserve	405.6	2,340	948,997	Residential Reserve	-	2,340	-	Residential Reserve	-	2,340	-	Residential Reserve	-	2,340	-
Religious Facilities/Institutional	-	-	-	Right of Way	9.5	-	-	Right of Way	9.5	-	-	Right of Way	9.5	-	-	Right of Way	9.5	-	-
Road ROW	-	-	-	Schools	15.7	1,200	18,840	Schools	15.7	1,200	18,840	Schools	15.7	1,200	18,840	Schools	15.7	1,200	18,840
Service Station	-	468	-	Service Commercial	7.2	468	3,391	Service Commercial	7.2	468	3,391	Service Commercial	34.5	468	16,123	Service Commercial	7.2	468	3,391
Single Family Residential	-	1,560	-	Very Low Density Residential	414.8	1,040	431,418	Very Low Density Residential	414.8	1,040	431,418	Very Low Density Residential	414.8	1,040	431,418	Very Low Density Residential	72.5	1,040	75,370
Utilities	-	-	-	Commercial Recreation	116.6	36	4,245	Commercial Recreation	-	36	-	Commercial Recreation	-	36	-	Commercial Recreation	-	36	-
Vacant	-	-	-		-				-				-				-		
Subtotal	-		-	Subtotal	4,351.8		2,070,429	Subtotal	3,713.2		862,748	Subtotal	3,759.9		967,090	Subtotal	3,446.8		829,772
West Landing Specific Plan																			
Ag Residential/Rural Residential	-	104	-	Business Park	58.2	468	27,237	Business Park	58.2	468	27,237	Business Park	58.2	468	27,237	Business Park	58.2	468	27,237
Agriculture	-	-	-	Community Commercial	13.7	468	6,416	Community Commercial	13.7	468	6,416	Community Commercial	13.7	468	6,416	Community Commercial	13.7	468	6,416
Duplex/Two Family Residential	0.6	1,560	898	Community Facilities	142.4	988	140,695	Community Facilities	142.4	988	140,695	Community Facilities	142.4	988	140,695	Community Facilities	142.4	988	140,695
General Industrial	109.2	1,326	144,841	General Industrial	102.1	1,326	135,446	General Industrial	102.1	1,326	135,446	General Industrial	102.1	1,326	135,446	General Industrial	102.1	1,326	135,446
General/Retail Commercial	18.9	468	8,830	High Density Residential	20.8	4,185	87,053	High Density Residential	20.8	4,185	87,053	High Density Residential	20.8	4,185	87,053	High Density Residential	20.8	4,185	87,053
Mixed Use Residential	0.7	2,470	1,815	Low Density Residential	150.0	1,560	234,044	Low Density Residential	150.0	1,560	234,044	Low Density Residential	150.0	1,560	234,044	Low Density Residential	150.0	1,560	234,044
Public Facility	178.0	988	175,869	Medium Density Residential	46.2	2,149	99,312	Medium Density Residential	46.2	2,149	99,312	Medium Density Residential	46.2	2,149	99,312	Medium Density Residential	46.2	2,149	99,312
Religious Facilities/Institutional	1.6	-	-	Medium High Density Residential	31.1	3,110	96,628	Medium High Density Residential	31.1	3,110	96,628	Medium High Density Residential	31.1	3,110	96,628	Medium High Density Residential	31.1	3,110	96,628
Single Family Residential	18.8	1,560	29,388	Neighborhood Commercial	28.3	468	13,250	Neighborhood Commercial	28.3	468	13,250	Neighborhood Commercial	28.3	468	13,250	Neighborhood Commercial	28.3	468	13,250
Utilities	-	-	-	Office	14.7	988	14,557	Office	14.7	988	14,557	Office	14.7	988	14,557	Office	14.7	988	14,557
Vacant	-	-	-	Parks	37.5	-	-	Parks	37.5	-	-	Parks	37.5	-	-	Parks	37.5	-	-
				Regional Commercial	29.1	468	13,621	Regional Commercial	29.1	468	13,621	Regional Commercial	29.1	468	13,621	Regional Commercial	29.1	468	13,621
				Schools	12.8	1,200	15,346	Schools	12.8	1,200	15,346	Schools	12.8	1,200	15,346	Schools	12.8	1,200	15,346
				Very Low Density Residential	14.5	1,040	15,049	Very Low Density Residential	14.5	1,040	15,049	Very Low Density Residential	14.5	1,040	15,049	Very Low Density Residential	14.5	1,040	15,049
Subtotal	327.8		361,641	Subtotal	701.5		898,654	Subtotal	701.5		898,654	Subtotal	701.5		898,654	Subtotal	701.5		898,654

Table 3. Average Sanitary Flows

Existing Land Uses				Current General Plan				Alternative 1				Alternative 2				Alternative 3			
Land Use Designation	Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd	Current General Plan	Net Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd	Land Use Designation	Net Area, acres	Flow Factor, GPD/acre,	Sewer Flows, gpd	Land Use Designation	Net Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd	Land Use Designation	Net Area, acres	Flow Factor, GPD/acre	Sewer Flows, gpd
Whitmore Ranch Specific Plan																			
Educational Facility	39.4	-	-	Low Density Residential	23.1	1,560	36,077	Low Density Residential	23.1	1,560	36,077	Low Density Residential	23.1	1,560	36,077	Low Density Residential	23.1	1,560	36,077
Mixed Use Residential	4.4	2,470	10,948	Medium Density Residential	10.3	2,149	22,046	Medium Density Residential	10.3	2,149	22,046	Medium Density Residential	10.3	2,149	22,046	Medium Density Residential	10.3	2,149	22,046
Single Family Residential	4.8	1,560	7,542	Medium High Density Residential	4.8	3,110	14,835	Medium High Density Residential	4.8	3,110	14,835	Medium High Density Residential	4.8	3,110	14,835	Medium High Density Residential	4.8	3,110	14,835
Vacant	-	-	-	Parks	6.2	-	-	Parks	6.2	-	-	Parks	6.2	-	-	Parks	6.2	-	-
				Schools	39.4	1,200	47,307	Schools	39.4	1,200	47,307	Schools	39.4	1,200	47,307	Schools	39.4	1,200	47,307
Subtotal	48.7		18,490	Subtotal	83.8		120,265	Subtotal	83.8		120,265	Subtotal	83.8		120,265	Subtotal	83.8		120,265
Within Current City Limits (Excluding West Landing Specific Plan)																			
Ag Residential/Rural Residential	104.0	104	10,816	Business Park	23.7	468	11,088	Business Park	23.7	468	11,088	Business Park	23.7	468	11,088	Business Park	23.7	468	11,088
Auto Commercial	34.6	36	1,260	Commercial Recreation	49.9	36	1,817	Commercial Recreation	49.9	36	1,817	Commercial Recreation	49.9	36	1,817	Commercial Recreation	49.9	36	1,817
Cemetery	-	-	-	Community Commercial	218.3	468	102,185	Community Commercial	218.3	468	102,185	Community Commercial	218.3	468	102,185	Community Commercial	218.3	468	102,185
Duplex/Two Family Residential	38.4	1,560	59,847	Community Facilities	196.3	988	193,898	Community Facilities	196.3	988	193,898	Community Facilities	196.3	988	193,898	Community Facilities	196.3	988	193,898
Educational Facility	203.2	-	-	Downtown Mixed Use	13.3	468	6,228	Downtown Mixed Use	13.3	468	6,228	Downtown Mixed Use	13.3	468	6,228	Downtown Mixed Use	13.3	468	6,228
General Industrial	324.4	1,326	430,192	Downtown Office	10.9	988	10,741	Downtown Office	10.9	988	10,741	Downtown Office	10.9	988	10,741	Downtown Office	10.9	988	10,741
General/Retail Commercial	173.4	468	81,144	Downtown Residential	27.4	2,470	67,615	Downtown Residential	27.4	2,470	67,615	Downtown Residential	27.4	2,470	67,615	Downtown Residential	27.4	2,470	67,615
Golf Course	-	-	-	General Industrial	335.2	1,326	444,489	General Industrial	335.2	1,326	444,489	General Industrial	335.2	1,326	444,489	General Industrial	387.7	1,326	514,099
Hospital/Nursing Facility	5.8	-	-	High Density Residential	30.3	4,185	126,999	High Density Residential	30.3	4,185	126,999	High Density Residential	30.3	4,185	126,999	High Density Residential	30.3	4,185	126,999
Light Industrial	98.9	1,326	131,176	Highway Commercial	82.8	468	38,762	Highway Commercial	82.8	468	38,762	Highway Commercial	82.8	468	38,762	Highway Commercial	82.8	468	38,762
Mixed Use Residential	13.5	2,470	33,329	Light Industrial	178.0	1,326	236,005	Light Industrial	178.0	1,326	236,005	Light Industrial	178.0	1,326	236,005	Light Industrial	178.0	1,326	236,005
Mobile Homes	79.5	2,470	196,259	Low Density Residential	1,626.2	1,560	2,536,851	Low Density Residential	1,626.2	1,560	2,536,851	Low Density Residential	1,626.2	1,560	2,536,851	Low Density Residential	1,626.2	1,560	2,536,851
Multi Family Residential	141.5	4,810	680,691	Medium Density Residential	332.1	2,149	713,750	Medium Density Residential	332.1	2,149	713,750	Medium Density Residential	332.1	2,149	713,750	Medium Density Residential	332.1	2,149	713,750
Office	39.4	988	38,906	Medium High Density Residential	64.6	3,110	200,894	Medium High Density Residential	64.6	3,110	200,894	Medium High Density Residential	64.6	3,110	200,894	Medium High Density Residential	64.6	3,110	200,894
Parks/Open Space/Greenways	-	-	-	Neighborhood Commercial	25.8	468	12,077	Neighborhood Commercial	25.8	468	12,077	Neighborhood Commercial	25.8	468	12,077	Neighborhood Commercial	25.8	468	12,077
Public Facility	20.9	988	20,687	Office	26.4	988	26,071	Office	26.4	988	26,071	Office	26.4	988	26,071	Office	26.4	988	26,071
Public Parking	-	-	-	Parks	156.7	-	-	Parks	156.7	-	-	Parks	156.7	-	-	Parks	156.7	-	-
Religious Facilities/Institutional	85.2	-	-	Regional Commercial	95.2	468	44,545	Regional Commercial	95.2	468	44,545	Regional Commercial	95.2	468	44,545	Regional Commercial	95.2	468	44,545
Road ROW	-	-	-	Right of Way	1.1	-	-	Right of Way	1.1	-	-	Right of Way	1.1	-	-	Right of Way	1.1	-	-
Service Station	11.4	468	5,332	Schools	158.0	1,200	189,657	Schools	158.0	1,200	189,657	Schools	158.0	1,200	189,657	Schools	158.0	1,200	189,657
Single Family Residential	1,821.2	1,560	2,841,150	Service Commercial	39.8	468	18,625	Service Commercial	39.8	468	18,625	Service Commercial	39.8	468	18,625	Service Commercial	39.8	468	18,625
Townhomes	13.7	2,470	33,773	Very Low Density Residential	176.8	1,040	183,878	Very Low Density Residential	176.8	1,040	183,878	Very Low Density Residential	176.8	1,040	183,878	Very Low Density Residential	129.6	1,040	134,741
Utilities	-	-	-																
Vacant	-	-	-																
Subtotal	3,208.9		4,564,561	Subtotal	3,868.9		5,166,171	Subtotal	3,868.9		5,166,171	Subtotal	3,868.9		5,166,171	Subtotal	3,874.1		5,186,645
Grand Total	**3,591.6**		**4,948,800**	**Grand Total**	**10,686.3**		**10,680,628**	**Grand Total**	**9,972.7**		**9,383,549**	**Grand Total**	**10,019.3**		**9,416,508**	**Grand Total**	**9,710.5**		**9,352,837**
Projected NCSSA Flow to Modesto			1,237,200	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)			1,300,000	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)			1,300,000	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)			1,300,000	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)			1,300,000
Projected Flow to Turlock			1,000,000	Projected Flow to Turlock			2,000,000	Projected Flow to Turlock			2,000,000	Projected Flow to Turlock			2,000,000	Projected Flow to Turlock			2,000,000
Estimated Flows to Local Septic			72,800	Estimated Flows to Local Septic			72,800	Estimated Flows to Local Septic			72,800	Estimated Flows to Local Septic			72,800	Estimated Flows to Local Septic			72,800
Projected Flow to Ceres WWTP			3,638,800	Projected Flow to Ceres WWTP			9,307,828	Projected Flow to Ceres WWTP			8,010,749	Projected Flow to Ceres WWTP			8,043,708	Projected Flow to Ceres WWTP			7,980,037

Note: It is assumed that only 10% of the Industrial Reserve and none of the Residential Reserve will be developed at buildout.

Table 4. Peak Hour Flows

Existing Land Uses		Current General Plan		Alternative 1		Alternative 2		Alternative 3	
Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd
Inside Current SOI (Excluding Whitmore Ranch Specific Plan)									
Ag Residential/Rural Residential	3,312	Business Park	195,463	Business Park	117	Business Park	117	Business Park	117
Agriculture	-	Community Commercial	71,838	Community Commercial	71,838	Community Commercial	71,838	Community Commercial	71,838
Auto Commercial	-	Community Facilities	36,986	Community Facilities	36,986	Community Facilities	36,986	Community Facilities	36,986
Duplex/Two Family Residential	-	General Industrial	208,282	General Industrial	208,282	General Industrial	208,282	General Industrial	208,282
Educational Facility	-	High Density Residential	235,393	High Density Residential	235,393	High Density Residential	103,656	High Density Residential	235,393
General Industrial	-	Highway Commercial	22,033	Highway Commercial	22,033	Highway Commercial	22,033	Highway Commercial	22,033
General/Retail Commercial	2,202	Industrial Reserve	266,782	Industrial Reserve	4,885	Industrial Reserve	4,885	Industrial Reserve	4,885
Hospital/Nursing Facility	-	Light Industrial	134,238	Light Industrial	134,238	Light Industrial	134,238	Light Industrial	134,238
Light Industrial	-	Low Density Residential	2,982,496	Low Density Residential	2,982,496	Low Density Residential	2,982,496	Low Density Residential	2,920,039
Mixed Use Residential	-	Medium Density Residential	595,103	Medium Density Residential	595,103	Medium Density Residential	595,103	Medium Density Residential	595,103
Mobile Homes	-	Medium High Density Residential	428,930	Medium High Density Residential	428,930	Medium High Density Residential	409,273	Medium High Density Residential	428,930
Multi Family Residential	-	Neighborhood Commercial	17,395	Neighborhood Commercial	17,395	Neighborhood Commercial	17,395	Neighborhood Commercial	51,103
Parks/Open Space/Greenways	-	Railroad ROW	-	Railroad ROW	-	Railroad ROW	-	Railroad ROW	-
Public Facility	-	Regional Commercial	-	Regional Commercial	247,057	Regional Commercial	161,844	Regional Commercial	247,057
Religious Facilities/Institutional	1,500	Right of Way	2,537	Right of Way	2,537	Right of Way	2,537	Right of Way	2,537
Road ROW	-	Schools	250,936	Schools	250,936	Schools	250,936	Schools	250,936
Single Family Residential	8,448	Service Commercial	206,463	Service Commercial	206,463	Service Commercial	335,997	Service Commercial	206,463
Utilities	-	Very Low Density Residential	455,136	Very Low Density Residential	455,136	Very Low Density Residential	455,136	Very Low Density Residential	455,136
Vacant	-	Commercial Recreation	36,507	Commercial Recreation	-	Commercial Recreation	-	Commercial Recreation	-
Subtotal	15,462	Subtotal	6,146,521	Subtotal	5,899,827	Subtotal	5,792,754	Subtotal	5,871,078
Outside Current SOI									
Ag Residential/Rural Residential	-	Agriculture	-	Agriculture	-	Agriculture	-	Agriculture	-
Agriculture	-	General Industrial	-	General Industrial	-	General Industrial	504,197	General Industrial	227,342
Auto Commercial	-	Highway Commercial	11,978	Highway Commercial	11,978	Highway Commercial	11,978	Highway Commercial	11,978
Duplex/Two Family Residential	-	Industrial Reserve	865,272	Industrial Reserve	52,195	Industrial Reserve	45,497	Industrial Reserve	87,085
Educational Facility	-	Low Density Residential	747,224	Low Density Residential	747,224	Low Density Residential	529,835	Low Density Residential	1,313,604
General Industrial	-	Medium Density Residential	40,273	Medium Density Residential	40,273	Medium Density Residential	40,273	Medium Density Residential	40,273
Golf Course	-	Parks	24,078	Parks	24,078	Parks	24,078	Parks	24,078
Mixed Use Residential	-	Regional Commercial	-	Regional Commercial	256,771	Regional Commercial	213,712	Regional Commercial	273,619
Mobile Homes	-	Residential Agriculture	163,407	Residential Agriculture	163,407	Residential Agriculture	163,407	Residential Agriculture	-
Multi Family Residential	-	Regional Parks	-	Regional Parks	-	Regional Parks	-	Regional Parks	67,400
Parks/Open Space/Greenways	-	Residential Reserve	2,031,827	Residential Reserve	-	Residential Reserve	-	Residential Reserve	-
Religious Facilities/Institutional	-	Right of Way	14,236	Right of Way	14,236	Right of Way	14,236	Right of Way	14,236
Road ROW	-	Schools	51,811	Schools	51,811	Schools	51,811	Schools	51,811
Service Station	-	Service Commercial	15,954	Service Commercial	15,954	Service Commercial	75,861	Service Commercial	15,954
Single Family Residential	-	Very Low Density Residential	1,269,364	Very Low Density Residential	1,269,364	Very Low Density Residential	1,269,364	Very Low Density Residential	221,761
Utilities	-	Commercial Recreation	181,279	Commercial Recreation	-	Commercial Recreation	-	Commercial Recreation	-
Vacant	-								
Subtotal	-	Subtotal	5,416,703	Subtotal	2,647,291	Subtotal	2,944,248	Subtotal	2,349,139
West Landing Specific Plan									
Ag Residential/Rural Residential	-	Business Park	128,154	Business Park	128,154	Business Park	128,154	Business Park	128,154
Agriculture	-	Community Commercial	30,189	Community Commercial	30,189	Community Commercial	30,189	Community Commercial	30,189
Duplex/Two Family Residential	2,211	Community Facilities	424,648	Community Facilities	424,648	Community Facilities	424,648	Community Facilities	424,648
General Industrial	381,109	General Industrial	356,389	General Industrial	356,389	General Industrial	356,389	General Industrial	356,389
General/Retail Commercial	41,548	High Density Residential	161,783	High Density Residential	161,783	High Density Residential	161,783	High Density Residential	161,783
Mixed Use Residential	3,826	Low Density Residential	576,108	Low Density Residential	576,108	Low Density Residential	576,108	Low Density Residential	576,108
Public Facility	530,810	Medium Density Residential	218,291	Medium Density Residential	218,291	Medium Density Residential	218,291	Medium Density Residential	218,291
Religious Facilities/Institutional	2,377	Medium High Density Residential	191,542	Medium High Density Residential	191,542	Medium High Density Residential	191,542	Medium High Density Residential	191,542
Single Family Residential	72,339	Neighborhood Commercial	62,344	Neighborhood Commercial	62,344	Neighborhood Commercial	62,344	Neighborhood Commercial	62,344
Utilities	-	Office	43,937	Office	43,937	Office	43,937	Office	43,937
Vacant	-	Parks	56,243	Parks	56,243	Parks	56,243	Parks	56,243
		Regional Commercial	64,091	Regional Commercial	64,091	Regional Commercial	64,091	Regional Commercial	64,091
		Schools	42,201	Schools	42,201	Schools	42,201	Schools	42,201
		Very Low Density Residential	44,280	Very Low Density Residential	44,280	Very Low Density Residential	44,280	Very Low Density Residential	44,280
Subtotal	1,034,219	Subtotal	2,400,199	Subtotal	2,400,199	Subtotal	2,400,199	Subtotal	2,400,199

Table 4. Peak Hour Flows

Existing Land Uses		Current General Plan		Alternative 1		Alternative 2		Alternative 3	
Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd	Land Use Designation	Sewer Flow, gpd
Whitmore Ranch Specific Plan									
Educational Facility	59,134	Low Density Residential	88,804	Low Density Residential	88,804	Low Density Residential	88,804	Low Density Residential	88,804
Mixed Use Residential	23,070	Medium Density Residential	48,458	Medium Density Residential	48,458	Medium Density Residential	48,458	Medium Density Residential	48,458
Single Family Residential	18,565	Medium High Density Residential	29,408	Medium High Density Residential	29,408	Medium High Density Residential	29,408	Medium High Density Residential	29,408
Vacant	-	Parks	9,276	Parks	9,276	Parks	9,276	Parks	9,276
		Schools	130,094	Schools	130,094	Schools	130,094	Schools	130,094
Subtotal	100,769	Subtotal	306,040	Subtotal	306,040	Subtotal	306,040	Subtotal	306,040
Within Current City Limits (Excluding West Landing Specific Plan)									
Ag Residential/Rural Residential	172,224	Business Park	52,169	Business Park	52,169	Business Park	52,169	Business Park	52,169
Auto Commercial	53,793	Commercial Recreation	77,586	Commercial Recreation	77,586	Commercial Recreation	77,586	Commercial Recreation	77,586
Cemetery	-	Community Commercial	480,792	Community Commercial	480,792	Community Commercial	480,792	Community Commercial	480,792
Duplex/Two Family Residential	147,317	Community Facilities	585,225	Community Facilities	585,225	Community Facilities	585,225	Community Facilities	585,225
Educational Facility	304,763	Downtown Mixed Use	29,303	Downtown Mixed Use	29,303	Downtown Mixed Use	29,303	Downtown Mixed Use	29,303
General Industrial	1,131,931	Downtown Office	32,420	Downtown Office	32,420	Downtown Office	32,420	Downtown Office	32,420
General/Retail Commercial	381,793	Downtown Residential	142,484	Downtown Residential	142,484	Downtown Residential	142,484	Downtown Residential	142,484
Golf Course	-	General Industrial	1,169,549	General Industrial	1,169,549	General Industrial	1,169,549	General Industrial	1,352,710
Hospital/Nursing Facility	8,661	High Density Residential	236,021	High Density Residential	236,021	High Density Residential	236,021	High Density Residential	236,021
Light Industrial	345,154	Highway Commercial	182,378	Highway Commercial	182,378	Highway Commercial	182,378	Highway Commercial	182,378
Mixed Use Residential	70,234	Light Industrial	620,981	Light Industrial	620,981	Light Industrial	620,981	Light Industrial	620,981
Mobile Homes	413,575	Low Density Residential	6,244,558	Low Density Residential	6,244,558	Low Density Residential	6,244,558	Low Density Residential	6,244,558
Multi Family Residential	1,233,309	Medium Density Residential	1,568,844	Medium Density Residential	1,568,844	Medium Density Residential	1,568,844	Medium Density Residential	1,568,844
Office	117,425	Medium High Density Residential	398,227	Medium High Density Residential	398,227	Medium High Density Residential	398,227	Medium High Density Residential	398,227
Parks/Open Space/Greenways	-	Neighborhood Commercial	56,823	Neighborhood Commercial	56,823	Neighborhood Commercial	56,823	Neighborhood Commercial	56,823
Public Facility	62,437	Office	78,688	Office	78,688	Office	78,688	Office	78,688
Public Parking	-	Parks	235,066	Parks	235,066	Parks	235,066	Parks	235,066
Religious Facilities/Institutional	127,745	Regional Commercial	209,588	Regional Commercial	209,588	Regional Commercial	209,588	Regional Commercial	209,588
Road ROW	-	Right of Way	1,657	Right of Way	1,657	Right of Way	1,657	Right of Way	1,657
Service Station	25,087	Schools	521,556	Schools	521,556	Schools	521,556	Schools	521,556
Single Family Residential	6,993,599	Service Commercial	87,631	Service Commercial	87,631	Service Commercial	87,631	Service Commercial	87,631
Townhomes	71,169	Very Low Density Residential	541,025	Very Low Density Residential	541,025	Very Low Density Residential	541,025	Very Low Density Residential	396,449
Utilities	-								
Vacant	-								
Subtotal	11,660,218	Subtotal	13,552,570	Subtotal	13,552,570	Subtotal	13,552,570	Subtotal	13,591,155
Grand Total	**12,810,667**	**Grand Total**	**27,822,033**	**Grand Total**	**24,805,927**	**Grand Total**	**24,995,811**	**Grand Total**	**24,517,611**
Projected NCSSA Flow to Modesto	3,202,667	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)	4,000,000	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)	4,000,000	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)	4,000,000	Projected NCSSA Flow to Modesto (from Table 2-9 of the Master Plan)	4,000,000
Projected Flow to Turlock	1,000,000	Projected Flow to Turlock	2,000,000	Projected Flow to Turlock	2,000,000	Projected Flow to Turlock	2,000,000	Projected Flow to Turlock	2,000,000
Estimated Flows to Local Septic	259,927	Estimated Flows to Local Septic	259,927	Estimated Flows to Local Septic	259,927	Estimated Flows to Local Septic	259,927	Estimated Flows to Local Septic	259,927
Projected Flow to Ceres WWTP	9,348,074	Projected Flow to Ceres WWTP	23,562,106	Projected Flow to Ceres WWTP	20,546,000	Projected Flow to Ceres WWTP	20,735,884	Projected Flow to Ceres WWTP	20,257,685

COLLECTION SYSTEM INFRASTRUCTURE REQUIREMENTS

The City's existing wastewater system is shown on Figure 6. The City's wastewater system includes 132 miles of piping ranging in size from 6 inches to 54 inches in diameter. The wastewater system also includes 14 lift stations. The majority of the wastewater generated in the City's Sewer Service Area flows to the City's WWTP. However, while the NCSSA collection system is maintained by the City, the NCSSA area flows to Modesto's Sutter WWTP, under a 1979 agreement. Approximately 280 developed parcels between Herndon Road and Mitchell Road currently are not provided wastewater service by the City; instead, these parcels have on-site septic tank and leach field systems.

Trunk Sewers from the City to the WWTP

The City's WWTP has been located on East Service Road between Morgan Road and Blaker Road since before 1970. Existing trunk sewers along East Service Road flowing to the WWTP range from 12-inch diameter pipe at the westernmost end to twin 18-inch diameter trunks near the WWTP. Serving the more populous areas north and east of the WWTP, trunk lines range from parallel 18- and 42-inch diameter trunk lines to parallel 24- and 42-inch diameter lines near the WWTP.

The Master Plan evaluated the need for new and improved trunk sewers to serve development at buildout of the General Plan. As shown in Table 4, the PHF to the Ceres WWTP for buildout of the current General Plan is 23.6 mgd, which compares well with the PHF estimated in the Master Plan of 26.0 mgd. PHFs to the Ceres WWTP for the three LUAs range from 20.3 mgd to 20.7 mgd, and average 20.5 mgd (with no flow from Residential Reserve and only a small flow from Industrial Reserve land uses). According to the Master Plan, the limiting available capacity in the largest existing trunk sewers along East Service Road leading to the WWTP is approximately 4.1 mgd for the 36-inch diameter trunk line, and 7.5 mgd for the 42-inch diameter trunk line. Additional peak flows from new development in excess of these capacity limits will require construction of new parallel trunk sewers. Trunk sewer improvements proposed by the Master Plan are shown on Attachment B.

Previously Planned Sewer Improvements

Areas identified for future growth in the 1997 General Plan are comparable to the areas identified for growth under the current GPU, and are focused around the southwest, south, and east parts of the City, as well as the northern part of the City, and within the NCSSA, where the City is responsible for maintaining wastewater infrastructure.

The Master Plan recommended an upgrade to the trunk sewer system along the length of East Service Road by constructing an additional 36-inch diameter trunk line in parallel with existing lines, from Crows Landing Road, west of the WWTP to Central Avenue to the east, as well as replacing the existing trunk with a 48-inch diameter trunk line from Central Avenue to Highway 99, and a 42-inch diameter sewer crossing under Highway 99 to Mitchell Avenue. A series of trunk sewer expansions were also proposed to serve newly developed and re-developed areas, including the following:

- Crows Landing Road
- Redwood Road
- Moffett Avenue
- Central Avenue
- Mitchell Road
- Esmar Road
- Roeding Road
- Whitmore Avenue
- Faith Home Road
- Lower Lateral No. 2
- Gondring Road
- Moore Road
- The area between Moore Road & Moffett Avenue
- Five Lift Stations

Table 5 presents the total planning-level opinion of probable cost of $53.28 million from the Master Plan for expansion of the collection system and lift station improvements. This cost was for improvements needed for future growth. The improvements needed to serve the existing City were estimated in the Master Plan to cost an additional $17.12 million.

Collection System Upgrades Completed Since the Master Plan

Several new sewers recommended in the Master Plan have recently been constructed along Mitchell Road from East Whitmore Avenue to East Service Road and from Mitchell Road to a crossing under Highway 99. The selected alignment rendered additional trunk line connections recommended for Moffett Avenue and Moore Road unnecessary, being replaced by a potential connection between Mitchell Avenue and Moore Road. The City has also completed approximately 50 percent of the construction of Crows Landing Road trunk lines. Since these trunk sewers have already been constructed, the cost of these sewers can be subtracted from the costs included in the Master Plan, as shown in Table 5. A new Barbour's pump station was also constructed, but as this was recommended in the Master Plan to meet existing design criteria, a decrease in costs to meet future development needs was not made in Table 5 to reflect the construction. The cost of the remaining sewers and lift stations needed for buildout is about $44.7 million.

Sewer Service for GPU LUA 1

As shown on Figure 3, LUA 1 proposes a change in land use at buildout from the existing General Plan in the area southwest of Highway 99 and south of East Service Road. However, a shift in land use from Business Park and Commercial Recreation to Regional Commercial would result in very little impact to the projected wastewater flows from this area, since the flow factors in the Master Plan are the same for Commercial Recreation and Regional Commercial. Therefore, only the 110-acre tributary to the Gondring and East Service Road trunk sewers that convert from Business Park to Regional Commercial would impact the wastewater flows. Overall, the PHF decreases under LUA1 from the current General Plan. In large part, this is due to I/I not being included for land uses not receiving sewer service (including Railroad Right of Way, Right of Way, Agriculture, Residential Reserve, and undeveloped Industrial Reserve). For the areas of change shown on Figure 3, the estimated increase in PHF from the current General Plan to LUA1 is approximately 0.12 mgd, primarily impacting the Gondring Road and East Service Road trunk sewers. The 0.12 mgd difference is well within the margin of error for the buildout design. Therefore, the estimated cost of improvements for Alternative 1 is the same as the cost estimate provided by the Master Plan, less the improvements already made since the Master Plan was completed in 2013, as shown in Table 5.

Table 5. Estimated Sewer System Improvement Costs from the Master Plan (Tables 4-2 and 4-3)

Improvement Identified in Master Plan	Estimated Percent Complete	Master Plan Cost Estimate, dollars	Estimated Cost Remaining, dollars
Crows Landing Road Trunk Lines	50	1,000,000	500,000
Service Road Trunk Lines	0	12,100,000	12,100,000
Redwood Road Trunk Lines	0	800,000	800,000
Moffett Avenue Trunk Lines	100	1,200,000	-
Central Avenue Trunk Lines	0	2,000,000	2,000,000
Mitchell Road Trunk Lines	100	1,200,000	-
Esmar Road Trunk Lines	0	3,500,000	3,500,000
Roeding Road Trunk Lines	0	600,000	600,000
Whitmore Avenue Trunk Lines	0	900,000	900,000
Faith Home Road Trunk Lines	0	1,900,000	1,900,000
Lower Lateral No. 2 Trunk Lines	0	1,800,000	1,800,000
Gondring Road Trunk Lines	0	1,400,000	1,400,000
Moore Road Trunk Lines	100	400,000	-
Sewer Trunk Line between Moore Road & Moffett Avenue	75	3,200,000	800,000
Estimating Contingency (30%)		9,600,000	7,890,000
Subtotal Construction Costs		$41,600,000	$34,190,000
Design & Administration Cost (20%)		6,400,000	5,260,000
Total Trunk Lines		$48,000,000	$39,450,000
Five (5) Lift Stations/Pump Stations	0	5,280,000	5,280,000
Grand Total		$53,280,000	$44,730,000

Sewer Service for GPU LUA 2

As shown on Figure 4, LUA 2 proposes several changes in land use at buildout from the existing General Plan in the area southwest of Highway 99, south of East Service Road, as far as Blaker Road. These changes include converting the following land uses in the General Plan to Alternative 2 land uses:

- 66 acres from Industrial Reserve to Low Density Residential;
- 73 acres from Business Park to Regional Commercial;
- 37 acres from Business Park to Service Commercial;
- 142 acres from Commercial Recreation to Regional Commercial;
- 25 acres of mainly Commercial Recreation to Service Commercial;
- 136 acres from Low Density Residential to General Industrial;

- 50 acres of Agricultural Residential to General Industrial; and
- 27 acres of Industrial Reserve to Low Density Residential.

Overall, the PHF decreases under LUA2 from the current General Plan. In large part, this is due to I/I not being included for land uses not receiving sewer service. For the areas of change shown on Figure 4, the estimated increase in PHF from the current General Plan to LUA2 is approximately 0.04 mgd under Alternative 2, primarily impacting the Gondring Road, Central Avenue, and East Service Road segments immediately west of Highway 99. The 0.04 mgd difference in PHF is well within the margin of error for the buildout design flows. Therefore, the estimated cost of improvements for LUA2 is the cost estimate provided by the Master Plan, less improvements already made since the Master Plan was completed in 2013, as shown in Table 5.

Sewer Service for GPU LUA 3

As shown on Figure 5, LUA 3 proposes several changes in land use at buildout from the existing General Plan in the area southwest of Highway 99, south of East Service Road, as far as Morgan Road, and a shift from Agriculture, Residential Agriculture, and Very Low Density Residential to General Industrial and Industrial Reserve land uses along a strip east of Faith Home Road. These changes include converting the following land uses in the General Plan to Alternative 3 land uses:

- 66 acres from Industrial Reserve to Low Density Residential;
- 110 acres from Business Park to Regional Commercial;
- 142 acres from Commercial Recreation to Regional Commercial;
- 25 acres of mainly Commercial Recreation to Regional Commercial;
- 67 acres of Industrial Reserve to Low Density Residential;
- 59 acres for Agriculture to Low Density Residential;
- 62 acres of Industrial Reserve to Regional Park;
- 29 acres of Low Density Residential to Neighborhood Community;
- 60 acres of Agriculture to Industrial Reserve;
- 351 acres of Very Low Density Residential to Industrial Reserve;
- 127 acres of Residential Agriculture to Industrial Reserve;
- 122 acres of Very Low Density Residential to General Industrial; and
- 16 acres of Residential Agriculture to General Industrial.

Overall, the PHF decreases under LUA3 from the current General Plan. In large part, this is due to I/I not being included for land uses not receiving sewer service. For the areas of change shown on Figure 5, the estimated increase in PHF from the current General Plan to LUA 3 is approximately 0.72 mgd. Impacts would be similar to those in LUA 1 and LUA 2, with additional impacts to the proposed Faith Home Road, East Whitmore Avenue, and Esmar Road trunk lines. Additional flows are still well within the margin of error for the buildout design flows. Therefore, the estimated cost of improvements for LUA 3 is the cost estimate provided by the Master Plan,

less improvements already made since the Master Plan was completed in 2013, as shown in Table 5.

WASTEWATER TREATMENT AND EXPORT INFRASTRUCTURE REQUIREMENTS

The total ASF from the entire City for each LUA is:

- LUA 1: The ASF is 9.38 mgd
- LUA 2: The ASF is 9.42 mgd
- LUA 3: The ASF is 9.35 mgd

The Master Plan estimated the buildout ASF from the entire City to be 11.5 mgd. The flows from the LUAs are all close to, but slightly lower than, the flow on which the Master Plan was based. This is likely due to the elimination of the flow from land uses not receiving sewer service. Consequently, the wastewater treatment and export planning presented in the Master Plan represents a valid approach for wastewater treatment and export planning for the LUAs. The wastewater treatment and export plan from the Master Plan is described below.

Summary of Master Plan Wastewater Treatment and Export Plan

Discharge from NCSSA to Modesto's Sutter WWTP

It is expected that growth within the NCSSA would continue to be handled by Modesto's Sutter WWTP. Existing facilities substantially have available capacity to serve NCSSA infill development.

City of Ceres WWTP

Significant growth will occur in the flows to the City's WWTP, which the Master Plan envisions to be met by a combination of facility upgrades and the purchase of additional capacity at both Turlock's WWTP and Modesto's Jennings WWTP. The majority of the wastewater generated in the City's Sewer Service Area is treated at the City's WWTP. Some of the flow is partially treated and then pumped to Turlock's WWTP, as discussed further below. To meet future treatment and disposal needs, the Master Plan selected an alternative to maximize discharge to Turlock, equalize flows on-site, and send the remaining peak day flows to Modesto.

Planned improvements to the City's WWTP identified in the Master Plan for new development included increasing influent pumping capacity in the new headworks to accommodate additional flows, construction of 2.0 million gallons of equalization with mixing, and constructing grit removal for the flows to Turlock to prevent deposition of the grit in pipelines and siphons.

With the General Plan PHF to the City's WWTP predicted to be approximately 26 mgd in the Master Plan, and LUA PHFs estimated to be less than 20.7 mgd for all alternatives, the proposed upgrades in the Master Plan should be sufficient to meet the City's capacity requirements at buildout, even if there is significant development of the Residential Reserve and Industrial Reserve land use areas.

Export to Turlock's WWTP

The City does not have sufficient disposal capacity to treat all of its wastewater, and thus, the Master Plan relied upon expanding existing relationships with Turlock and Modesto to treat and dispose of its wastewater. The combined hydraulic capacity for on-site disposal and discharge to the Turlock WWTP is from 4.5 mgd (based on the on-site permit limit and agreement with Turlock) to 4.8 mgd (based on the 100-year on-site water balance calculation and the City obtaining a new permit). In 2003, the City purchased 1.0 mgd of capacity at Turlock's WWTP, with an option to purchase a second 1.0 mgd of capacity. In 2003/2004, the City constructed the existing export pump station and pipeline which has a pumping capacity of 2.0 mgd, expandable to approximately 5.9 mgd. For future development, in addition to the improvements necessary at the WWTP to facilitate export, the City would purchase capacity from Turlock and add pumps to the existing Turlock export pump station.

Export to Modesto's Jennings WWTP

The Master Plan proposed to develop facilities and a regulatory framework to begin exporting additional flows from the City to Modesto's Jennings WWTP through a new pipeline, based on the understanding that Modesto's Sutter WWTP serving the NCSSA does not have sufficient capacity to handle additional flows from the City. The proposed buildout flow of wastewater export would be an average of 4.2 mgd, with a peak flow requirement of up to 8.8 mgd. In addition to improvements at the City's WWTP to facilitate export, the new pipeline to convey flows to Modesto's Jennings WWTP and improvements necessary at Modesto's Jennings WWTP to handle the additional flows, would be funded by the City.

Wastewater Treatment and Export for the LUAs

Because the projected PHFs to the City's WWTP are substantially the same as those projected under the 1997 General Plan for all alternatives, with decreases in excess of 2.0 mgd, due to reduction in flow from not including land uses not receiving sewer service, the improvements proposed by the Master Plan are expected to meet the needs of growth under the proposed LUAs. In fact, it may be possible to decrease exports to Turlock's WWTP and Modesto's Jennings WWTP, or to decrease the overall cost of improvements to the City's WWTP slightly. Considering the additional area incorporated into the planning area of the GPU over the 1997 General Plan, however, the expected flow from the LUAs is insufficient to eliminate the need for export to Modesto's Jennings WWTP altogether.

WASTEWATER TREATMENT AND EXPORT COSTS

A new headworks and backup power for the City's WWTP have been constructed since the completion of the Master Planning effort. However, these improvements were recommended by the Master Plan to solve existing capacity issues and not to address future growth. Planned improvements for future growth have yet to be implemented. Thus, the required infrastructure and associated cost estimate from the Master Plan for future growth is appropriate and sufficient for the LUAs.

Planned improvements identified in the Master Plan included WWTP and disposal capacity improvements, as well as collection system improvements to meet the projected ASF of 10.2 mgd, the PDF of 15.3 mgd, and the PHF of 26 mgd, with corresponding loading. For the WWTP and disposal capacity needs, the Master Plan selected an alternative to expand export of equalized flow to both Modesto and Turlock (discussed above) as the recommended long-range plan, at a cost of approximately $100 million (see Table 6).

Because the Master Plan PHF and ADF were higher than the flows projected in this analysis, the capacity and cost information from the Master Plan were used to estimate the costs of improvements for the LUAs. Table 6 presents the cost estimate for wastewater treatment and export to meet future buildout needs.

Table 6. Estimated Costs of Planned WWTP Improvements

Facility Component	Estimated Cost, dollars
Facilities for Export to Modesto and Turlock	23,550,800
Emergency Storage	3,810,000
Equalization	1,882,500
Capacity Buy-In at Modesto Jennings WWTP	55,020,000
Capacity Buy-In at Turlock WWTP	16,320,000
Total Capital Cost	$100,583,300

For the LUAs, the decreased flows and resulting potential for decreased sizes of required infrastructure would slightly decrease the total costs from the total cost estimated in the Master Plan, with LUA 3 having the highest potential cost savings, followed by LUA 1 and then LUA 2.

CONCLUSIONS

Wastewater infrastructure conclusions are provided below:

- Based on the similarity of buildout flow estimates for the three LUAs, the difference in the cost of infrastructure would be very small, and falls within the margin of error of the Master Plan's cost estimates.
- The difference in flows between the 1997 General Plan and the LUAs is greatest for the Inside Current Sphere of Influence (SOI) (Excluding Whitmore Ranch Specific Plan) and Outside Current SOI areas.
- LUA 3 has the lowest PHF of the three alternatives and thus would likely be the preferred alternative from a wastewater infrastructure standpoint, as it is likely to provide the greatest operational flexibility in the future and possibly a reduced infrastructure cost.

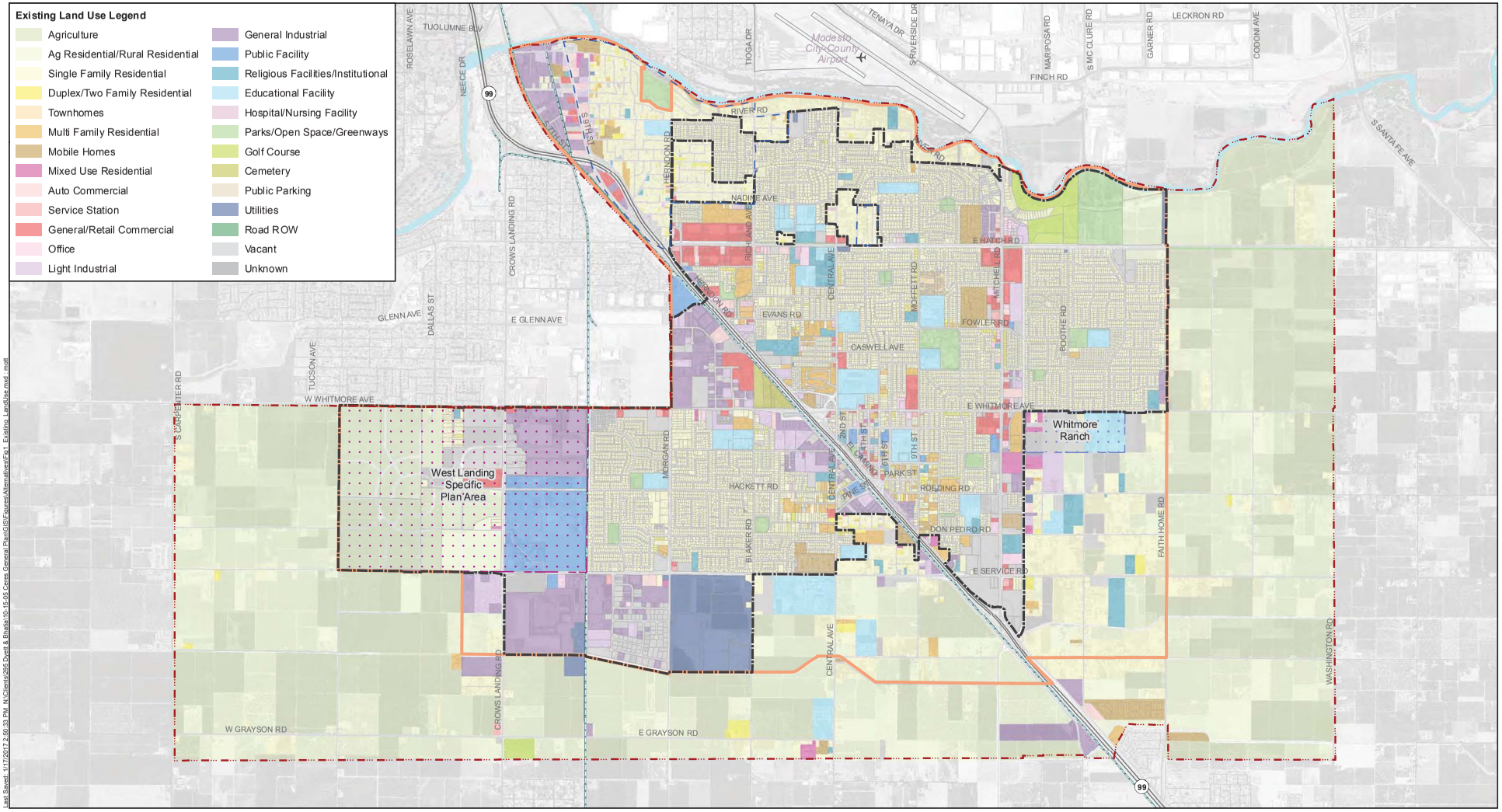


Figure 1

Existing Land Use

Dyett and Bhatia
City of Ceres
General Plan Update

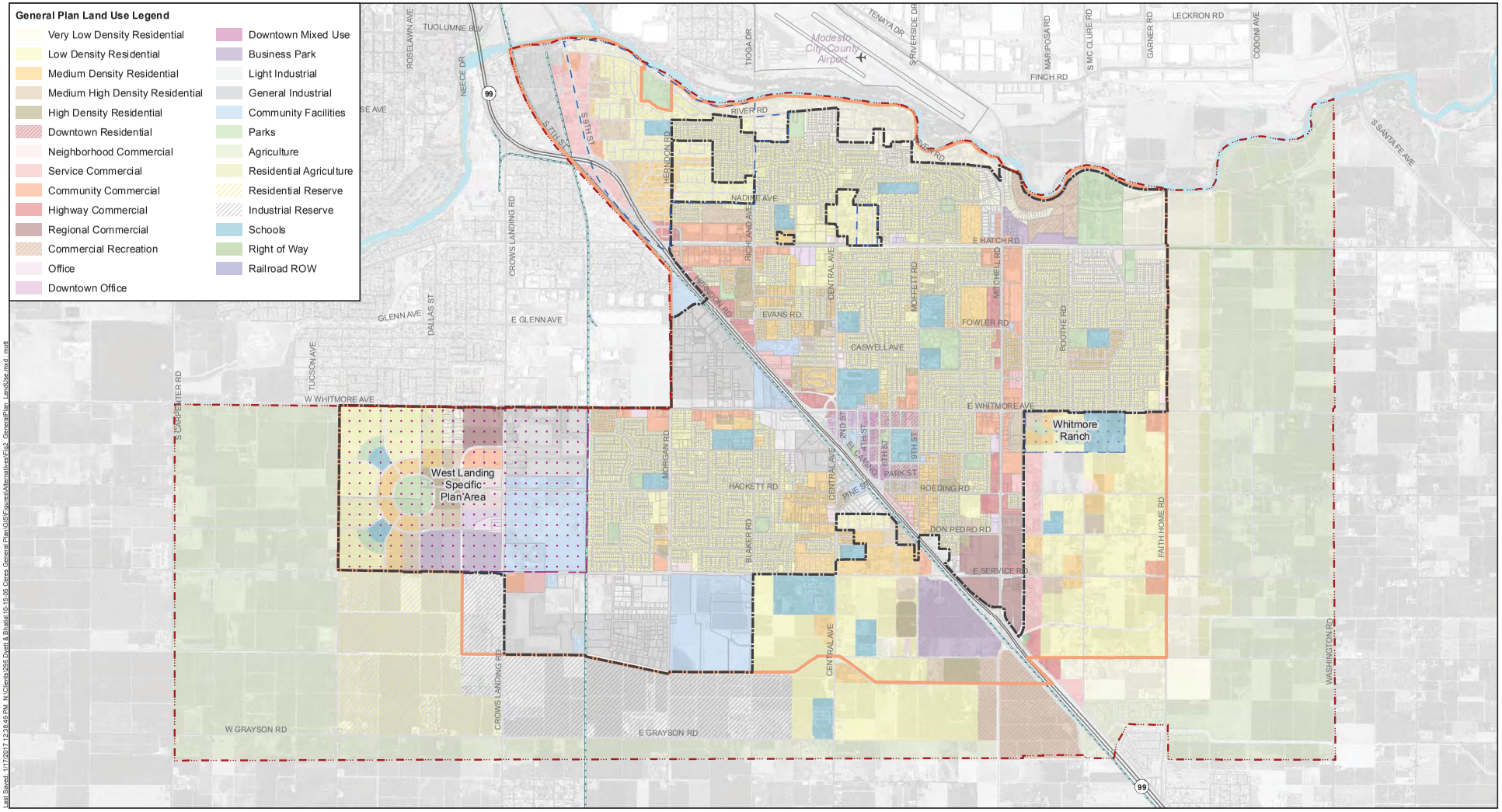


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Figure 2

General Plan Land Use

Dyett and Bhatia
City of Ceres
General Plan Update

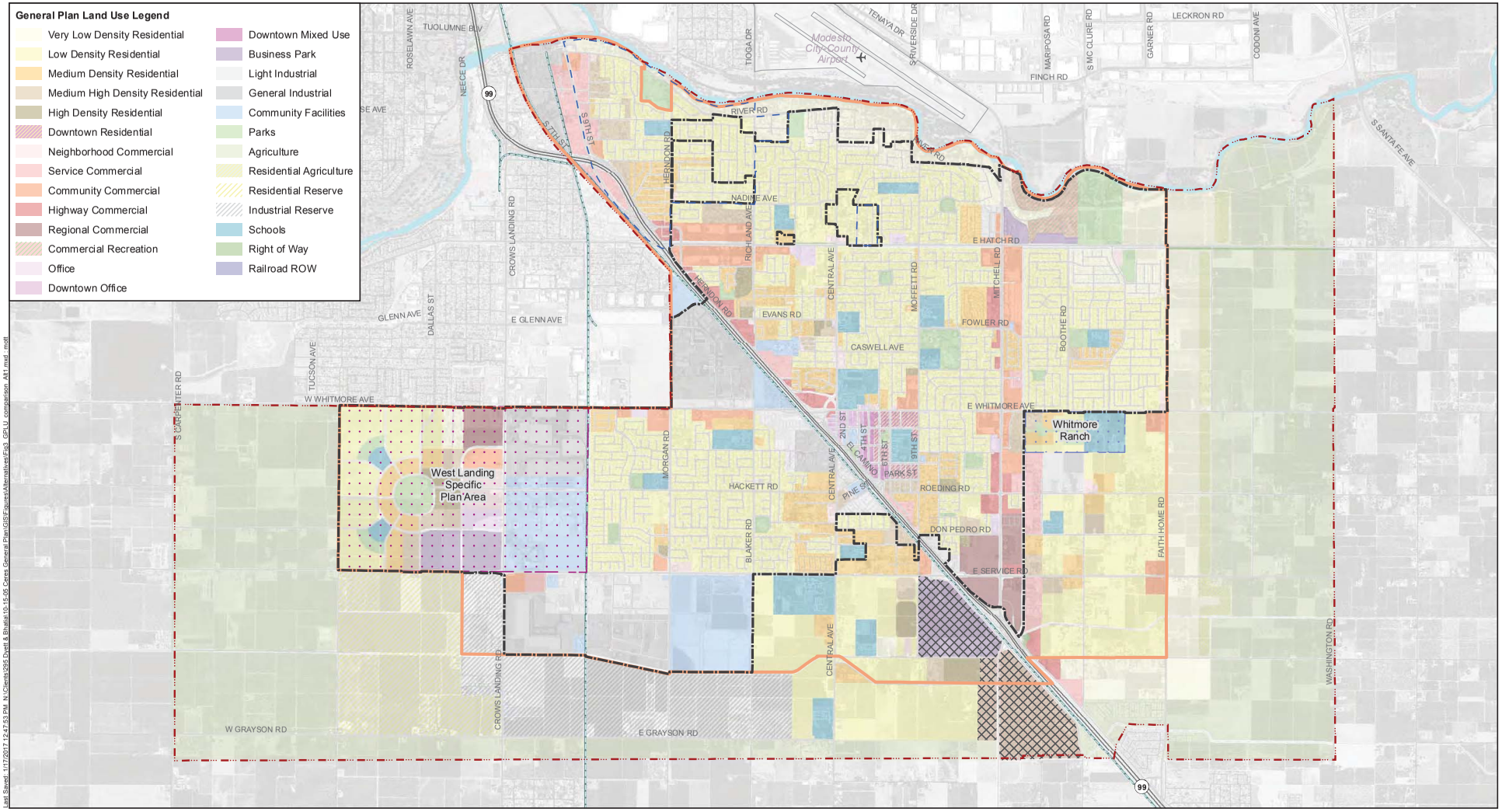
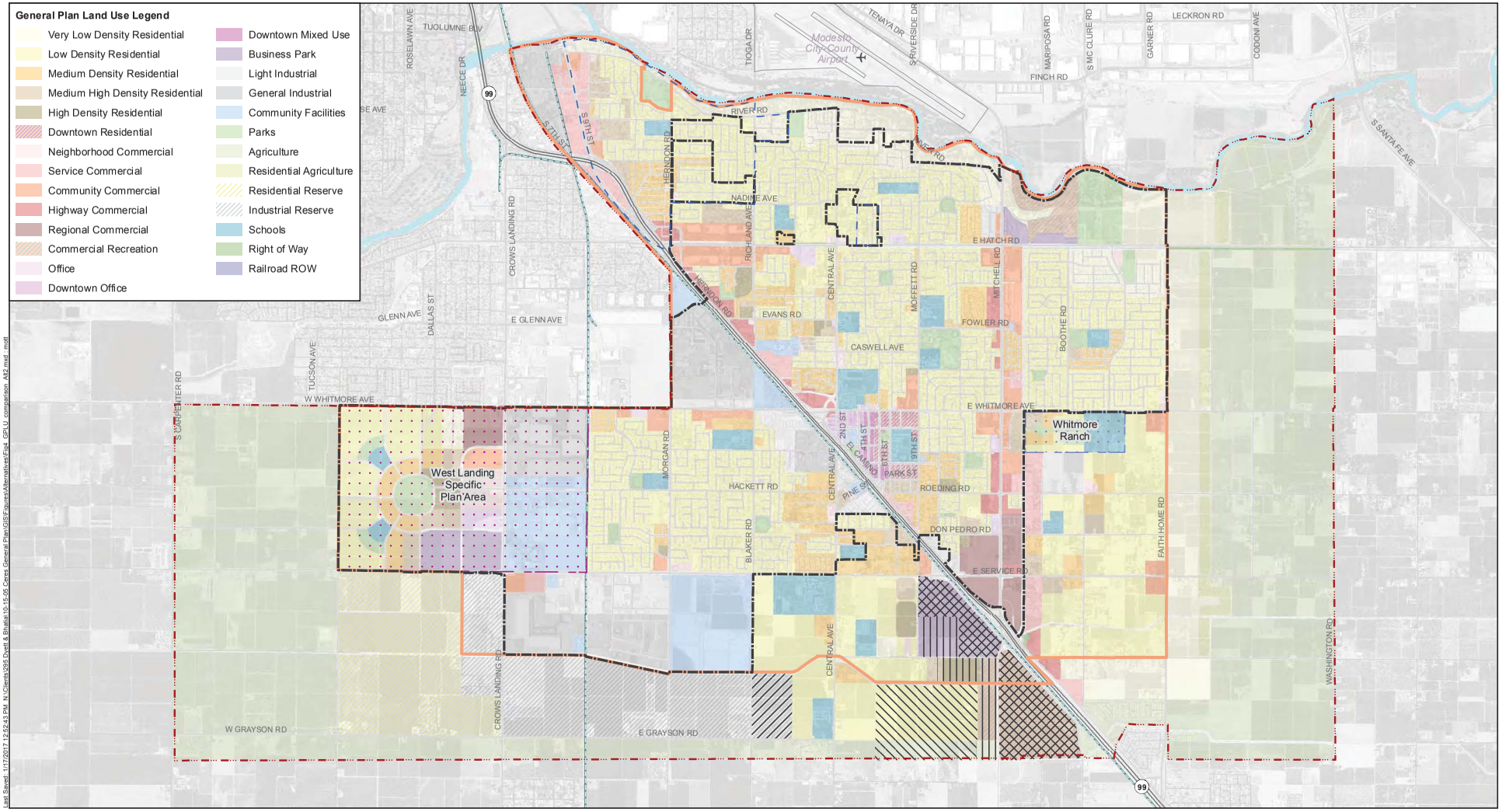


Figure 3

General Plan Land Use Comparison to Alternative 1

Dyett and Bhatia
City of Ceres
General Plan Update



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CITY OF CERES
TOGETHER WE ACHIEVE

WEST YOST ASSOCIATES

Figure 4

General Plan Land Use Comparison to Alternative 2

Dyett and Bhatia
City of Ceres
General Plan Update

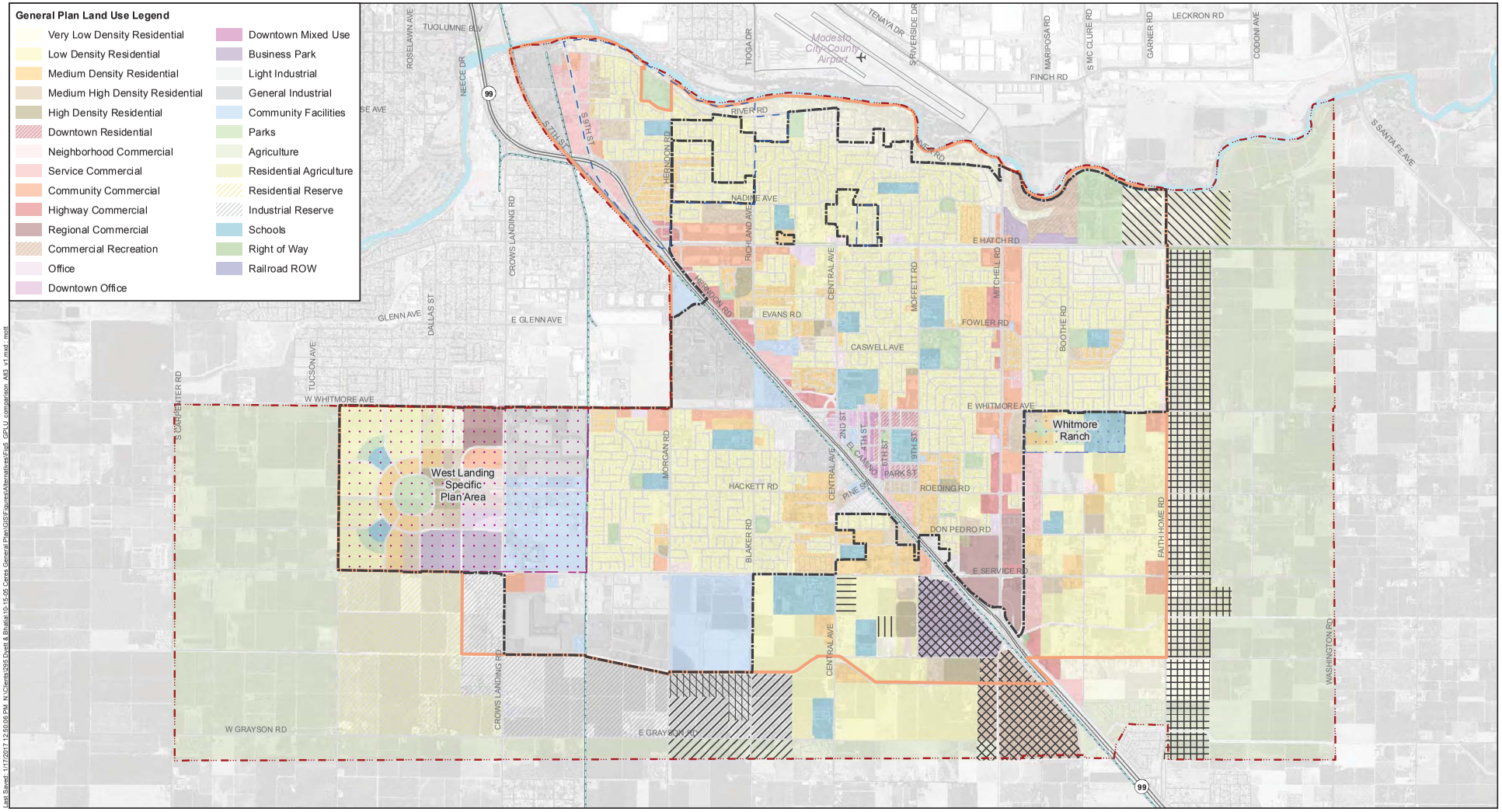
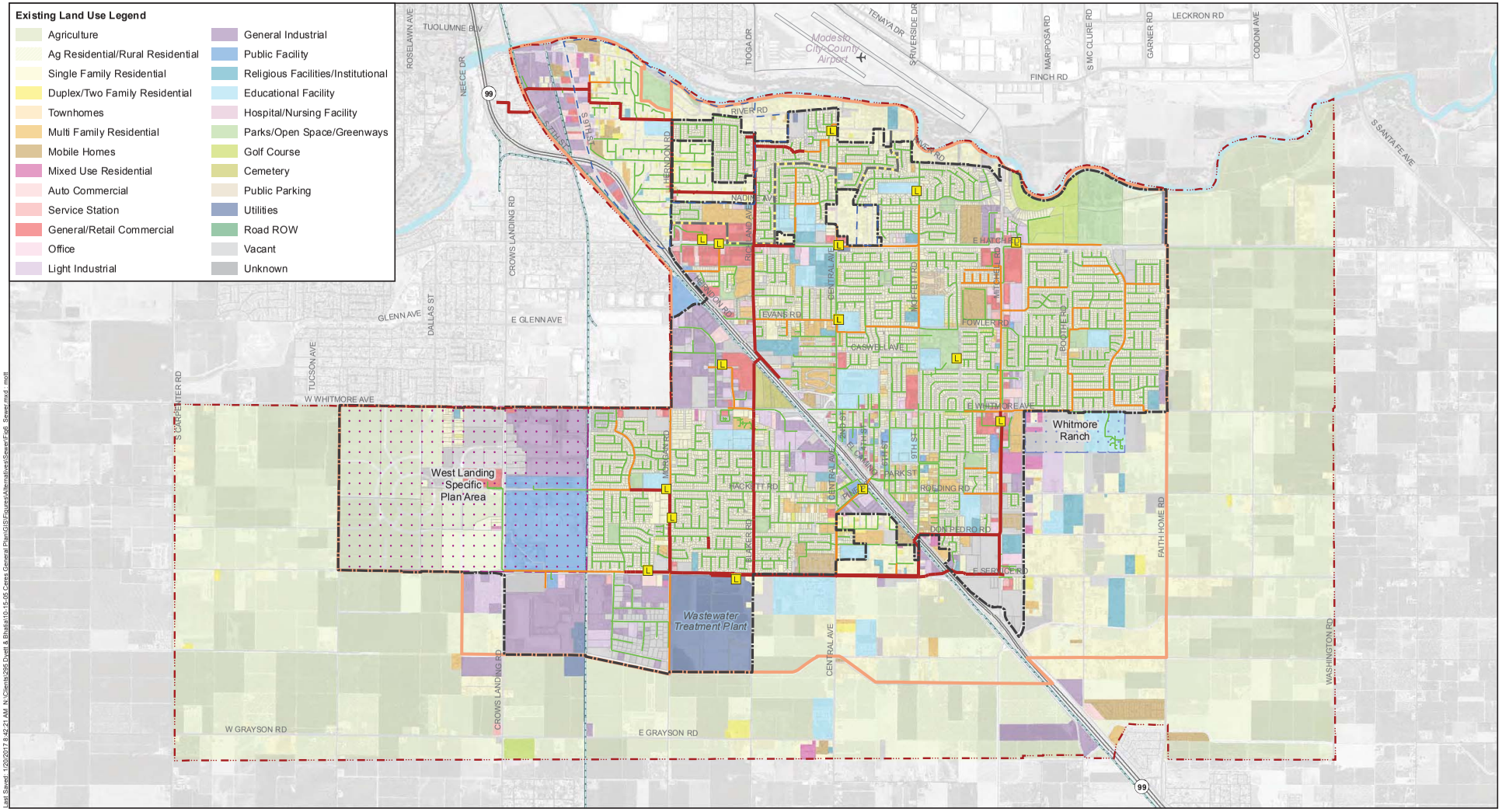


Figure 5

General Plan Land Use Comparison to Alternative 3

Dyett and Bhatia
City of Ceres
General Plan Update



Symbology

- Lift Station
- Airport

Existing City Sewer Mains

- < 10-inch Diameter
- 10 to 12-inch Diameter
- > 12-inch Diameter
- North Sewer Boundary Line
- River
- Railroads
- City Limit
- General Plan Update Planning Limit
- Ceres Sphere of Influence
- Areas Under Consideration for Aquisition
- West Landing Specific Plan Area
- Whitmore Ranch
- Parcels

N

0 1,500 3,000

Scale in Feet

CITY OF CERES — TOGETHER WE ACHIEVE

WEST YOST ASSOCIATES

Figure 6

Existing Sewer System

Dyett and Bhatia
City of Ceres
General Plan Update

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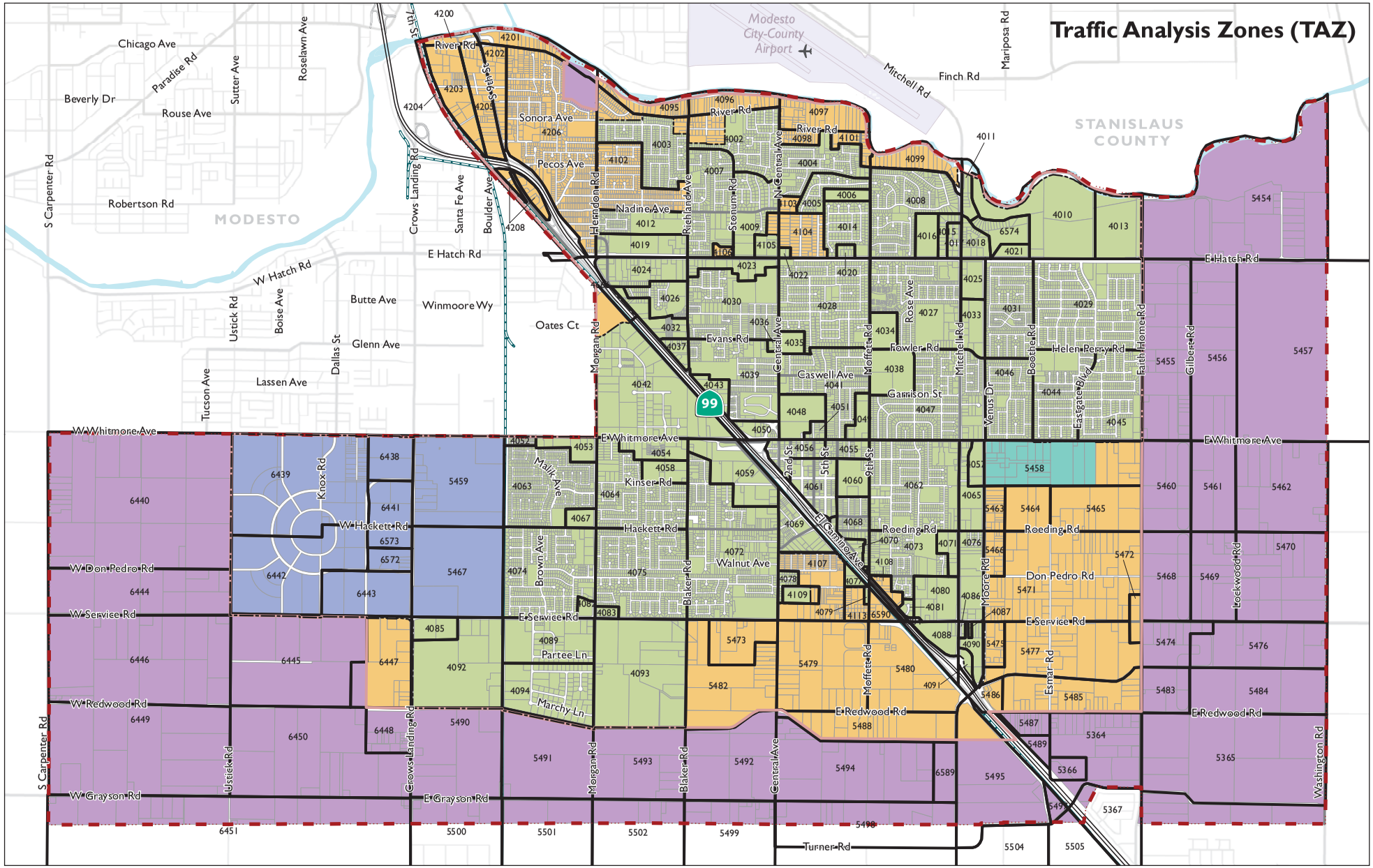
ATTACHMENT A

Land Use Regions

Traffic Analysis Zones (TAZ)



InsideSOI(noWRSP)
OutsideSOI
WestLandingSP
WhitmoreRanchSP
WithinCity(noWLSP)

Traffic Analysis Zones
City of Ceres
Sphere of Influence
Planning Area

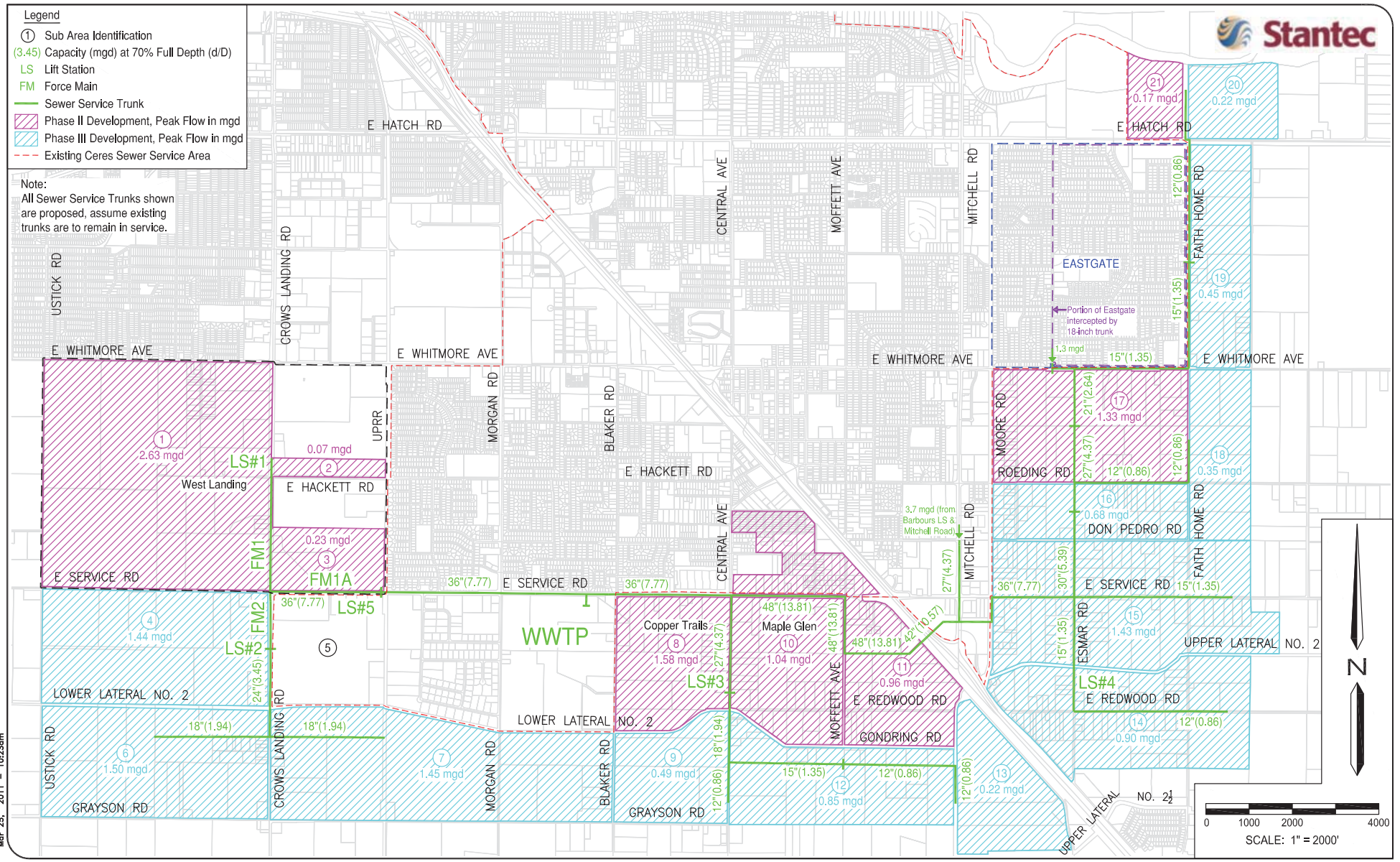
0 0.25 0.5 1
MILES

Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE
City of Ceres

ATTACHMENT B

Trunk Sewer Improvements



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Mar 25, 2011 - 10:23am

Appendix G: Water Evaluation of General Plan Alternatives

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WEST YOST ASSOCIATES
Consulting Engineers

TECHNICAL MEMORANDUM

DATE: February 22, 2017

Project No.: 295-10-15-05.002
SENT VIA: EMAIL

TO: Ella Wise, Dyett and Bhatia

FROM: Polly Boissevain, PE, RCE #36164
Dakari Barksdale, EIT #152133

REVIEWED BY: Elizabeth Drayer, PE, RCE #C46872

SUBJECT: City of Ceres General Plan Update, Land Use Alternatives—Water

This Technical Memorandum (TM) presents an evaluation of the water distribution system infrastructure needed for the three General Plan Update (GPU) Land Use Alternatives (LUAs) for the City of Ceres (City). This TM includes the following sections:

- Land Uses
- Water Demands
- Required Water System Infrastructure
- Water System Infrastructure Costs
- Conclusions

LAND USES

The City's existing land uses are shown on Figure 1. Land uses for buildout of the currently adopted General Plan are shown on Figure 2. The land uses for GPU LUAs 1, 2 and 3 are shown on Figures 3, 4 and 5, respectively. Table 1 summarizes acreages for each of the land use types for existing land uses, General Plan land use, and GPU LUAs 1, 2 and 3 for the areas within the City's GPU Planning Limit. The City's water service area excludes North Ceres and Walnut Manor, which are currently served by the City of Modesto. These areas are shown on the figures, designated as areas under consideration for acquisition.

Table 1 also shows the conversion of land use from gross area to net area, where net area excludes streets and public rights-of-way for the General Plan land use and alternatives. This conversion from gross area to net area was necessary because water use factors, discussed below, were derived from existing parcel information, and represent water use per net acre.

Table 1. Land Uses

Existing Land Uses		Current General Plan				Alternative 1				Alternative 2				Alternative 3			
Land Use Designation	Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres
Inside Current SOI (Excluding Whitmore Ranch Specific Plan) (Note: The Inside Current SOI growth area excludes the area within the current city limit.)																	
Ag Residential/Rural Residential	404.7	Business Park	111.0	0.80	88.8	Business Park	-	0.80	-	Business Park	-	0.80	-	Business Park	-	0.80	-
Agriculture	155.1	Community Commercial	40.8	0.80	32.6	Community Commercial	40.8	0.80	32.6	Community Commercial	40.8	0.80	32.6	Community Commercial	40.8	0.80	32.6
Auto Commercial	19.8	Community Facilities	15.5	0.80	12.4	Community Facilities	15.5	0.80	12.4	Community Facilities	15.5	0.80	12.4	Community Facilities	15.5	0.80	12.4
Duplex/Two Family Residential	30.5	General Industrial	74.6	0.80	59.7	General Industrial	74.6	0.80	59.7	General Industrial	74.6	0.80	59.7	General Industrial	74.6	0.80	59.7
Educational Facility	96.3	High Density Residential	37.8	0.80	30.3	High Density Residential	37.8	0.80	30.3	High Density Residential	16.7	0.80	13.3	High Density Residential	37.8	0.80	30.3
General Industrial	104.7	Highway Commercial	12.5	0.80	10.0	Highway Commercial	12.5	0.80	10.0	Highway Commercial	12.5	0.80	10.0	Highway Commercial	12.5	0.80	10.0
General/Retail Commercial	11.6	Industrial Reserve	76.5	1.00	76.5	Industrial Reserve	76.5	1.00	76.5	Industrial Reserve	76.5	1.00	76.5	Industrial Reserve	76.5	1.00	76.5
Hospital/Nursing Facility	1.5	Light Industrial	48.1	0.80	38.5	Light Industrial	48.1	0.80	38.5	Light Industrial	48.1	0.80	38.5	Light Industrial	48.1	0.80	38.5
Light Industrial	55.0	Low Density Residential	913.8	0.85	776.7	Low Density Residential	913.8	0.85	776.7	Low Density Residential	913.8	0.85	776.7	Low Density Residential	894.6	0.85	760.4
Mixed Use Residential	13.3	Medium Density Residential	157.5	0.80	126.0	Medium Density Residential	157.5	0.80	126.0	Medium Density Residential	157.5	0.80	126.0	Medium Density Residential	157.5	0.80	126.0
Mobile Homes	20.9	Medium High Density Residential	87.0	0.80	69.6	Medium High Density Residential	87.0	0.80	69.6	Medium High Density Residential	83.0	0.80	66.4	Medium High Density Residential	87.0	0.80	69.6
Multi Family Residential	32.5	Neighborhood Commercial	9.9	0.80	7.9	Neighborhood Commercial	9.9	0.80	7.9	Neighborhood Commercial	9.9	0.80	7.9	Neighborhood Commercial	29.0	0.80	23.2
Parks/Open Space/Greenways	2.7	Railroad ROW	7.8	1.00	7.8	Railroad ROW	7.8	1.00	7.8	Railroad ROW	7.8	1.00	7.8	Railroad ROW	7.8	1.00	7.8
Public Facility	15.5	Regional Commercial	-	0.80	-	Regional Commercial	140.3	0.80	112.3	Regional Commercial	91.9	0.80	73.6	Regional Commercial	140.3	0.80	112.3
Religious Facilities/Institutional	55.3	Right of Way	1.7	1.00	1.7	Right of Way	1.7	1.00	1.7	Right of Way	1.7	1.00	1.7	Right of Way	1.7	1.00	1.7
Road ROW	19.3	Schools	95.1	0.80	76.0	Schools	95.1	0.80	76.0	Schools	95.1	0.80	76.0	Schools	95.1	0.80	76.0
Single Family Residential	836.9	Service Commercial	117.2	0.80	93.8	Service Commercial	117.2	0.80	93.8	Service Commercial	190.7	0.80	152.6	Service Commercial	117.2	0.80	93.8
Utilities	2.8	Very Low Density Residential	185.9	0.80	148.7	Very Low Density Residential	185.9	0.80	148.7	Very Low Density Residential	185.9	0.80	148.7	Very Low Density Residential	185.9	0.80	148.7
Vacant	143.5	Commercial Recreation	29.4	0.80	23.5	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-
Subtotal	2,021.9	Subtotal	2,021.9		1,680.4	Subtotal	2,021.9		1,680.4	Subtotal	2,021.9		1,680.4	Subtotal	2,021.9		1,679.4
Outside Current SOI																	
Ag Residential/Rural Residential	2,547.7	Agriculture	3,513.9	0.80	2,811.1	Agriculture	3,513.9	0.80	2,811.1	Agriculture	3,455.2	0.80	2,764.2	Agriculture	3,388.1	0.80	2,710.5
Agriculture	2,616.4	General Industrial	-	0.80	-	General Industrial	-	0.80	-	General Industrial	180.6	0.80	144.5	General Industrial	81.4	0.80	65.2
Auto Commercial	4.6	Highway Commercial	6.8	0.80	5.4	Highway Commercial	6.8	0.80	5.4	Highway Commercial	6.8	0.80	5.4	Highway Commercial	6.8	0.80	5.4
Duplex/Two Family Residential	13.9	Industrial Reserve	508.2	0.80	406.5	Industrial Reserve	508.2	0.80	406.5	Industrial Reserve	447.4	0.80	357.9	Industrial Reserve	853.7	0.80	683.0
Educational Facility	19.6	Low Density Residential	243.2	0.80	194.6	Low Density Residential	243.2	0.80	194.6	Low Density Residential	172.5	0.80	138.0	Low Density Residential	427.6	0.80	342.1
General Industrial	67.4	Medium Density Residential	10.7	0.80	8.5	Medium Density Residential	10.7	0.80	8.5	Medium Density Residential	10.7	0.80	8.5	Medium Density Residential	10.7	0.80	8.5
Golf Course	15.5	Parks	20.1	0.80	16.1	Parks	20.1	0.80	16.1	Parks	20.1	0.80	16.1	Parks	20.1	0.80	16.1
Mixed Use Residential	6.0	Regional Commercial	-	0.80	-	Regional Commercial	145.8	0.80	116.6	Regional Commercial	121.3	0.80	97.1	Regional Commercial	155.3	0.80	124.3
Mobile Homes	46.5	Residential Agriculture	123.3	0.80	98.7	Residential Agriculture	123.3	0.80	98.7	Residential Agriculture	123.3	0.80	98.7	Residential Agriculture	-	0.80	-
Multi Family Residential	8.3	Regional Parks	-	0.80	-	Regional Parks	-	0.80	-	Regional Parks	-	0.80	-	Regional Parks	56.2	0.80	44.9
Parks/Open Space/Greenways	31.0	Residential Reserve	506.9	0.80	405.6	Residential Reserve	506.9	0.80	405.6	Residential Reserve	506.9	0.80	405.6	Residential Reserve	506.9	0.80	405.6
Religious Facilities/Institutional	0.7	Right of Way	11.9	0.80	9.5	Right of Way	11.9	0.80	9.5	Right of Way	11.9	0.80	9.5	Right of Way	11.9	0.80	9.5
Road ROW	1.0	Schools	19.6	0.80	15.7	Schools	19.6	0.80	15.7	Schools	19.6	0.80	15.7	Schools	19.6	0.80	15.7
Service Station	2.2	Service Commercial	9.1	0.80	7.2	Service Commercial	9.1	0.80	7.2	Service Commercial	43.1	0.80	34.5	Service Commercial	9.1	0.80	7.2
Single Family Residential	239.3	Very Low Density Residential	518.5	0.80	414.8	Very Low Density Residential	518.5	0.80	414.8	Very Low Density Residential	518.5	0.80	414.8	Very Low Density Residential	90.6	0.80	72.5
Utilities	10.3	Commercial Recreation	145.8	0.80	116.6	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-	Commercial Recreation	-	0.80	-
Vacant	7.7			0.80	-			0.80	-			0.80	-			0.80	-
Subtotal	5,637.9	Subtotal	5,637.9		4,510.4	Subtotal	5,637.9		4,510.4	Subtotal	5,637.9		4,510.4	Subtotal	5,637.9		4,510.4
West Landing Specific Plan																	
Ag Residential/Rural Residential	136.4	Business Park	72.7	0.80	58.2	Business Park	72.7	0.80	58.2	Business Park	72.7	0.80	58.2	Business Park	72.7	0.80	58.2
Agriculture	320.2	Community Commercial	17.1	0.80	13.7	Community Commercial	17.1	0.80	13.7	Community Commercial	17.1	0.80	13.7	Community Commercial	17.1	0.80	13.7
Duplex/Two Family Residential	0.6	Community Facilities	178.0	0.80	142.4	Community Facilities	178.0	0.80	142.4	Community Facilities	178.0	0.80	142.4	Community Facilities	178.0	0.80	142.4
General Industrial	109.2	General Industrial	127.7	0.80	102.1	General Industrial	127.7	0.80	102.1	General Industrial	127.7	0.80	102.1	General Industrial	127.7	0.80	102.1
General/Retail Commercial	18.9	High Density Residential	26.0	0.80	20.8	High Density Residential	26.0	0.80	20.8	High Density Residential	26.0	0.80	20.8	High Density Residential	26.0	0.80	20.8
Mixed Use Residential	0.7	Low Density Residential	187.5	0.80	150.0	Low Density Residential	187.5	0.80	150.0	Low Density Residential	187.5	0.80	150.0	Low Density Residential	187.5	0.80	150.0
Public Facility	178.0	Medium Density Residential	57.8	0.80	46.2	Medium Density Residential	57.8	0.80	46.2	Medium Density Residential	57.8	0.80	46.2	Medium Density Residential	57.8	0.80	46.2
Religious Facilities/Institutional	1.6	Medium High Density Residential	38.8	0.80	31.1	Medium High Density Residential	38.8	0.80	31.1	Medium High Density Residential	38.8	0.80	31.1	Medium High Density Residential	38.8	0.80	31.1
Single Family Residential	18.8	Neighborhood Commercial	35.4	0.80	28.3	Neighborhood Commercial	35.4	0.80	28.3	Neighborhood Commercial	35.4	0.80	28.3	Neighborhood Commercial	35.4	0.80	28.3
Utilities	0.1	Office	18.4	0.80	14.7	Office	18.4	0.80	14.7	Office	18.4	0.80	14.7	Office	18.4	0.80	14.7
Vacant	92.3	Parks	46.9	0.80	37.5	Parks	46.9	0.80	37.5	Parks	46.9	0.80	37.5	Parks	46.9	0.80	37.5
		Regional Commercial	36.4	0.80	29.1	Regional Commercial	36.4	0.80	29.1	Regional Commercial	36.4	0.80	29.1	Regional Commercial	36.4	0.80	29.1
		Schools	16.0	0.80	12.8	Schools	16.0	0.80	12.8	Schools	16.0	0.80	12.8	Schools	16.0	0.80	12.8
		Very Low Density Residential	18.1	0.80	14.5	Very Low Density Residential	18.1	0.80	14.5	Very Low Density Residential	18.1	0.80	14.5	Very Low Density Residential	18.1	0.80	14.5
Subtotal	876.8	Subtotal	876.8		701.5	Subtotal	876.8		701.5	Subtotal	876.8		701.5	Subtotal	876.8		701.5

Table 1. Land Uses

Existing Land Uses		Current General Plan				Alternative 1				Alternative 2				Alternative 3			
Land Use Designation	Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres	Land Use Designation	Area, acres	Conversion Factor to Net Area	Net Area, acres
Whitmore Ranch Specific Plan																	
Educational Facility	39.4	Low Density Residential	28.9	0.80	23.1	Low Density Residential	28.9	0.80	23.1	Low Density Residential	28.9	0.80	23.1	Low Density Residential	28.9	0.80	23.1
Mixed Use Residential	4.4	Medium Density Residential	12.8	0.80	10.3	Medium Density Residential	12.8	0.80	10.3	Medium Density Residential	12.8	0.80	10.3	Medium Density Residential	12.8	0.80	10.3
Single Family Residential	4.8	Medium High Density Residential	6.0	0.80	4.8	Medium High Density Residential	6.0	0.80	4.8	Medium High Density Residential	6.0	0.80	4.8	Medium High Density Residential	6.0	0.80	4.8
Vacant	46.2	Parks	7.7	0.80	6.2	Parks	7.7	0.80	6.2	Parks	7.7	0.80	6.2	Parks	7.7	0.80	6.2
		Schools	39.4	1.00	39.4	Schools	39.4	1.00	39.4	Schools	39.4	1.00	39.4	Schools	39.4	1.00	39.4
Subtotal	94.8	Subtotal	94.8		83.8	Subtotal	94.8		83.8	Subtotal	94.8		83.8	Subtotal	94.8		83.8
Within Current City Limits (Excluding West Landing Specific Plan)																	
Ag Residential/Rural Residential	61.8	Business Park	23.7	1.00	23.7	Business Park	23.7	1.00	23.7	Business Park	23.7	1.00	23.7	Business Park	23.7	1.00	23.7
Auto Commercial	34.6	Commercial Recreation	55.5	0.90	49.9	Commercial Recreation	55.5	0.90	49.9	Commercial Recreation	55.5	0.90	49.9	Commercial Recreation	55.5	0.90	49.9
Cemetery	22.1	Community Commercial	218.3	1.00	218.3	Community Commercial	218.3	1.00	218.3	Community Commercial	218.3	1.00	218.3	Community Commercial	218.3	1.00	218.3
Duplex/Two Family Residential	38.4	Community Facilities	245.3	0.80	196.3	Community Facilities	245.3	0.80	196.3	Community Facilities	245.3	0.80	196.3	Community Facilities	245.3	0.80	196.3
Educational Facility	203.2	Downtown Mixed Use	13.3	1.00	13.3	Downtown Mixed Use	13.3	1.00	13.3	Downtown Mixed Use	13.3	1.00	13.3	Downtown Mixed Use	13.3	1.00	13.3
General Industrial	324.4	Downtown Office	10.9	1.00	10.9	Downtown Office	10.9	1.00	10.9	Downtown Office	10.9	1.00	10.9	Downtown Office	10.9	1.00	10.9
General/Retail Commercial	173.4	Downtown Residential	27.4	1.00	27.4	Downtown Residential	27.4	1.00	27.4	Downtown Residential	27.4	1.00	27.4	Downtown Residential	27.4	1.00	27.4
Golf Course	65.5	General Industrial	335.2	1.00	335.2	General Industrial	335.2	1.00	335.2	General Industrial	335.2	1.00	335.2	General Industrial	387.7	1.00	387.7
Hospital/Nursing Facility	5.8	High Density Residential	30.3	1.00	30.3	High Density Residential	30.3	1.00	30.3	High Density Residential	30.3	1.00	30.3	High Density Residential	30.3	1.00	30.3
Light Industrial	98.9	Highway Commercial	82.8	1.00	82.8	Highway Commercial	82.8	1.00	82.8	Highway Commercial	82.8	1.00	82.8	Highway Commercial	82.8	1.00	82.8
Mixed Use Residential	13.5	Light Industrial	178.0	1.00	178.0	Light Industrial	178.0	1.00	178.0	Light Industrial	178.0	1.00	178.0	Light Industrial	178.0	1.00	178.0
Mobile Homes	79.5	Low Density Residential	1,626.2	1.00	1,626.2	Low Density Residential	1,626.2	1.00	1,626.2	Low Density Residential	1,626.2	1.00	1,626.2	Low Density Residential	1,626.2	1.00	1,626.2
Multi Family Residential	141.5	Medium Density Residential	332.1	1.00	332.1	Medium Density Residential	332.1	1.00	332.1	Medium Density Residential	332.1	1.00	332.1	Medium Density Residential	332.1	1.00	332.1
Office	39.4	Medium High Density Residential	64.6	1.00	64.6	Medium High Density Residential	64.6	1.00	64.6	Medium High Density Residential	64.6	1.00	64.6	Medium High Density Residential	64.6	1.00	64.6
Parks/Open Space/Greenways	156.3	Neighborhood Commercial	25.8	1.00	25.8	Neighborhood Commercial	25.8	1.00	25.8	Neighborhood Commercial	25.8	1.00	25.8	Neighborhood Commercial	25.8	1.00	25.8
Public Facility	20.9	Office	26.4	1.00	26.4	Office	26.4	1.00	26.4	Office	26.4	1.00	26.4	Office	26.4	1.00	26.4
Public Parking	0.8	Parks	174.1	0.90	156.7	Parks	174.1	0.90	156.7	Parks	174.1	0.90	156.7	Parks	174.1	0.90	156.7
Religious Facilities/Institutional	85.2	Regional Commercial	95.2	1.00	95.2	Regional Commercial	95.2	1.00	95.2	Regional Commercial	95.2	1.00	95.2	Regional Commercial	95.2	1.00	95.2
Road ROW	1.1	Right of Way	1.1	1.00	1.1	Right of Way	1.1	1.00	1.1	Right of Way	1.1	1.00	1.1	Right of Way	1.1	1.00	1.1
Service Station	11.4	Schools	158.0	1.00	158.0	Schools	158.0	1.00	158.0	Schools	158.0	1.00	158.0	Schools	158.0	1.00	158.0
Single Family Residential	1,821.2	Service Commercial	39.8	1.00	39.8	Service Commercial	39.8	1.00	39.8	Service Commercial	39.8	1.00	39.8	Service Commercial	39.8	1.00	39.8
Townhomes	13.7	Very Low Density Residential	196.5	0.90	176.8	Very Low Density Residential	196.5	0.90	176.8	Very Low Density Residential	196.5	0.90	176.8	Very Low Density Residential	144.0	0.90	129.6
Utilities	204.5																
Vacant	343.3																
Subtotal	3,960.3	Subtotal	3,960.5		3,868.9	Subtotal	3,960.5		3,868.9	Subtotal	3,960.5		3,868.9	Subtotal	3,960.5		3,874.1
Grand Total	12,591.8	**Grand Total**	12,592.0		10,844.8	**Grand Total**	12,592.0		10,844.8	**Grand Total**	12,592.0		10,844.8	**Grand Total**	12,592.0		10,849.1

WATER DEMANDS

This section summarizes average day, maximum day and peak hour water demands for the potable water system for existing conditions, buildout of the current General Plan, and the GPU LUAs. The City does not currently use recycled water, but did required the installation of recycled water piping in the West Landing Specific Plan Area. The City will be investigating the potential use of recycled water in the future, but recycled water is not included in this evaluation.

Average Day Demands

Table 2 presents the average day water demand factors used for existing and future land use scenarios. Water demand factors developed for the City's 2011 Water Master Plan (WMP) were used as a starting point for calculating existing and future demands. Water demand factors in the WMP were based on 2007 use. The economic downturn, the drought, metering of residential customers and ongoing conservation programs have reduced water use significantly for the City. Water demand factors for existing land uses were adjusted uniformly to match 2016 service area water use, which was 3,800 acre-feet/year, with a per capita water use of 72 gallons per capita per day (gpcd) for an estimated current service area population of 47,600. Water use factors for future scenarios were adjusted based on a projected future service area population of 96,000 people and a conservative per capita use of 125 gpcd, based on input from the City.[1]

Table 3 presents the estimated annual water use, in acre-feet/year (AFY), and the corresponding average day water demand, in million gallons per day (mgd) for existing land uses, buildout land uses and GPU LUAs. The average day demand is the annual water use divided by 365 days per year, and converted to mgd.

Water use calculations were initially made using all land use within the City's GPU Planning Limit, and then deducting water demands in North Ceres and Walnut Manor (1.23 mgd and 0.06 mgd, respectively) from these totals. Water use for North Ceres and Walnut Manor is based on historical well production from the City of Modesto for wells serving these areas, and is not expected to increase in the future, as these areas are essentially built out.

The current General Plan and GPU LUA average day water demands differ from each other by less than 0.3 percent. For purposes of this potable water evaluation, this level of difference is less than significant.

Maximum Day and Peak Hour Demands and Fire Flows

Maximum day and peak hour water demands and fire flow requirements are used for sizing water storage reservoirs. Peak hour water demands and maximum day demands plus fire flow requirements are used for sizing water distribution system piping.

The maximum day demands and peak hour demands were estimated by multiplying the average day demands by the appropriate peaking factor. The peaking factors used in this TM are based on peaking

[1] The service area population of 96,000 people is based projections developed for the 2011 Water Master Plan. The required potable water infrastructure analyzed in this memorandum for each General Plan land use alternative is based on land use and is not expected to be impacted by differences in buildout population, since infrastructure sizing will depend on fire flow requirements associated with the different land uses.

factors used in the 2011 WMP. Maximum day demand is 1.8 times average day demand and peak hour demand is 2.9 times average day demand. The maximum day demands and the peak hour demands are presented in the bottom portion of Table 3.

Table 2 Water Demand Factors

Existing Land Use Demand Factors		Future Land Use Demand Factors	
Existing Land Uses	Demand Factor, gpd/net acre	Future Land Uses	Demand Factor, gpd/net acre
Ag Residential/Rural Residential	-	Agriculture	-
Agriculture	-	Business Park	1,237
Auto Commercial	887	Commercial Recreation	1,237
Cemetery	1,689	Community Commercial	1,237
Duplex/Two Family Residential	1,224	Community Facilities	884
Educational Facility	633	Downtown Mixed Use	2,533
General Industrial	844	Downtown Office	1,237
General/Retail Commercial	887	Downtown Residential	2,533
Golf Course	1,689	General Industrial	1,178
Hospital/Nursing Facility	633	High Density Residential	2,533
Light Industrial	844	Highway Commercial	1,237
Mixed Use Residential	1,816	Industrial Reserve	177
Mobile Homes	1,224	Light Industrial	1,178
Multi-Family Residential	1,224	Low Density Residential	1,944
Office	887	Medium Density Residential	1,709
Parks/Open Space/Greenways	1,689	Medium High Density Residential	2,533
Public Facility	633	Neighborhood Commercial	1,237
Public Parking	-	Office	1,237
Religious Facilities/Institutional	844	Parks	2,357
Road ROW	-	Railroad ROW	-
Service Station	887	Regional Commercial	1,237
Single Family Residential	1,393	Regional Parks	2,357
Townhomes	1,224	Residential Agriculture	1,768
Utilities	633	Residential Reserve	-
Vacant	-	Right of Way	-
		Schools	884
		Service Commercial	1,237
		Very Low Density Residential	1,944

Notes:
1) Demand factors were developed from the 2011 Ceres Water Master Plan and adjusted to reflect reductions in water use based on the downturn in the economy, the drought, residential customer metering, and ongoing conservation. Existing land use factors are based on current per capita water use of 72 gallons/capita/day (gpcd); future scenarios use 125 gpcd.
2) The industrial reserve demand factor was reduced to 10 percent of the industrial demand factor to account for the projection that only about 10 percent of the total industrial reserve land use areas would develop for each land use alternative.
3) The residential reserve demand factor was reduced to zero to account for the projection that none of the residential reserve land use areas would develop for each land use alternative.

Table 3. Average Day, Maximum Day and Peak Hour Water Use for GPU Land Use Alternatives

	Land Use Scenarios				
	Existing	Currently Adopted General Plan Land Use	Alternative 1 Land Use	Alternative 2 Land Use	Alternative 3 Land Use
Annual Demand, AFY[(a)]	6,062	12,041	12,041	12,080	11,643
Average Day Demand, mgd[(b)]	5.41	10.75	10.75	10.78	10.39
Maximum Day Demand, mgd[(c)]	9.74	19.35	19.35	19.41	18.71
Peak Hour Demand, mgd[(d)]	15.69	31.17	31.17	31.27	30.14

(a) Based on land uses in Table 1 and water demand factors in Table 2. Totals reduced by 1,447 AFY, the average annual demand for North Ceres and Walnut Manor.
(b) Average daily demand equals annual water use divided by 365 days/year, and converted to mgd.
(c) 1.8 times average daily water use, as estimated in the City's 2011 WMP.
(d) 2.9 times average daily water use, as estimated in the City's 2011 WMP.

Fire flow requirements vary for different land use types. The 2011 WMP used fire flows of 1,500 to 2,000 gpm for residential land uses, 2,750 gpm to 3,000 gpm for commercial/office and 3,500 to 4,000 gpm for industrial uses. For commercial and industrial land uses, the lower requirement assumes sprinklered buildings, and the higher requirement assumes non-sprinklered buildings.

REQUIRED WATER SYSTEM INFRASTRUCTURE

Figure 6 summarizes required water infrastructure for the General Plan Land Use and land use alternatives. Required water infrastructure for the General Plan Land Use was developed in the 2011 WMP and then further refined as part of Ceres' participation in the Stanislaus Regional Water Authority (SRWA) Surface Water Supply Project. The figure shows only pipelines that are 10-inch diameter and larger.

The required major water infrastructure for the GPU LUAs will be similar for each alternative. Since the total water demands for each GPU LUA are essentially the same, the required tanks, booster pump stations, and wells will be the same. Where land use alternatives include industrial land uses that are not in the General Plan, it is assumed that transmission pipelines serving those areas would be sized at 16-inch diameter, rather than 12-inch diameter, because of higher fire flow requirements for industrial uses, compared with residential or commercial land uses. The required water infrastructure shown on Figure 6 (with GPU LUA 1 land uses) includes:

- Planned SRWA Surface Water Project Water Treatment Plant
- Planned SRWA Surface Water Project Transmission Main
- Future wells
- Future storage reservoirs
- Future water distribution system transmission pipelines

The required water infrastructure should be confirmed through the preparation of an update of the City's WMP when the GPU land uses have been finalized and adopted.

WATER SYSTEM INFRASTRUCTURE COSTS

The construction and capital costs of the major water distribution system infrastructure are shown in Table 4.[2] Costs are presented in December 2016 dollars based on an Engineering News Record Construction Cost Index (ENR CCI) of 10,530 (20 Cities Average). Costs are listed for each of the GPU LUAs. Costs are highest for GPU LUA 3 because of the larger diameter pipelines required to serve the parcels designated for industrial use in the southeastern portion of the City. In addition to these major water infrastructure costs, there would be additional costs for the water distribution systems within the growth areas.

Approximate water infrastructure unit costs are discussed below:

- The City's recent Central Avenue Transmission Project was used to determine pipe unit costs for this TM. The project included 10,500 feet of 16-inch diameter ductile iron pipe, with a construction cost of $1.908 million. The unit cost for that project is approximately $11.40 per inch-diameter per foot. For this TM a construction cost of approximately $14 per inch-diameter per foot was used.
- The unit price for wells is based on the City's 2011 WMP, which used a construction cost of approximately $940,000 per well. This was escalated to a construction cost of $1,100,000 per well.
- Storage costs (including booster pump station at the tanks) were developed as a part of the SRWA Surface Water Supply Project.
- The 40 percent implementation multiplier, for engineering, environmental, administration, construction management, etc, is from West Yost Associates' experience with similar, typical projects.

Infrastructure costs and costs per acre are discussed below:

- LUA 1 – The estimated construction cost for the water infrastructure for LUA 1 is $76.5 million, and the estimated total capital cost is $111.0 million.

[2] Costs for the SRWA Surface Water Supply Project Water Treatment Plant and transmission pipeline are not included, but would be the same for all alternatives.

- LUA 2 – The estimated construction cost for the water infrastructure for LUA 2 is $77.2 million, and the estimated total capital cost is $112.1 million.
- LUA 3 – The estimated construction cost for the water infrastructure for LUA 3 is $78.7 million, and the estimated total capital cost is $114.2 million.

These preliminary water infrastructure cost estimates should be verified through the preparation of a City-wide water master plan or through development of water plans for the individual development regions or individual development projects.

CONCLUSIONS

Water system infrastructure conclusions are provided below:

- All LUA have very similar costs, since water system infrastructure is the same except for alternatives where industrial development is planned that is commercial or residential in other alternatives. Differences between the three alternatives is less than three percent.
- LUA 1 has a slightly lower cost than other alternatives. This is because LUA 1 has more residential and less industrial and commercial areas than LUAs 2 and 3.
- LUA 3 has slightly higher infrastructure costs ($114.2M compared with $111.0M for LUA 1 and $112.1M for LUA 2). This is because LUA 3 requires pipelines to be installed to serve the industrial reserve area in the southeastern part of the City.
- LUA 2 requires slightly more large-diameter pipelines (pipeline diameter greater than 12 inches), because it has the largest areas of high intensity land uses such as General Industrial and Service Commercial.

The land uses for the Whitmore Ranch Specific Plan are the same for all the LUAs, resulting in identical water infrastructure requirements and associated costs for each LUA for Whitmore Ranch.

Table 4. General Plan Land Use and Alternative Distribution System Infrastructure Costs[a]		
CIP ID	Estimated Construction Cost, dollars[b]	Capital Cost, dollars (includes mark-ups)[c]
General Plan Land Use		
Pipelines[d]	47,700,000	69,200,000
Wells	7,700,000	11,200,000
Storage Reservoirs[e]	21,100,000	30,600,000
Total	$76,500,000	$111,000,000
General Plan Land Use Alternative 1		
Pipelines[d]	47,700,000	69,200,000
Wells	7,700,000	11,200,000
Storage Reservoirs[e]	21,100,000	30,600,000
Total	$76,500,000	$111,000,000
General Plan Land Use Alternative 2		
Pipelines[d]	48,400,000	70,300,000
Wells	7,700,000	11,200,000
Storage Reservoirs[e]	21,100,000	30,600,000
Total	$77,200,000	$112,100,000
General Plan Land Use Alternative 3		
Pipelines[d]	49,900,000	72,400,000
Wells	7,700,000	11,200,000
Storage Reservoirs[e]	21,100,000	30,600,000
Total	$78,700,000	$114,200,000

[a] Costs shown are based on the December 2016 20 Cities ENR CCI 10,530.

[b] Total rounded to nearest $1000. Costs include base construction costs plus 25 percent construction contingency.

[c] Capital Costs computed as total construction cost plus 40 percent for implementation, including administration, design, construction management, and CEQA compliance.

[d] Future pipelines 10-inch diameters and larger.

[e] Includes booster pump station.

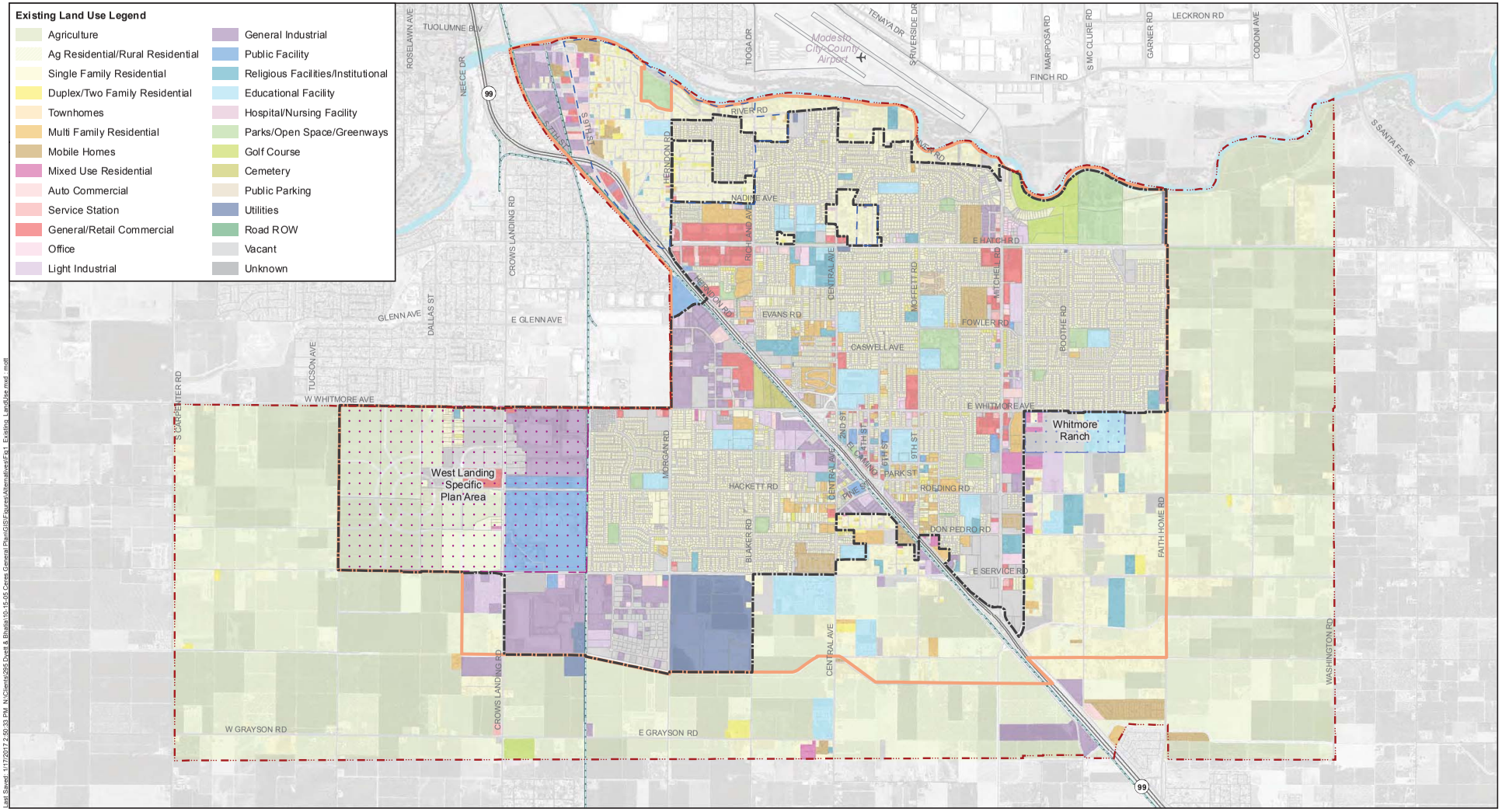

Figure 1

Existing Land Use

Dyett and Bhatia
City of Ceres
General Plan Update

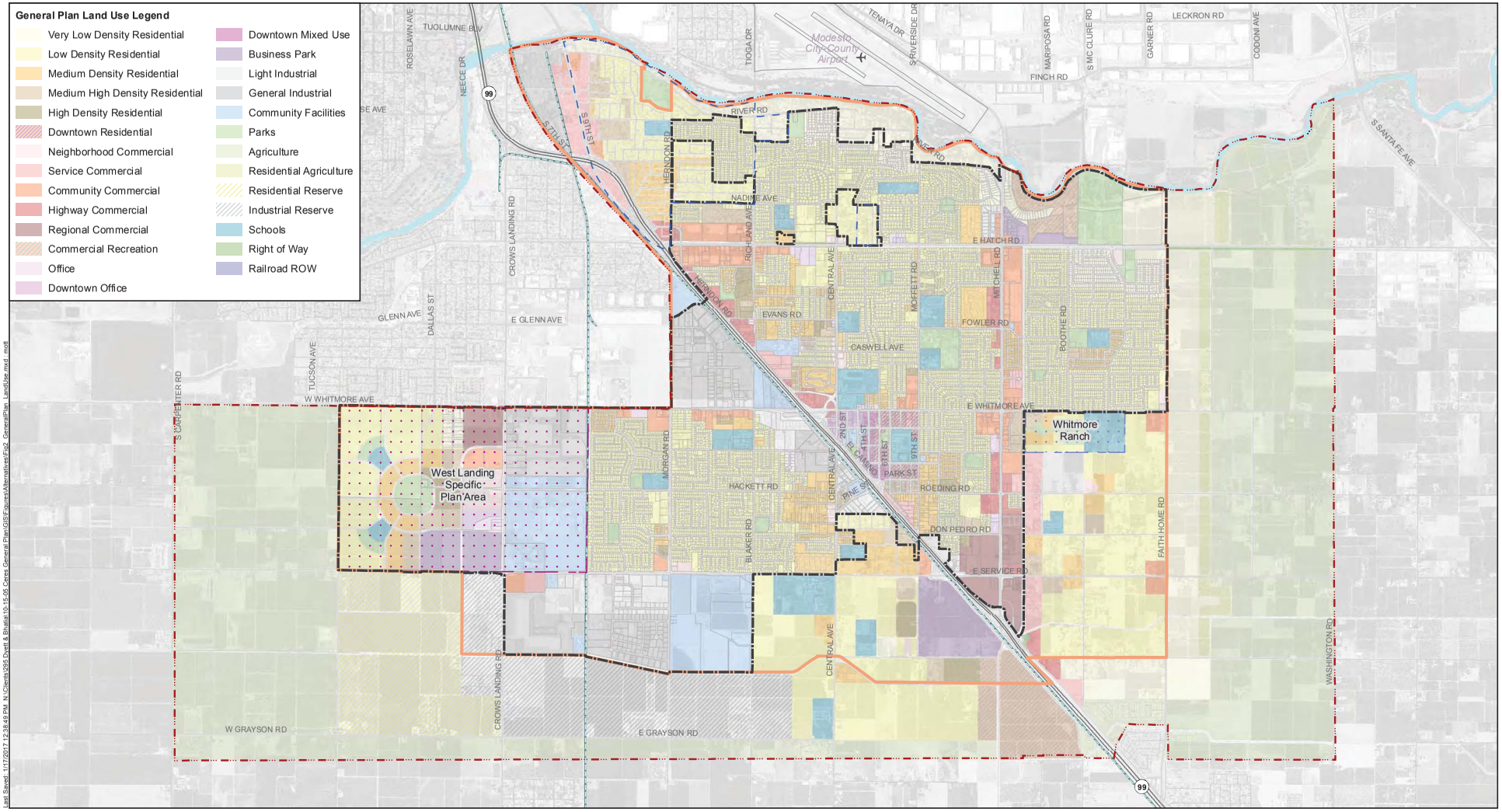

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Figure 2

General Plan Land Use

Dyett and Bhatia
City of Ceres
General Plan Update

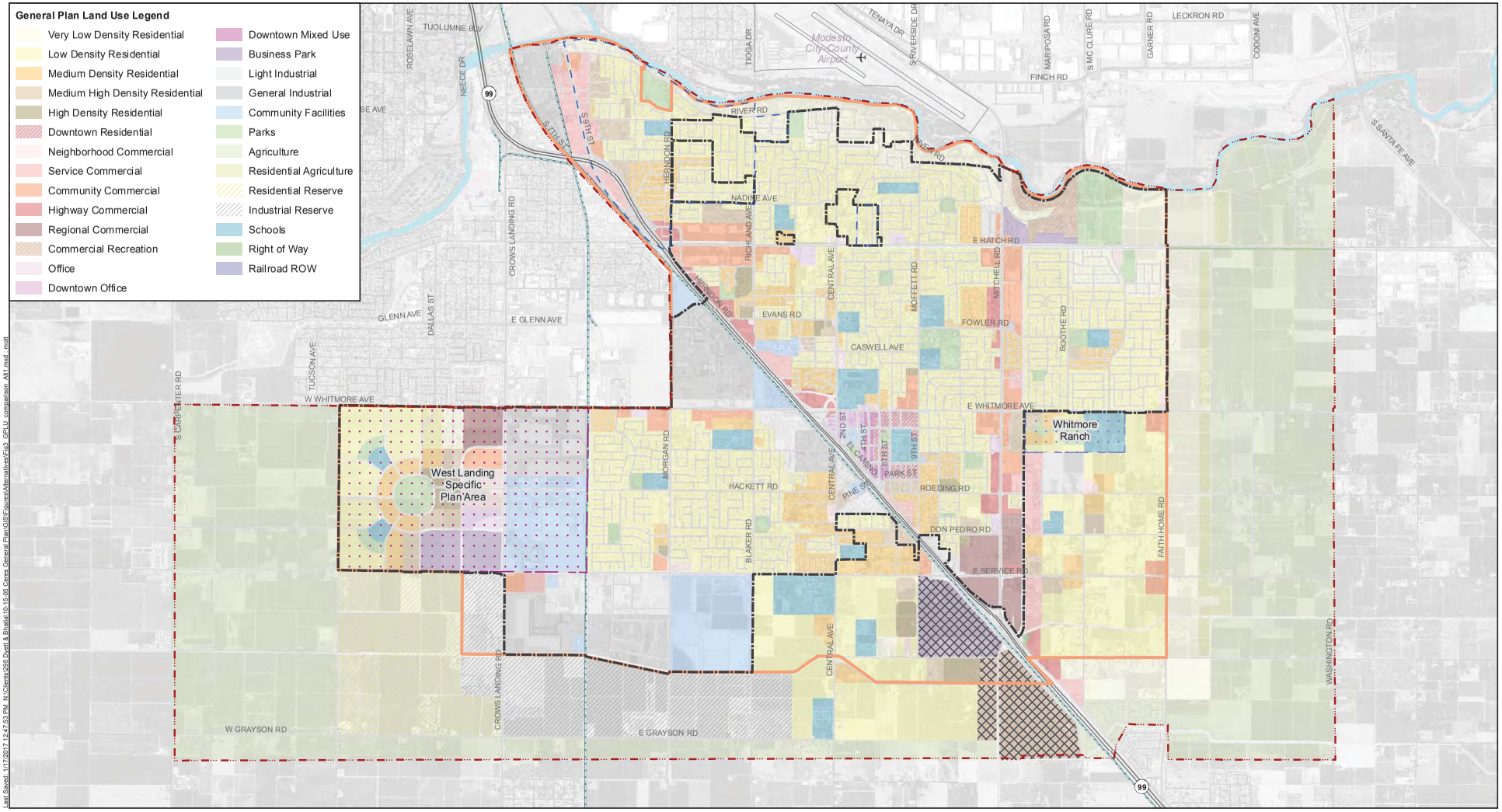
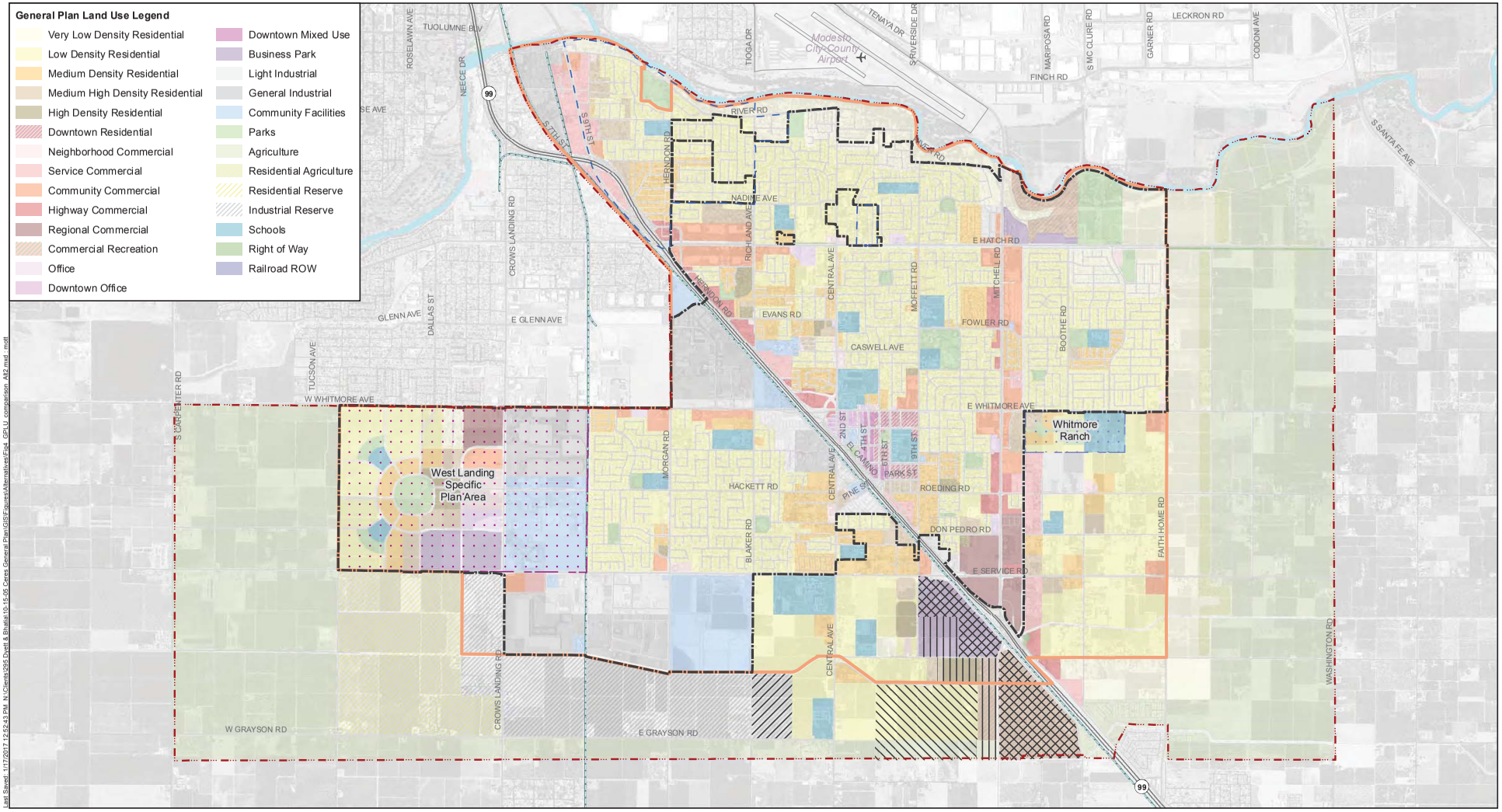


Figure 3

General Plan Land Use Comparison to Alternative 1

Dyett and Bhatia
City of Ceres
General Plan Update



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CITY OF CERES
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WEST YOST ASSOCIATES

Figure 4

General Plan Land Use Comparison to Alternative 2

Dyett and Bhatia
City of Ceres
General Plan Update

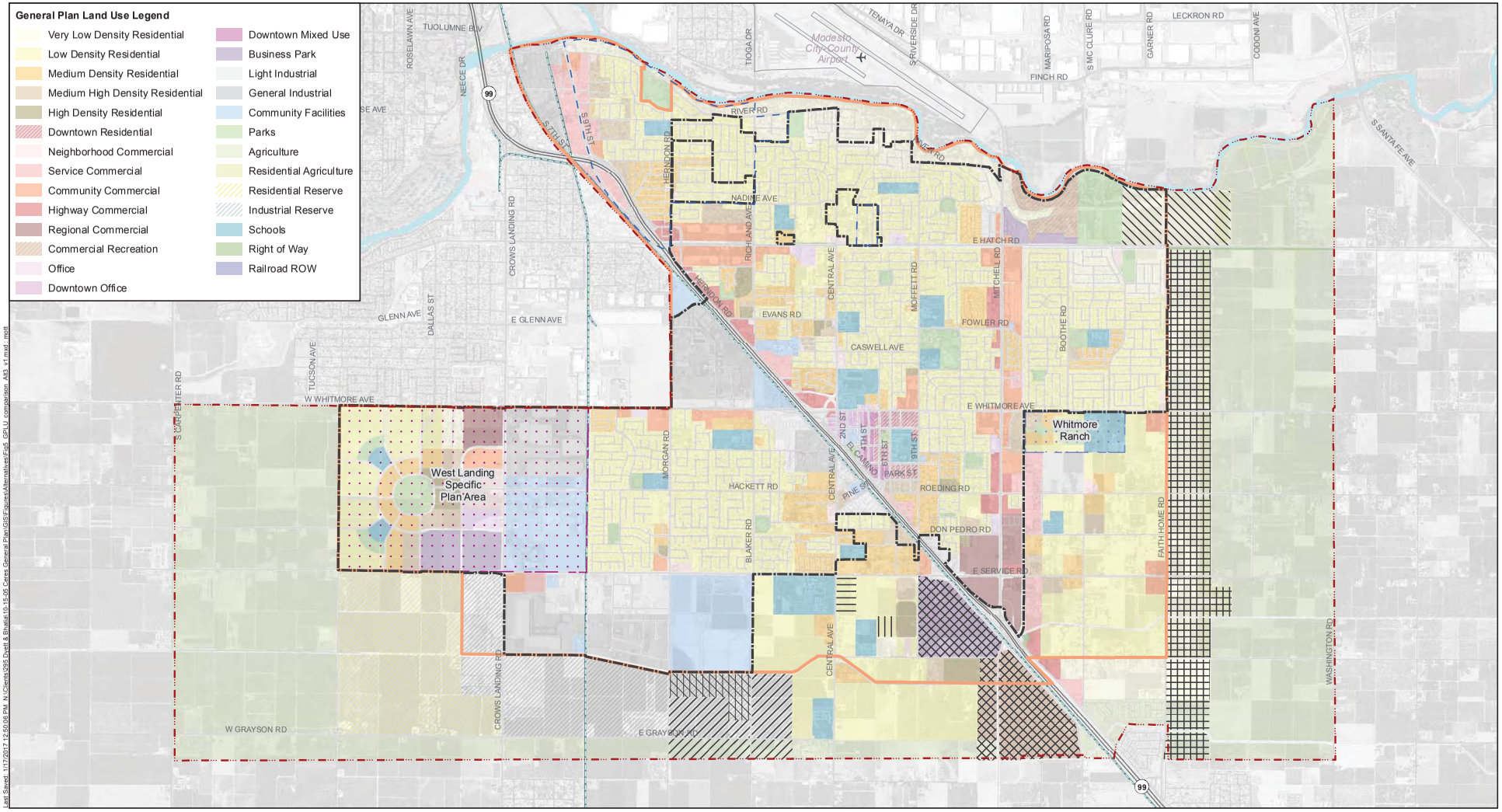

Figure 5

General Plan Land Use Comparison to Alternative 3

Dyett and Bhatia
City of Ceres
General Plan Update

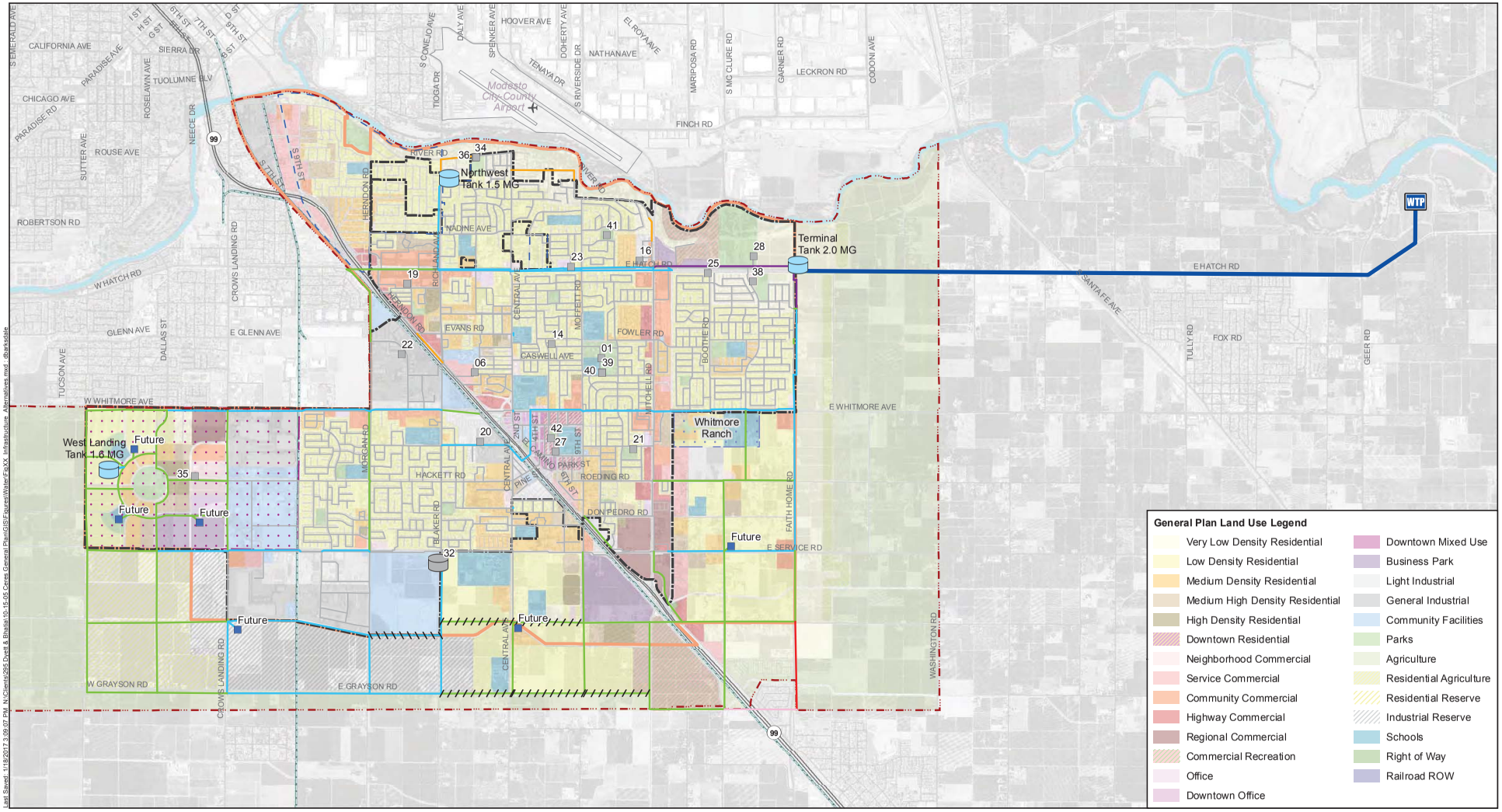

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Figure 6

Infrastructure Alternatives for Water System

Dyett and Bhatia
City of Ceres
General Plan Update

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Appendix H: Stormwater Evaluation of General Plan Alternatives

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WEST YOST ASSOCIATES
Consulting Engineers

TECHNICAL MEMORANDUM

DATE: February 21, 2017 Project No.: 295-10-15-05.002
SENT VIA: EMAIL

TO: Ella Wise, Dyett & Bhatia

FROM: Doug Moore, PE, RCE #C58122

REVIEWED BY: Mark Kubik, PE, RCE #C50963
Elizabeth Drayer, PE, RCE #C46872

SUBJECT: City of Ceres General Plan Update, Land Use Alternatives—Stormwater

Presented in this Technical Memorandum (TM) is an evaluation of the stormwater infrastructure needed for the three General Plan Update (GPU) Land Use Alternatives (LUAs) for the City of Ceres (City). This TM includes the following sections:

- Land Uses
- Stormwater Design Criteria
- Stormwater Evaluation Assumptions
- Required Stormwater Infrastructure
- Stormwater Infrastructure Costs
- Conclusions

LAND USES

The City's existing land uses are shown on Figure 1 and summarized in Table 1. Land uses for buildout of the current General Plan are shown on Figure 2 and summarized in Table 1. The land uses for the GPU LUAs 1, 2 and 3 are shown on Figures 3, 4 and 5, respectively. The land uses for the GPU LUAs 1, 2 and 3 are also summarized in Table 1. The land use data (e.g., GIS mapping and gross area data) were provided by Dyett and Bhatia. The land use regions are shown in Attachment 1, also received from Dyett and Bhatia.

STORMWATER DESIGN CRITERIA

The stormwater improvements evaluated in this TM include trunk storm drain pipelines, detention storage basins, and pump stations that lift the runoff from the basins into the receiving channels. These facilities have been preliminarily sized as discussed below. The sizing is based on the requirements identified in *Stanislaus County Department of Public Works, Standards and Specifications* (2014 Edition, County Standards).

Table 1. Land Uses

Existing Land Uses		Current General Plan		Alternative 1		Alternative 2		Alternative 3	
Land Use Designation	Area, acres	Land Use Designation	Area, acres	Land Use Designation	Area, acres	Land Use Designation	Area, acres	Land Use Designation	Area, acres
Inside Current SOI (Excluding Whitmore Ranch Specific Plan) (Note: The Inside Current SOI growth area excludes the area within the current city limit.)									
Ag Residential/Rural Residential	404.7	Business Park	111.0	Business Park	-	Business Park	-	Business Park	-
Agriculture	155.1	Community Commercial	40.8	Community Commercial	40.8	Community Commercial	40.8	Community Commercial	40.8
Auto Commercial	19.8	Community Facilities	15.5	Community Facilities	15.5	Community Facilities	15.5	Community Facilities	15.5
Duplex/Two Family Residential	30.5	General Industrial	74.6	General Industrial	74.6	General Industrial	74.6	General Industrial	74.6
Educational Facility	96.3	High Density Residential	37.8	High Density Residential	37.8	High Density Residential	16.7	High Density Residential	37.8
General Industrial	104.7	Highway Commercial	12.5	Highway Commercial	12.5	Highway Commercial	12.5	Highway Commercial	12.5
General/Retail Commercial	11.6	Industrial Reserve	76.5	Industrial Reserve	76.5	Industrial Reserve	76.5	Industrial Reserve	76.5
Hospital/Nursing Facility	1.5	Light Industrial	48.1	Light Industrial	48.1	Light Industrial	48.1	Light Industrial	48.1
Light Industrial	55.0	Low Density Residential	913.8	Low Density Residential	913.8	Low Density Residential	913.8	Low Density Residential	894.6
Mixed Use Residential	13.3	Medium Density Residential	157.5	Medium Density Residential	157.5	Medium Density Residential	157.5	Medium Density Residential	157.5
Mobile Homes	20.9	Medium High Density Residential	87.0	Medium High Density Residential	87.0	Medium High Density Residential	83.0	Medium High Density Residential	87.0
Multi Family Residential	32.5	Neighborhood Commercial	9.9	Neighborhood Commercial	9.9	Neighborhood Commercial	9.9	Neighborhood Commercial	29.0
Parks/Open Space/Greenways	2.7	Railroad ROW	7.8	Railroad ROW	7.8	Railroad ROW	7.8	Railroad ROW	7.8
Public Facility	15.5	Regional Commercial	-	Regional Commercial	140.3	Regional Commercial	91.9	Regional Commercial	140.3
Religious Facilities/Institutional	55.3	Right of Way	1.7	Right of Way	1.7	Right of Way	1.7	Right of Way	1.7
Road ROW	19.3	Schools	95.1	Schools	95.1	Schools	95.1	Schools	95.1
Single Family Residential	836.9	Service Commercial	117.2	Service Commercial	117.2	Service Commercial	190.7	Service Commercial	117.2
Utilities	2.8	Very Low Density Residential	185.9	Very Low Density Residential	185.9	Very Low Density Residential	185.9	Very Low Density Residential	185.9
Vacant	143.5	Commercial Recreation	29.4	Commercial Recreation	-	Commercial Recreation	-	Commercial Recreation	-
Subtotal	2,021.9	Subtotal	2,021.9	Subtotal	2,021.9	Subtotal	2,021.9	Subtotal	2,021.9
Outside Current SOI									
Ag Residential/Rural Residential	2,547.7	Agriculture	3,513.9	Agriculture	3,513.9	Agriculture	3,455.2	Agriculture	3,388.1
Agriculture	2,616.4	General Industrial	-	General Industrial	-	General Industrial	180.6	General Industrial	81.4
Auto Commercial	4.6	Highway Commercial	6.8	Highway Commercial	6.8	Highway Commercial	6.8	Highway Commercial	6.8
Duplex/Two Family Residential	13.9	Industrial Reserve	508.2	Industrial Reserve	508.2	Industrial Reserve	447.4	Industrial Reserve	853.7
Educational Facility	19.6	Low Density Residential	243.2	Low Density Residential	243.2	Low Density Residential	172.5	Low Density Residential	427.6
General Industrial	67.4	Medium Density Residential	10.7	Medium Density Residential	10.7	Medium Density Residential	10.7	Medium Density Residential	10.7
Golf Course	15.5	Parks	20.1	Parks	20.1	Parks	20.1	Parks	20.1
Mixed Use Residential	6.0	Regional Commercial	-	Regional Commercial	145.8	Regional Commercial	121.3	Regional Commercial	155.3
Mobile Homes	46.5	Residential Agriculture	123.3	Residential Agriculture	123.3	Residential Agriculture	123.3	Residential Agriculture	-
Multi Family Residential	8.3	Regional Parks	-	Regional Parks	-	Regional Parks	-	Regional Parks	56.2
Parks/Open Space/Greenways	31.0	Residential Reserve	506.9	Residential Reserve	506.9	Residential Reserve	506.9	Residential Reserve	506.9
Religious Facilities/Institutional	0.7	Right of Way	11.9	Right of Way	11.9	Right of Way	11.9	Right of Way	11.9
Road ROW	1.0	Schools	19.6	Schools	19.6	Schools	19.6	Schools	19.6
Service Station	2.2	Service Commercial	9.1	Service Commercial	9.1	Service Commercial	43.1	Service Commercial	9.1
Single Family Residential	239.3	Very Low Density Residential	518.5	Very Low Density Residential	518.5	Very Low Density Residential	518.5	Very Low Density Residential	90.6
Utilities	10.3	Commercial Recreation	145.8	Commercial Recreation	-	Commercial Recreation	-	Commercial Recreation	-
Vacant	7.7								
Subtotal	5,637.9	Subtotal	5,637.9	Subtotal	5,637.9	Subtotal	5,637.9	Subtotal	5,637.9
West Landing Specific Plan									
Ag Residential/Rural Residential	136.4	Business Park	72.7	Business Park	72.7	Business Park	72.7	Business Park	72.7
Agriculture	320.2	Community Commercial	17.1	Community Commercial	17.1	Community Commercial	17.1	Community Commercial	17.1
Duplex/Two Family Residential	0.6	Community Facilities	178.0	Community Facilities	178.0	Community Facilities	178.0	Community Facilities	178.0
General Industrial	109.2	General Industrial	127.7	General Industrial	127.7	General Industrial	127.7	General Industrial	127.7
General/Retail Commercial	18.9	High Density Residential	26.0	High Density Residential	26.0	High Density Residential	26.0	High Density Residential	26.0
Mixed Use Residential	0.7	Low Density Residential	187.5	Low Density Residential	187.5	Low Density Residential	187.5	Low Density Residential	187.5
Public Facility	178.0	Medium Density Residential	57.8	Medium Density Residential	57.8	Medium Density Residential	57.8	Medium Density Residential	57.8
Religious Facilities/Institutional	1.6	Medium High Density Residential	38.8	Medium High Density Residential	38.8	Medium High Density Residential	38.8	Medium High Density Residential	38.8
Single Family Residential	18.8	Neighborhood Commercial	35.4	Neighborhood Commercial	35.4	Neighborhood Commercial	35.4	Neighborhood Commercial	35.4
Utilities	0.1	Office	18.4	Office	18.4	Office	18.4	Office	18.4
Vacant	92.3	Parks	46.9	Parks	46.9	Parks	46.9	Parks	46.9
		Regional Commercial	36.4	Regional Commercial	36.4	Regional Commercial	36.4	Regional Commercial	36.4
		Schools	16.0	Schools	16.0	Schools	16.0	Schools	16.0
		Very Low Density Residential	18.1	Very Low Density Residential	18.1	Very Low Density Residential	18.1	Very Low Density Residential	18.1
Subtotal	876.8	Subtotal	876.8	Subtotal	876.8	Subtotal	876.8	Subtotal	876.8
Whitmore Ranch Specific Plan									
Educational Facility	39.4	Low Density Residential	28.9	Low Density Residential	28.9	Low Density Residential	28.9	Low Density Residential	28.9
Mixed Use Residential	4.4	Medium Density Residential	12.8	Medium Density Residential	12.8	Medium Density Residential	12.8	Medium Density Residential	12.8
Single Family Residential	4.8	Medium High Density Residential	6.0	Medium High Density Residential	6.0	Medium High Density Residential	6.0	Medium High Density Residential	6.0
Vacant	46.2	Parks	7.7	Parks	7.7	Parks	7.7	Parks	7.7
		Schools	39.4	Schools	39.4	Schools	39.4	Schools	39.4
Subtotal	94.8	Subtotal	94.8	Subtotal	94.8	Subtotal	94.8	Subtotal	94.8
Within Current City Limits (Excluding West Landing Specific Plan)									
Ag Residential/Rural Residential	61.8	Business Park	23.7	Business Park	23.7	Business Park	23.7	Business Park	23.7
Auto Commercial	34.6	Commercial Recreation	55.5	Commercial Recreation	55.5	Commercial Recreation	55.5	Commercial Recreation	55.5
Cemetery	22.1	Community Commercial	218.3	Community Commercial	218.3	Community Commercial	218.3	Community Commercial	218.3
Duplex/Two Family Residential	38.4	Community Facilities	245.3	Community Facilities	245.3	Community Facilities	245.3	Community Facilities	245.3
Educational Facility	203.2	Downtown Mixed Use	13.3	Downtown Mixed Use	13.3	Downtown Mixed Use	13.3	Downtown Mixed Use	13.3
General Industrial	324.4	Downtown Office	10.9	Downtown Office	10.9	Downtown Office	10.9	Downtown Office	10.9
General/Retail Commercial	173.4	Downtown Residential	27.4	Downtown Residential	27.4	Downtown Residential	27.4	Downtown Residential	27.4
Golf Course	65.5	General Industrial	335.2	General Industrial	335.2	General Industrial	335.2	General Industrial	387.7
Hospital/Nursing Facility	5.8	High Density Residential	30.3	High Density Residential	30.3	High Density Residential	30.3	High Density Residential	30.3
Light Industrial	98.9	Highway Commercial	82.8	Highway Commercial	82.8	Highway Commercial	82.8	Highway Commercial	82.8
Mixed Use Residential	13.5	Light Industrial	178.0	Light Industrial	178.0	Light Industrial	178.0	Light Industrial	178.0
Mobile Homes	79.5	Low Density Residential	1,626.2	Low Density Residential	1,626.2	Low Density Residential	1,626.2	Low Density Residential	1,626.2
Multi Family Residential	141.5	Medium Density Residential	332.1	Medium Density Residential	332.1	Medium Density Residential	332.1	Medium Density Residential	332.1
Office	39.4	Medium High Density Residential	64.6	Medium High Density Residential	64.6	Medium High Density Residential	64.6	Medium High Density Residential	64.6
Parks/Open Space/Greenways	156.3	Neighborhood Commercial	25.8	Neighborhood Commercial	25.8	Neighborhood Commercial	25.8	Neighborhood Commercial	25.8
Public Facility	20.9	Office	26.4	Office	26.4	Office	26.4	Office	26.4
Public Parking	0.8	Parks	174.1	Parks	174.1	Parks	174.1	Parks	174.1
Religious Facilities/Institutional	85.2	Regional Commercial	95.2	Regional Commercial	95.2	Regional Commercial	95.2	Regional Commercial	95.2
Road ROW	1.1	Right of Way	1.1	Right of Way	1.1	Right of Way	1.1	Right of Way	1.1
Service Station	11.4	Schools	158.0	Schools	158.0	Schools	158.0	Schools	158.0
Single Family Residential	1,821.2	Service Commercial	39.8	Service Commercial	39.8	Service Commercial	39.8	Service Commercial	39.8
Townhomes	13.7	Very Low Density Residential	196.5	Very Low Density Residential	196.5	Very Low Density Residential	196.5	Very Low Density Residential	144.0
Utilities	204.5								
Vacant	343.3								
Subtotal	3,960.3	Subtotal	3,960.5	Subtotal	3,960.5	Subtotal	3,960.5	Subtotal	3,960.5
Grand Total	**12,591.8**	**Grand Total**	**12,592.0**	**Grand Total**	**12,592.0**	**Grand Total**	**12,592.0**	**Grand Total**	**12,592.0**

Note: It is assumed that only about 10% of the industrial reserve and none of the residential reserve will be developed at buildout.

- Trunk Drains – Trunk drains are sized to convey the peak flow during a 10-year, 24-hour storm event. Peak flows are estimated using a modification of the Rational Method as described in Sections 4.7 through 4.9 of the County Standards. The modification of the Rational Method includes estimating the peak flows from the entire GPU land use region, and then apportioning the peak flows to region sub-areas proportionally to the tributary area and Rational Method C-value.
- Detention Basins – Detention basins are required for each GPU region and sub-area. The basins are sized for the total runoff volume from a 100-year, 24-hour storm event. Runoff volumes are estimated using the storage volume equation in Section 4.3 of the County Standards for the GPU regions, and then the total storage volume is apportioned to the sub-areas proportionally to the tributary area and Rational Method C-value. The detention basins were located next to Turlock Irrigation District (TID) irrigation canals.
- Pump Stations – Pump station firm capacities are sized based on draining the detention basin volume over 48 hours, as required in Section 4.12 of the County Standards. The pump stations will discharge to the TID canals.

STORMWATER EVALUATION ASSUMPTIONS

This evaluation includes the following assumptions:

- Areas that are currently developed have adequate drainage facilities, including adequate storm drain systems, detention basins, and pump stations. This assumption means that new facilities were not evaluated for the following GPU Growth Regions:
  - Within Existing City Limits – This growth region is already mostly developed. There are some individual parcels that will develop or redevelop in the future, and small on-site drainage facilities may be needed for these individual parcels, but these small facilities were not evaluated in this TM.
  - West Landing Specific Plan Area – Drains for the West Landing Specific Plan Area are assumed to remain the same as proposed in the Specific Plan and associated Drainage Studies. The existing on-site retention basins in the eastern one-third of the West Landing Area will remain. Retention basins receive storm runoff from the tributary development area, but do not have a pump station or outlet pipe draining the basins. Consequently, retention basins drain only through percolation of the water into the ground and through evaporation. For the western two-thirds of the West Landing Specific Plan Area, a storm drain system was proposed. The storm drains flow to three large retention basins.
    The West Landing Specific Plan stormwater system is shown on Attachment 2 (from the Specific Plan).

  - Whitmore Ranch – The Whitmore Ranch Site Plan Concept (August 24, 2016) shows no drainage facilities. It is assumed that at an appropriate time in the future, drainage facilities will be identified by the developer of the project. There are several open space areas (total of 5.2 acres) shown on the Site Plan Concept that could potentially be used for stormwater detention or retention, if needed. It was assumed that adequate existing drainage facilities exist for the two existing schools. Although not shown on the Site Plan Concept, a trunk storm drain, a detention basin, and a pump station are sized below for the future development west of the schools.

- Inside Sphere of Influence (SOI) – This area is comprised of several different sub-areas, as summarized below:
  - The areas at the north of the existing City limits, near the southwest corner of the existing City, and the area north of E. Service Road near Highway 99 are already mostly developed, and for these areas, the "Within Existing City Limits" assumptions are used (see above).
  - The sub-areas south of E. Service Road and west of Highway 99 (Sub-area A) and the area east of Moore Road (Sub-area B) are partially developed. It was assumed that as these areas develop or redevelop, storm drains, detention basins, and pump stations will be required. The required facilities are evaluated below.
- Outside SOI – All new development within the Outside SOI area will require storm drains, detention basins, and pump stations. The required facilities are evaluated below.
- Storm drain improvements were not defined for areas that are not planned for development, like agriculture, residential reserve, and industrial reserve. However, the small areas of industrial reserve that were assumed to develop at buildout were included in this stormwater infrastructure sizing evaluation.

REQUIRED STORMWATER INFRASTRUCTURE

The County Standards provide guidance for sizing stormwater infrastructure. The infrastructure is based on peak runoff rates and on maximum detention storage volumes. The peak runoff rates and maximum storage volumes are based on the tributary area and the C-value of the land use types. C-values range from 0.3 to 1.0 and represent the density of the development. Table 2 presents the C-values used in this analysis (from Table 4-1 of the County Standards). Also presented in Table 2 is the time of concentration for each land use from Table 4-3 of the County Standards and including time for gutter flow and pipe flow, and the rainfall intensity (from Plates 4-A1 and 4-B1 of the County Standards).

Table 2. Stormwater Facilities Hydrologic Design Values

Land Use	C Values	Time of Concentration, Minutes	10-Year Rainfall Intensity, Inches per hour	100-Year Rainfall Intensity, Inches per hour
Parks	0.3	50	0.70	1.05
Over 1.5 acres per parcel	0.40	50	0.70	1.05
0.5 to 1.0 acres per parcel	0.45	50	0.70	1.05
6,000 Square Feet to 0.5 acres	0.55	40	0.82	1.20
Less than 6,000 square Feet	0.60	40	0.82	1.20
Medium Density Residential	0.70	30	1.05	1.45
High Density Residential	0.85	30	1.05	1.45
Commercial	0.90	30	1.05	1.45
Industrial	0.90	30	1.05	1.45
Schools	0.60	40	0.82	1.20

Notes: Gutter flow based on a gutter length of 400 feet and a flow velocity of 1 foot per second (7 minutes).
Pipe flow based on a pipe length of 4,000 feet and a flow velocity of 5 feet per second (13 minutes).

Table 3 presents the development and sizing of the required stormwater infrastructure by Growth Region based on the County Standards. Within Table 3, the required infrastructure is further divided into sub-areas. The sub-areas were delineated to facilitate pumping from the detention basins into TID facilities and to prevent crossing of TID canals and Highway 99 with trunk storm drains. The sub-area boundaries are the same for each LUA. The infrastructure is apportioned to the sub-areas based on the weighted average of the product of the tributary area and the C-value. Table 4 presents a summary of the required infrastructure for the Inside Current SOI, Whitmore Ranch Specific Plan, and Outside SOI regions and sub-areas.

Figure 6 shows the locations of the required infrastructure for LUAs 1, 2, and 3. The sizes of detention basins shown on Figure 6 are based on LUA 1, and the infrastructure sizes for LUA 1, 2, and 3 are summarized in Table 4. For example, the detention basin for Outside Current SOI sub-area 5 for LUA is 4.3 acres (as shown on Figure 6); but for LUA 2 the basin would be 4.8 acres, and for LUA 3 the basins would be 4.9 acres. Similarly, the trunk drain for Outside Current SOI sub-area 5 would be 66-inches in diameter for LUA 1, 72-inches for LUA 2, and 72-inches for LUA 3.

The discharge from Whitmore Ranch would flow into the storm drain system for the for Inside SOI sub-area A. The discharge from Outside SOI sub-area 2 would flow into the storm drain system for Outside SOI sub-area 3. The required infrastructure for LUAs 2 and 3 are similar to that shown on Figure 6, but the sizes of the infrastructure are slightly different (as summarized in Table 3).

This preliminary evaluation of stormwater infrastructure does not define the only approach that could be used for providing stormwater service to the GPU LUA regions. This preliminary evaluation of stormwater infrastructure should be verified through the preparation of a City-wide stormwater master plan or through development of stormwater plans for the individual development regions or individual development projects.

Table 3. Stormwater Infrastructure Analysis and Sizing

Alternative 1						Alternative 2						Alternative 3					
Land Use Designation	Storm Drainage Facility Planning Area, acres	C Value	10-Year Rain Intensity, in/hr	10-Year Peak Runoff Rate, cfs	100-Year Storage Volume, ac-ft	Land Use Designation	Storm Drainage Facility Planning Area, acres	C Value	10-Year Rain Intensity, in/hr	Peak Runoff Rate, cfs	100-Year Storage Volume, ac-ft	Land Use Designation	Storm Drainage Facility Planning Area, acres	C Value	10-Year Rain Intensity, in/hr	Peak Runoff Rate, cfs	100-Year Storage Volume, ac-ft
Inside Current SOI - For Sub-Areas A and B Only (Note: The Inside Current SOI growth area excludes the area within the current city limit.)																	
Business Park	-	-	-	-	-	Business Park	-	-	-	-	-	Business Park	-	-	-	-	-
Community Commercial	15.1	0.90	1.05	14.3	3.1	Community Commercial	15.1	0.90	1.05	14.3	3.1	Community Commercial	15.1	0.90	1.05	14.3	3.1
Community Facilities	-	-	-	-	-	Community Facilities	-	-	-	-	-	Community Facilities	-	-	-	-	-
General Industrial	-	-	-	-	-	General Industrial	-	-	-	-	-	General Industrial	-	-	-	-	-
High Density Residential	37.8	0.85	1.05	33.8	7.4	High Density Residential	16.7	0.85	1.05	14.9	3.3	High Density Residential	37.8	0.85	1.05	33.8	7.4
Highway Commercial	7.5	0.90	1.05	7.1	1.6	Highway Commercial	7.5	0.90	1.05	7.1	1.6	Highway Commercial	7.5	0.90	1.05	7.1	1.6
Industrial Reserve	-	-	-	-	-	Industrial Reserve	-	-	-	-	-	Industrial Reserve	-	-	-	-	-
Light Industrial	39.1	0.90	1.05	36.9	8.1	Light Industrial	39.1	0.90	1.05	36.9	8.1	Light Industrial	39.1	0.90	1.05	36.9	8.1
Low Density Residential	688.2	0.60	0.82	338.6	95.5	Low Density Residential	688.2	0.60	0.82	338.6	95.5	Low Density Residential	669.0	0.60	0.82	329.2	92.8
Medium Density Residential	52.9	0.70	1.05	38.9	8.6	Medium Density Residential	52.9	0.70	1.05	38.9	8.6	Medium Density Residential	52.9	0.70	1.05	38.9	8.6
Medium High Density Residential	45.9	0.85	1.05	40.9	9.0	Medium High Density Residential	41.9	0.85	1.05	37.4	8.2	Medium High Density Residential	45.9	0.85	1.05	40.9	9.0
Neighborhood Commercial	6.9	0.90	1.05	6.5	1.4	Neighborhood Commercial	6.9	0.90	1.05	6.5	1.4	Neighborhood Commercial	26.1	0.90	1.05	24.6	5.4
Railroad ROW	-	-	-	-	-	Railroad ROW	-	-	-	-	-	Railroad ROW	-	-	-	-	-
Regional Commercial	140.2	0.90	1.05	132.5	29.2	Regional Commercial	91.9	0.90	1.05	86.8	19.1	Regional Commercial	140.2	0.90	1.05	132.5	29.2
Right of Way	-	-	-	-	-	Right of Way	-	-	-	-	-	Right of Way	-	-	-	-	-
Schools	36.8	0.60	0.82	18.1	5.1	Schools	36.8	0.60	0.82	18.1	5.1	Schools	36.8	0.60	0.82	18.1	5.1
Service Commercial	51.3	0.90	1.05	48.4	10.7	Service Commercial	124.8	0.90	1.05	117.9	26.0	Service Commercial	51.3	0.90	1.05	48.4	10.7
Very Low Density Residential	9.3	0.45	0.70	2.9	1.0	Very Low Density Residential	9.3	0.45	0.70	2.9	1.0	Very Low Density Residential	9.3	0.45	0.70	2.9	1.0
Commercial Recreation	-	-	-	-	-	Commercial Recreation	-	-	-	-	-	Commercial Recreation	-	-	-	-	-
Subtotal	1,131.0			719.0	180.7	Total	1,131.0			720.3	181.0	Total	1,131.0			727.7	182.0
Sub-area A Infrastructure Share, Percent	43.4%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		312	83.7	Sub-area A Infrastructure Share, Percent	43.4%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		312	84.4	Sub-area A Infrastructure Share, Percent	43.4%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		315	85.4
Detention Basin Area, acres					10.1	Detention Basin Area, acres					10.2	Detention Basin Area, acres					10.3
Pump Station Firm Capacity, cfs					21.1	Pump Station Firm Capacity, cfs					21.3	Pump Station Firm Capacity, cfs					21.5
Sub-area B Infrastructure Share, Percent	56.6%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		407	97.0	Sub-area B Infrastructure Share, Percent	56.6%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		177	96.6	Sub-area B Infrastructure Share, Percent	56.6%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		412	96.6
Detention Basin Area, acres					11.4	Detention Basin Area, acres					11.4	Detention Basin Area, acres					11.4
Pump Station Firm Capacity, cfs					24.4	Pump Station Firm Capacity, cfs					24.3	Pump Station Firm Capacity, cfs					24.3
Outside Current SOI - For Sub-Areas 1, 2, 3, 4, 5, and 6 Only																	
Agriculture	-	-	-	-	-	Agriculture	-	-	-	-	-	Agriculture	-	-	-	-	-
General Industrial	-	-	-	-	-	General Industrial	180.6	0.90	1.05	170.7	37.6	General Industrial	81.4	0.90	1.05	77.0	16.9
Highway Commercial	6.8	0.90	1.05	6.4	1.4	Highway Commercial	6.8	0.90	1.05	6.4	1.4	Highway Commercial	6.8	0.90	1.05	6.4	1.4
Industrial Reserve (Developed, see notes)	18.7	0.90	1.05	17.7	3.9	Industrial Reserve (Developed, see notes)	16.3	0.90	1.05	15.4	3.4	Industrial Reserve (Developed, see notes)	31.2	0.90	1.05	29.5	6.5
Industrial Reserve (Not developed)	-	-	-	-	-	Industrial Reserve (Not developed)	-	-	-	-	-	Industrial Reserve (Not developed)	-	-	-	-	-
Low Density Residential	243.2	0.60	0.82	119.7	33.7	Low Density Residential	172.5	0.60	0.82	84.9	23.9	Low Density Residential	427.6	0.60	0.82	210.4	59.3
Medium Density Residential	10.7	0.70	1.05	7.8	1.7	Medium Density Residential	10.7	0.70	1.05	7.8	1.7	Medium Density Residential	10.7	0.70	1.05	7.8	1.7
Parks	20.1	0.30	0.70	4.2	1.4	Parks	20.1	0.30	0.70	4.2	1.4	Parks	20.1	0.30	0.70	4.2	1.4
Regional Commercial	145.8	0.90	1.05	137.7	30.3	Regional Commercial	121.3	0.90	1.05	114.6	25.2	Regional Commercial	155.3	0.90	1.05	146.8	32.3
Residential Agriculture	123.3	0.40	0.70	34.5	11.4	Residential Agriculture	123.3	0.40	0.70	34.5	11.4	Residential Agriculture	-	-	-	-	-
Regional Parks	-	-	-	-	-	Regional Parks	-	-	-	-	-	Regional Parks	56.2	0.30	0.70	11.8	3.9
Residential Reserve	-	-	-	-	-	Residential Reserve	-	-	-	-	-	Residential Reserve	-	-	-	-	-
Right of Way	11.9	0.90	1.05	11.2	2.5	Right of Way	11.9	0.90	1.05	11.2	2.5	Right of Way	11.9	0.90	1.05	11.2	2.5
Schools	19.6	0.60	0.82	9.7	2.7	Schools	19.6	0.60	0.82	9.7	2.7	Schools	19.6	0.60	0.82	9.7	2.7
Service Commercial	9.1	0.90	1.05	8.6	1.9	Service Commercial	43.1	0.90	1.05	40.7	9.0	Service Commercial	9.1	0.90	1.05	8.6	1.9
Very Low Density Residential	518.5	0.45	0.70	163.3	53.9	Very Low Density Residential	518.5	0.45	0.70	163.3	53.9	Very Low Density Residential	90.6	0.45	0.70	28.5	9.4
Commercial Recreation	-	-	-	-	-	Commercial Recreation	-	-	-	-	-	Commercial Recreation	-	-	-	-	-
Subtotal	1,127.7			520.9	144.9	Total	1,244.7			663.5	174.2	Total	920.4		11	551.9	140.0

Table 3. Stormwater Infrastructure Analysis and Sizing

Alternative 1						Alternative 2						Alternative 3					
Land Use Designation	Storm Drainage Facility Planning Area, acres	C Value	10-Year Rain Intensity, in/hr	10-Year Peak Runoff Rate, cfs	100-Year Storage Volume, ac-ft	Land Use Designation	Storm Drainage Facility Planning Area, acres	C Value	10-Year Rain Intensity, in/hr	Peak Runoff Rate, cfs	100-Year Storage Volume, ac-ft	Land Use Designation	Storm Drainage Facility Planning Area, acres	C Value	10-Year Rain Intensity, in/hr	Peak Runoff Rate, cfs	100-Year Storage Volume, ac-ft
Sub-area 1 Infrastructure Share	5.3%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		27.4	7.6	Sub-area 1 Infrastructure Share, %	5.0%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		33.4	8.8	Sub-area 1 Infrastructure Share, %	5.9%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		32.5	8.2
Detention Basin Area, acres					1.8	Detention Basin Area, acres					1.9	Detention Basin Area, acres					1.9
Pump Station Firm Capacity, cfs, for Sub-area 1					1.9	Pump Station Firm Capacity, cfs, for Sub-area 1					2.2	Pump Station Firm Capacity, cfs, for Sub-area 1					2.1
Sub-area 2 Infrastructure Share	11.3%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		59.0	16.4	Sub-area 2 Infrastructure Share (Percent)	10.9%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		72.1	18.9	Sub-area 2 Infrastructure Share, %	6.5%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		36.0	9.1
Detention Basin Area, acres					2.9	Detention Basin Area, acres					3.2	Detention Basin Area, acres					2.0
Pump Station Firm Capacity, cfs, for Sub-area 2					4.1	Pump Station Firm Capacity, cfs, for Sub-area 2					4.8	Pump Station Firm Capacity, cfs, for Sub-area 2					2.3
Sub-area 3 Infrastructure Share	13.4%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		69.6	19.4	Sub-area 3 Infrastructure Share, %	9.7%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		64.4	16.9	Sub-area 3 Infrastructure Share, %	0.0%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		-	-
Detention Basin Area, acres					3.3	Detention Basin Area, acres					-	Detention Basin Area, acres					-
Pump Station Firm Capacity, cfs, for Sub-area 3					4.9	Pump Station Firm Capacity, cfs, for Sub-area 3					4.3	Pump Station Firm Capacity, cfs, for Sub-area 3					-
Sub-area 4 Infrastructure Share	22.2%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		115.9	32.2	Sub-area 4 Infrastructure Share, %	11.8%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		78.6	20.6	Sub-area 4 Infrastructure Share, %	9.0%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		49.6	12.6
Detention Basin Area, acres					4.7	Detention Basin Area, acres					3.4	Detention Basin Area, acres					2.4
Pump Station Firm Capacity, cfs, for Sub-area 4					8.1	Pump Station Firm Capacity, cfs, for Sub-area 4					5.2	Pump Station Firm Capacity, cfs, for Sub-area 4					3.2
Sub-area 5 Infrastructure Share	19.7%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		102.5	28.5	Sub-area 5 Infrastructure Share, %	18.9%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		125.2	32.9	Sub-area 5 Infrastructure Share, %	24.1%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		132.9	33.7
Detention Basin Area, acres					4.3	Detention Basin Area, acres					4.8	Detention Basin Area, acres					4.9
Pump Station Firm Capacity, cfs, for Sub-area 5					7.2	Pump Station Firm Capacity, cfs, for Sub-area 5					8.3	Pump Station Firm Capacity, cfs, for Sub-area 5					8.5
Sub-area 6 Infrastructure Share	28.2%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		146.7	40.8	Sub-area 6 Infrastructure Share, %	43.7%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		289.8	76.1	Sub-area 6 Infrastructure Share, %	54.5%	Sub-area Peak Runoff or Detention Volume, cfs or ac-ft		300.9	76.3
Detention Basin Area, acres					5.7	Detention Basin Area, acres					9.3	Detention Basin Area, acres					9.4
Pump Station Firm Capacity, cfs, for Sub-area 6					10.3	Pump Station Firm Capacity, cfs, for Sub-area 6					19.2	Pump Station Firm Capacity, cfs, for Sub-area 6					19.2
Whitmore Ranch Specific Plan - Storm drainage facilities planning areas only include the area west of the existing schools																	
Low Density Residential	28.9	0.60	0.82	14.2	4.0	Low Density Residential	28.9	0.60	0.82	14.2	4.0	Low Density Residential	28.9	0.60	0.82	14.2	4.0
Medium Density Residential	12.8	0.70	1.05	9.4	2.1	Medium Density Residential	12.8	0.70	1.05	9.4	2.1	Medium Density Residential	12.8	0.70	1.05	9.4	2.1
Medium High Density Residential	6.0	0.85	1.05	5.3	1.2	Medium High Density Residential	6.0	0.85	1.05	5.3	1.2	Medium High Density Residential	6.0	0.85	1.05	5.3	1.2
Parks	7.7	0.30	0.70	1.6	0.5	Parks	7.7	0.30	0.70	1.6	0.5	Parks	7.7	0.30	0.70	1.6	0.5
Schools	-	-	-	-	-	Schools	-	-	-	-	-	Schools	-	-	-	-	-
Subtotal	55.4			30.6	7.8	Total	55.4			30.6	7.8	Total	55.4			30.6	7.8
Detention Basin Area, acres					1.8	Detention Basin Area, acres					1.8	Detention Basin Area, acres					1.8
Pump Station Firm Capacity, cfs					2.0	Pump Station Firm Capacity, cfs					2.0	Pump Station Firm Capacity, cfs					2.0
Grand Total	**2,314.1**		**-**			**Grand Total**	**2,431.1**		**-**			**Grand Total**	**2,106.9**		**11**		

Notes:
For Alternative 1, only 18.7 acres of Industrial Reserve is projected to develop out of 508.2 acres.
For Alternative 2, only 16.3 acres of Industrial Reserve is projected to develop out of 447.4 acres.
For Alternative 3, only 31.2 acres of Industrial Reserve is projected to develop out of 853.7 acres.
For all alternatives, none of the residential reserve is projected to develop.

Table 4. Summary of Required Stormwater Infrastructure by LUA Region and Subregion

LUA Region and Subregion	Alternative 1					Alternative 2					Alternative 3				
	Trunk Storm Drain Size, inch diameter	Trunk Storm Drain Length, ft	Detention Basin Volume, acre-feet	Detention Basin Area, acres	Pump Station Total Capacity, cfs, assuming three pumps	Trunk Storm Drain Size, inch diameter	Trunk Storm Drain Length, ft	Detention Basin Volume, acre-feet	Detention Basin Area, acres	Pump Station Total Capacity, cfs, assuming three pumps	Trunk Storm Drain Size, inch diameter	Trunk Storm Drain Length, ft	Detention Basin Volume, acre-feet	Detention Basin Area, acres	Pump Station Total Capacity, cfs, assuming three pumps
Inside Current SOI (Excluding Whitmore Ranch Specific Plan) - Storm drainage facilities planning areas only include the sub-area south of E. Service Road and west of Highway 99 and the subarea East of Moore Road															
Sub-area A Infrastructure Share, Percent	72	7,000	83.7	10.1	31.6	72	7,000	84.4	10.2	31.9	72	7,000	85.4	10.3	32.3
Sub-area B	72	5,000	97.0	11.4	36.7	72	5,000	96.6	11.4	36.5	72	5,000	96.6	11.4	36.5
Outside Current SOI - For Sub-Areas 1, 2, 3, 4, 5, and 6 Only															
Sub-area 1 Infrastructure Share	42	600	7.6	1.8	2.9	48	600	8.8	1.9	3.3	48	600	8.2	1.9	3.1
Sub-area 2 Infrastructure Share	60	1,800	16.4	2.9	6.2	66	1,800	18.9	3.2	7.2		-	9.1	2.0	3.4
Sub-area 3 Infrastructure Share	72	2,400	19.4	3.3	7.3	78	2,400	3.2	4.8	25.4		-	-	-	-
Sub-area 4 Infrastructure Share	72	2,400	32.2	4.7	12.2	78	2,400	20.6	3.4	7.8	54	1,200	12.6	2.4	4.8
Sub-area 5 Infrastructure Share	66	1,300	28.5	4.3	42.8	72	1,300	32.9	4.8	12.4	72	1,300	33.7	4.9	12.8
Sub-area 6 Infrastructure Share	72	6,300	40.8	5.7	15.4	84	6,300	76.1	9.3	28.8	84	6,300	76.3	9.4	28.9
Whitmore Ranch Specific Plan - Storm drainage facilities planning areas only include the area west of the existing schools	36	300	7.8	1.8	2.9	36	300	7.8	1.8	2.9	36	300	7.8	1.8	2.9

In addition to the infrastructure identified and sized in this TM, each development area will also need a system of smaller storm drains that convey the runoff to the trunk drains. Stormwater quality and low impact development (LID) improvements will also be needed. These additional stormwater improvements should be identified and sized through preparation of a City-wide stormwater master plan or through development of stormwater plans for the individual development projects.

STORMWATER INFRASTRUCTURE COSTS

Approximate stormwater infrastructure unit costs are presented in Table 5, and discussed below. These unit costs were taken/developed from previous West Yost planning engineering studies, design, bid, construction projects, and general West Yost cost estimating experience from projects located in the California Central Valley for construction associated with medium to large development projects. Consequently, these unit costs are appropriate for use for the Inside SOI and Outside SOI growth areas.

- The trunk storm drain unit cost of $8.00 per inch of drain diameter and per foot of pipe length is from actual construction costs for the Natomas Area of Sacramento, but inflated from October 1998 to December 2016.
- The detention basin unit cost of $28,000 per acre-foot is from actual construction costs for the Dixon Pond C detention basin, but inflated from Spring 2005 to December 2016. This unit cost includes detention basin excavation, an all-weather access road around the basin, inlet and outlet headwalls, and other facilities for a complete, urban detention basin. The basins are assumed to be 15 feet deep, with a water depth of 12 feet and a freeboard of 3 feet.
- The pump station unit cost of $37,000 per cubic feet per second (cfs) is from actual construction costs for the Natomas Area of Sacramento, but inflated from October 1998 to December 2016.
- The land cost for detention basins was assumed to be $20,000 per acre for agricultural land.
- The Engineering, Environmental, Administration, Construction Management, etc. multiplier of 40 percent is from West Yost Associates' experience with similar, typical projects.

Table 5. Stormwater Infrastructure Unit Costs

Facility Type	Unit	Cost per Unit, dollars
Trunk Storm Drain	Inches Diameter * Feet of Length	8
Detention Basin (Storage Capacity)	Acre-feet	28,000
Pump Station (Total Pumping Capacity)	cfs	37,000
Land Acquisition	Acres	20,000
Engineering, Environmental, Administration, Construction Management, etc.		40 percent of construction cost

The estimated construction costs for the LUA regions and sub-areas are presented in Table 6. The construction costs are developed by multiplying the infrastructure quantities from Table 4 by the approximate unit costs from Table 5. The total capital costs additionally include the cost of Engineering, Environmental, Administration, Construction Management, etc. and the land acquisition for the detention basins. The infrastructure costs and costs per acre are discussed below:

- LUA 1 – The estimated construction cost for the stormwater infrastructure for LUA 1 is $26.9 million, and the estimated total capital cost is $38.6 million. LUA 1 includes a total area of 2,314 acres of developed land, resulting in a total capital cost of $16,700 per acre.
- LUA 2 – The estimated construction cost for the stormwater infrastructure for LUA 1 is $31.7 million, and the estimated total capital cost is $45.4 million. LUA 2 includes a total area of 2,431 acres of developed land, resulting in a total capital cost of $18,700 per acre.
- LUA 3 – The estimated construction cost for the stormwater infrastructure for LUA 3 is $26.6 million, and the estimated total capital cost is $37.2 million. LUA 3 includes a total area of 2,170 acres of developed land, resulting in a total capital cost of $17,700 per acre.

These preliminary stormwater infrastructure cost estimates should be verified through the preparation of a City-wide stormwater master plan or through development of stormwater plans for the individual development regions or individual development projects.

Table 6. Estimated Stormwater Infrastructure Construction and Total Capital Costs

LUA Region and Subregion	Alternative 1							Alternative 2							Alternative 3						
	Trunk Storm Drain Cost, dollars	Detention Basin Cost, dollars	Pump Station Cost, dollars	Estimated Construction Cost, dollars, rounded	Engineering, Environmental, Administration, Construction Management, etc., dollars	Detention Basin Land Cost, dollars	Total Capital Cost, dollars	Trunk Storm Drain Cost, dollars	Detention Basin Cost, dollars	Pump Station Cost, dollars	Estimated Construction Cost, dollars, rounded	Engineering, Environmental, Administration, Construction Management, etc., dollars	Detention Basin Land Cost, dollars	Total Capital Cost, dollars	Trunk Storm Drain Cost, dollars	Detention Basin Cost, dollars	Pump Station Cost, dollars	Estimated Construction Cost, dollars, rounded	Engineering, Environmental, Administration, Construction Management, etc., dollars	Detention Basin Land Cost, dollars	Total Capital Cost, dollars
Inside Current SOI (Excluding Whitmore Ranch Specific Plan) - Storm drainage facilities planning areas only include the sub-area south of E. Service Road and west of Highway 99 and the subarea East of Moore Road																					
Sub-area A Infrastructure Share, Percent	4,032,000	2,343,233	1,170,832	7,550,000	3,020,000	201,923	10,770,000	4,032,000	2,362,492	1,180,455	7,570,000	3,030,000	203,302	10,800,000	4,032,000	2,391,852	1,195,125	7,620,000	3,050,000	10	10,670,000
Sub-area B	2,880,000	2,715,487	1,356,834	6,950,000	2,780,000	228,418	9,960,000	2,880,000	2,704,371	1,351,280	6,940,000	2,780,000	227,631	9,950,000	2,880,000	2,704,028	1,351,109	6,940,000	2,780,000	11	9,720,000
Subtotal	6,912,000	5,058,719	2,527,666	14,500,000	5,800,000	430,341	20,730,000	6,912,000	5,066,863	2,531,735	14,510,000	5,810,000	430,933	20,750,000	6,912,000	5,095,880	2,546,234	14,560,000	5,830,000	22	20,390,000
Acres of Development (of all land use types)	-	-	-	-	-	-	1,131	-	-	-	-	-	-	1,131	-	-	-	-	-	-	1,131
Cost per acre of development	-	-	-	-	-	-	18,300	-	-	-	-	-	-	18,300	-	-	-	-	-	-	18,000
Outside Current SOI - For Sub-Areas 1, 2, 3, 4, 5, and 6 Only																					
Sub-area 1 Infrastructure Share	201,600	49,751	106,469	360,000	140,000	35,537	540,000	230,400	245,634	122,735	600,000	240,000	38,734	880,000	230,400	230,660	115,253	580,000	230,000	2	810,000
Sub-area 2 Infrastructure Share	864,000	81,494	229,581	1,180,000	470,000	58,210	1,710,000	950,400	529,664	264,655	1,740,000	700,000	64,237	2,500,000	0	255,374	127,602	380,000	150,000	2	530,000
Sub-area 3 Infrastructure Share	1,382,400	91,379	270,741	1,740,000	700,000	65,271	2,510,000	1,497,600	89,932	938,865	2,530,000	1,010,000	95,371	3,640,000	0	0	0	0	0	0	0
Sub-area 4 Infrastructure Share	1,382,400	132,525	450,958	1,970,000	790,000	94,661	2,850,000	1,497,600	577,754	288,684	2,360,000	940,000	68,297	3,370,000	518,400	352,348	176,056	1,050,000	420,000	2	1,470,000
Sub-area 5 Infrastructure Share	686,400	120,907	1,582,314	2,390,000	960,000	86,362	3,440,000	748,800	920,240	459,812	2,130,000	850,000	96,059	3,080,000	748,800	944,204	471,786	2,160,000	860,000	5	3,020,000
Sub-area 6 Infrastructure Share	3,628,800	158,716	571,009	4,360,000	1,740,000	113,369	6,210,000	4,233,600	2,130,140	1,064,357	7,430,000	2,970,000	186,600	10,590,000	4,233,600	2,137,506	1,068,037	7,440,000	2,980,000	9	10,420,000
Subtotal	8,145,600	634,772	3,211,071	12,000,000	4,800,000	453,408	17,260,000	9,158,400	4,493,363	3,139,106	16,790,000	6,710,000	549,298	24,060,000	5,731,200	3,920,093	1,958,734	11,610,000	4,640,000	21	16,250,000
Acres of Development (of all land use types)	-	-	-	-	-	-	1,128	-	-	-	-	-	-	1,245	-	-	-	-	-	-	920
Cost per acre of development	-	-	-	-	-	-	15,300	-	-	-	-	-	-	19,300	-	-	-	-	-	-	17,700
Whitmore Ranch Specific Plan - Storm drainage facilities planning areas only include the area west of the existing schools																					
Whitmore Ranch Specific Plan	86,400	218,207	109,031	410,000	160,000	36,046	610,000	86,400	218,207	109,031	410,000	160,000	36,046	610,000	86,400	218,207	109,031	410,000	160,000	36,046	610,000
Acres of Development (of all land use types)	-	-	-	-	-	-	55							55	-	-	-	-	-	-	55
Cost per acre of development	-	-	-	-	-	-	11,000							11,000	-	-	-	-	-	-	11,000
Grand Total	**15,144,000**	**5,911,698**	**5,847,768**	**26,910,000**	**10,760,000**	**919,795**	**38,600,000**	**16,156,800**	**9,778,433**	**5,779,872**	**31,710,000**	**12,680,000**	**1,016,277**	**45,420,000**	**12,729,600**	**9,234,181**	**4,613,998**	**26,580,000**	**10,630,000**	**36,088**	**37,250,000**
Acres of Development (of all land use types)	-	-	-	-	-	-	2,314	-	-	-	-	-	-	2,431	-	-	-	-	-	-	2,107
Cost per acre of development	-	-	-	-	-	-	16,700	-	-	-	-	-	-	18,700	-	-	-	-	-	-	17,700

CONCLUSIONS

Stormwater Infrastructure Conclusions are provided below:

- For the Inside Current SOI region, the differences in the required stormwater infrastructure and associated costs are very small (differ by only about $300,000 out of about $20.7 million). This level of cost difference is insignificant, and for this region, stormwater infrastructure should not be a significant consideration in selecting one LUA over the others.
- For the Outside Current SOI Region:
  - LUA 1 has the lowest cost per acre developed at $15,300 per acre (versus $19,300 for LUA 2 and $17,700 for LUA 3). This is because LUA 1 has more residential and less industrial and commercial areas than LUAs 2 and 3.
  - LUA 2 has the largest stormwater infrastructure requirements and has the highest infrastructure costs ($24.1 million for LUA 2 versus $17.3 million for LUA 1 and $16.2 million for LUA 3). This is because LUA 2 has the most total area developed at 1,245 acres (versus 1,128 for LUA 1 and 920 acres for LUA 3).
  - LUA 2 also has the largest areas of high intensity land uses such as General Industrial and Service Commercial. These higher intensity land uses contribute to LUA 2 having the highest cost per acre of development ($19,300 per acre for LUA 2 versus $15,300 for LUA 1 and $17,700 for LUA 3).
- The land uses for the Whitmore Ranch Specific Plan are the same for all the LUAs, resulting in identical stormwater infrastructure requirements and associates costs for each LUA for Whitmore Ranch.

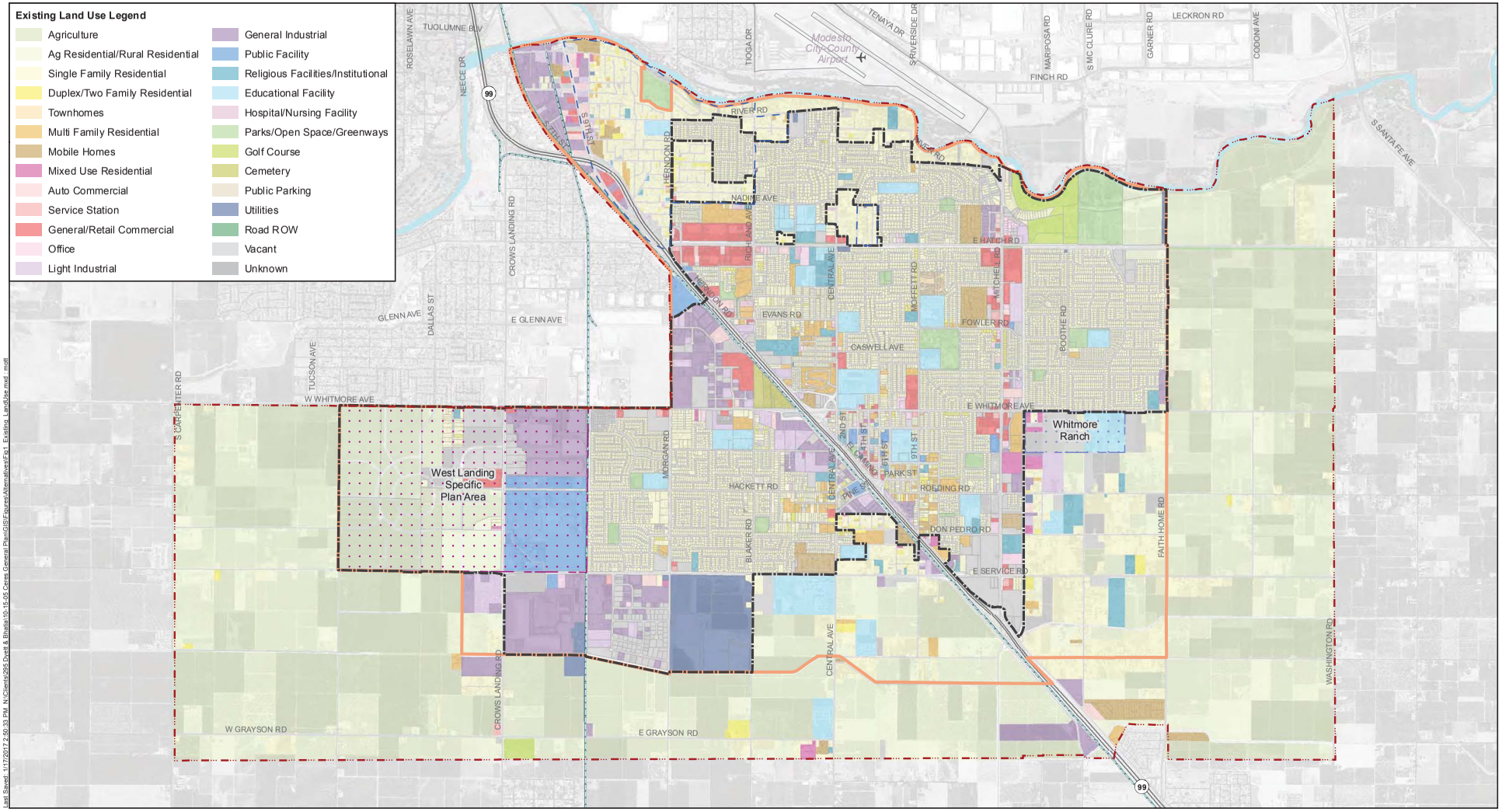

Figure 1

Existing Land Use

Dyett and Bhatia
City of Ceres
General Plan Update

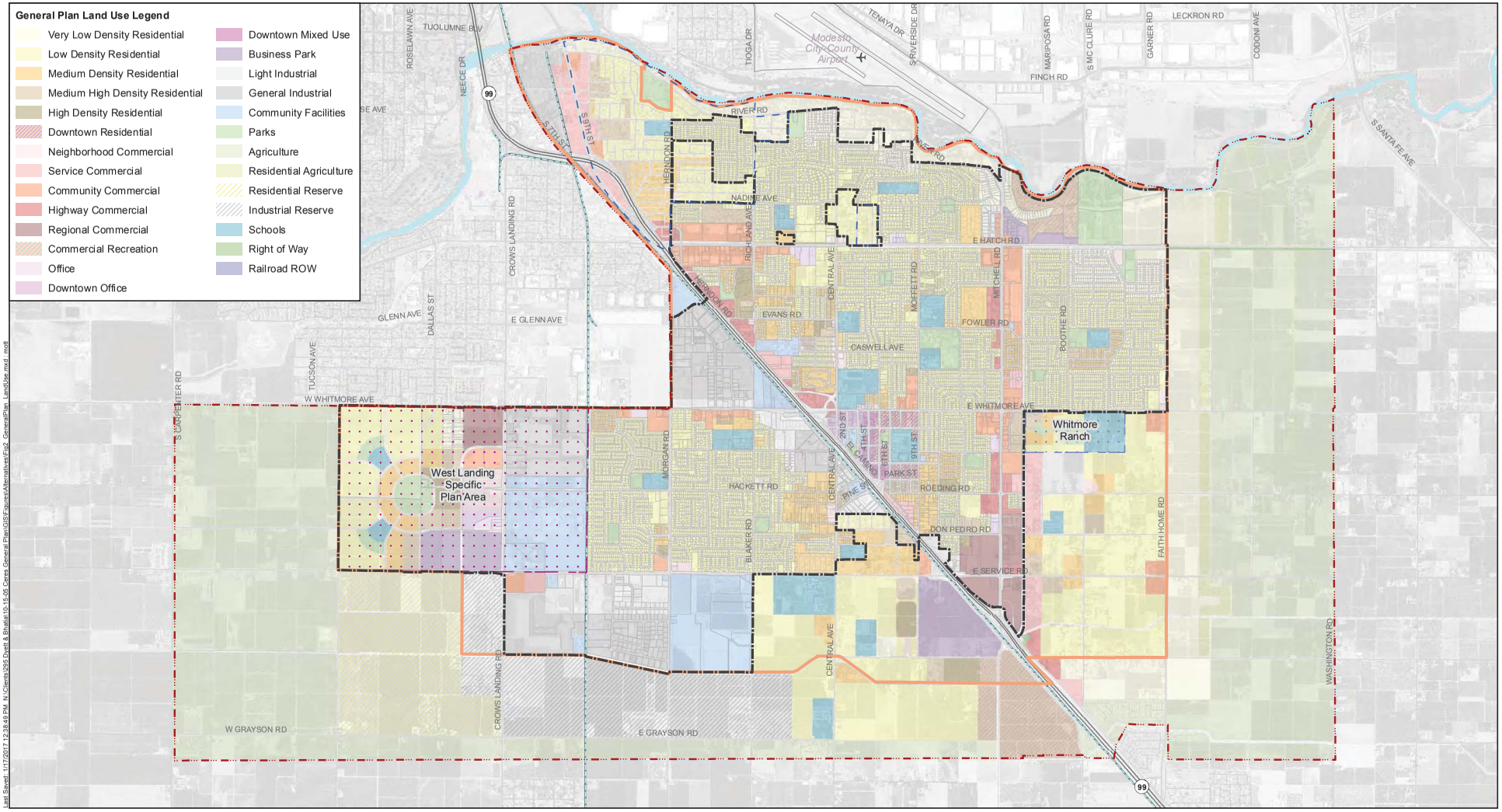

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Figure 2

General Plan Land Use

Dyett and Bhatia
City of Ceres
General Plan Update

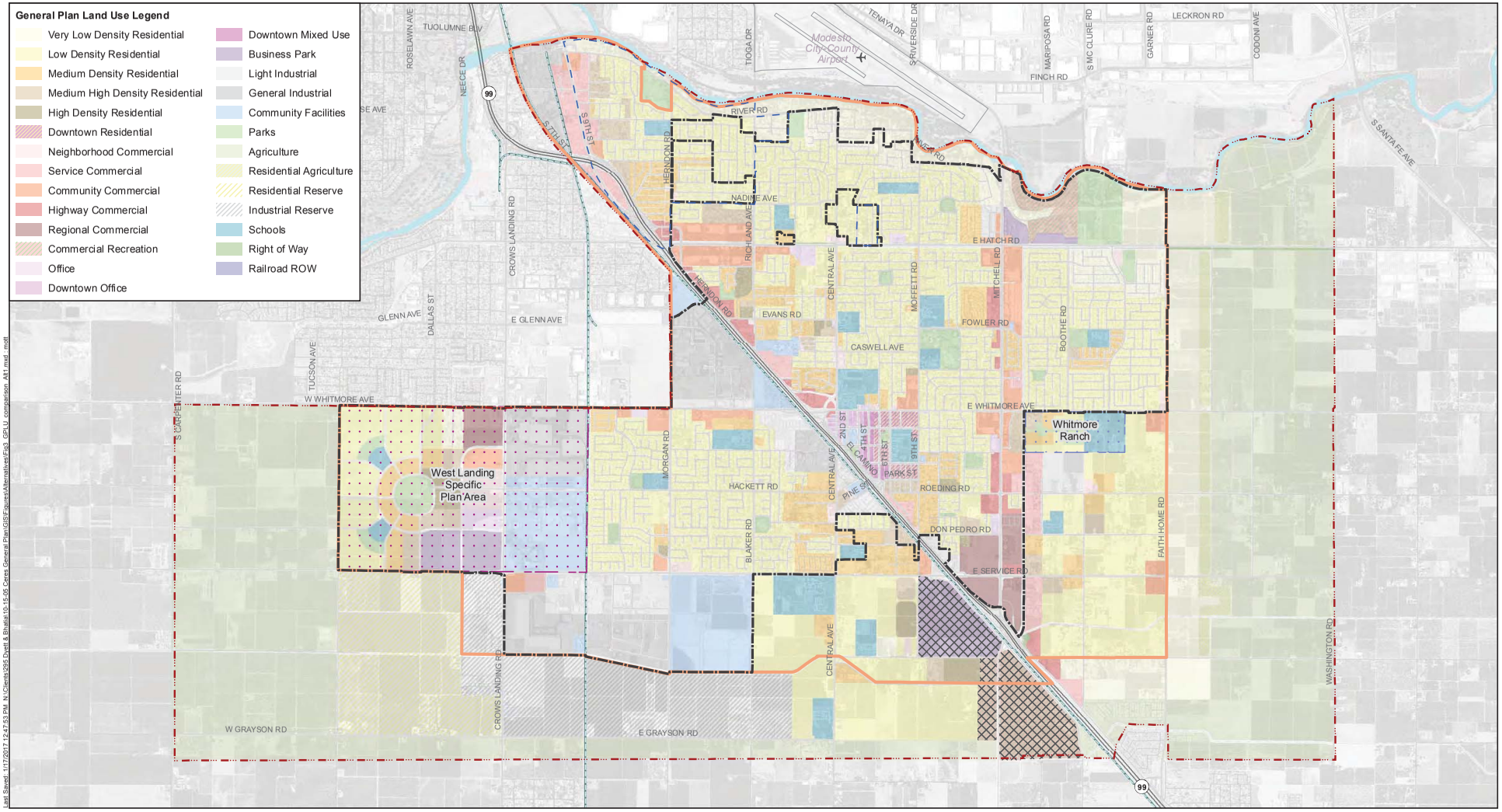
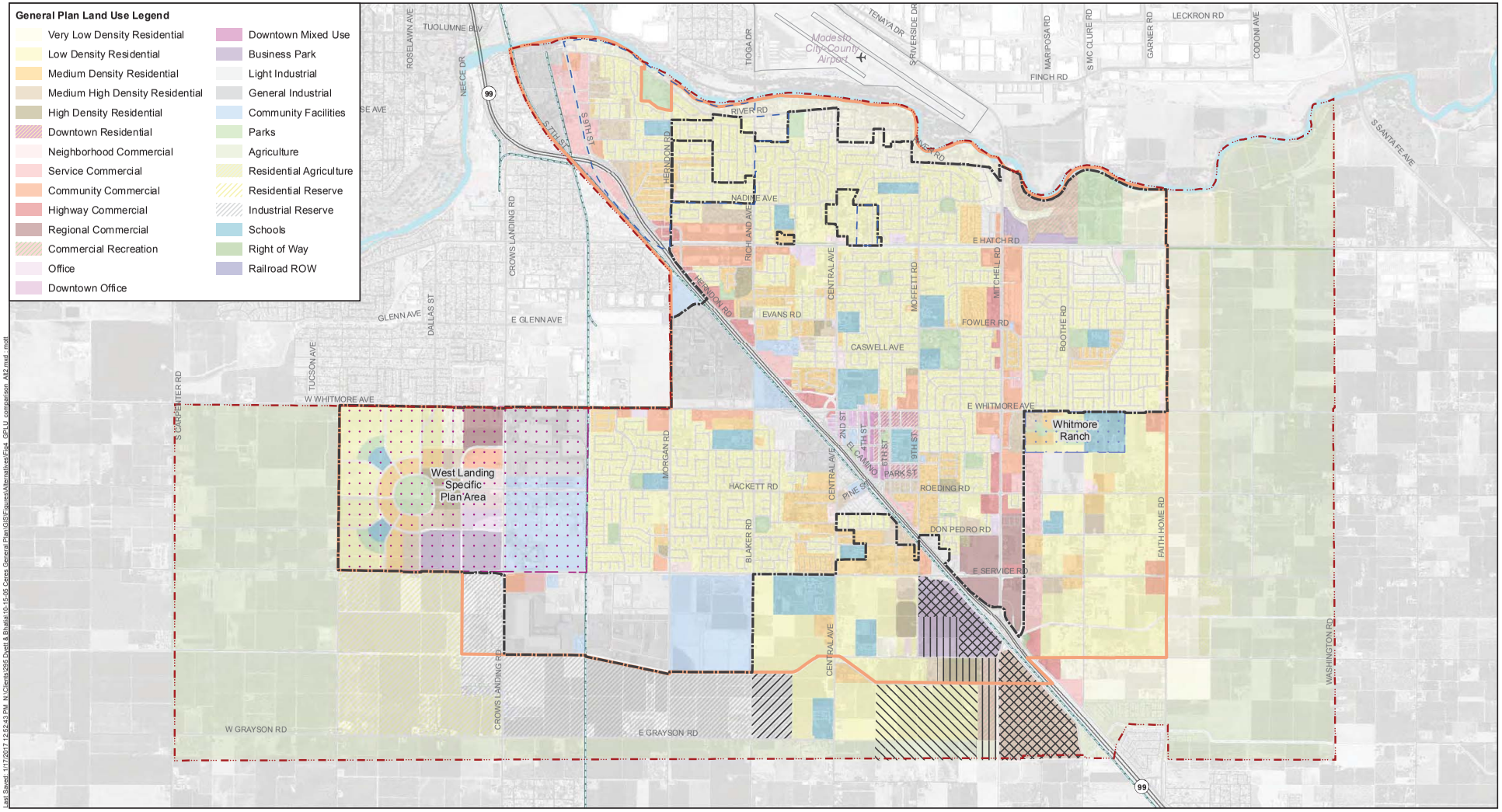


Figure 3

General Plan Land Use Comparison to Alternative 1

Dyett and Bhatia
City of Ceres
General Plan Update



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CITY OF CERES
TOGETHER WE ACHIEVE

WEST YOST ASSOCIATES

Figure 4

General Plan Land Use Comparison to Alternative 2

Dyett and Bhatia
City of Ceres
General Plan Update

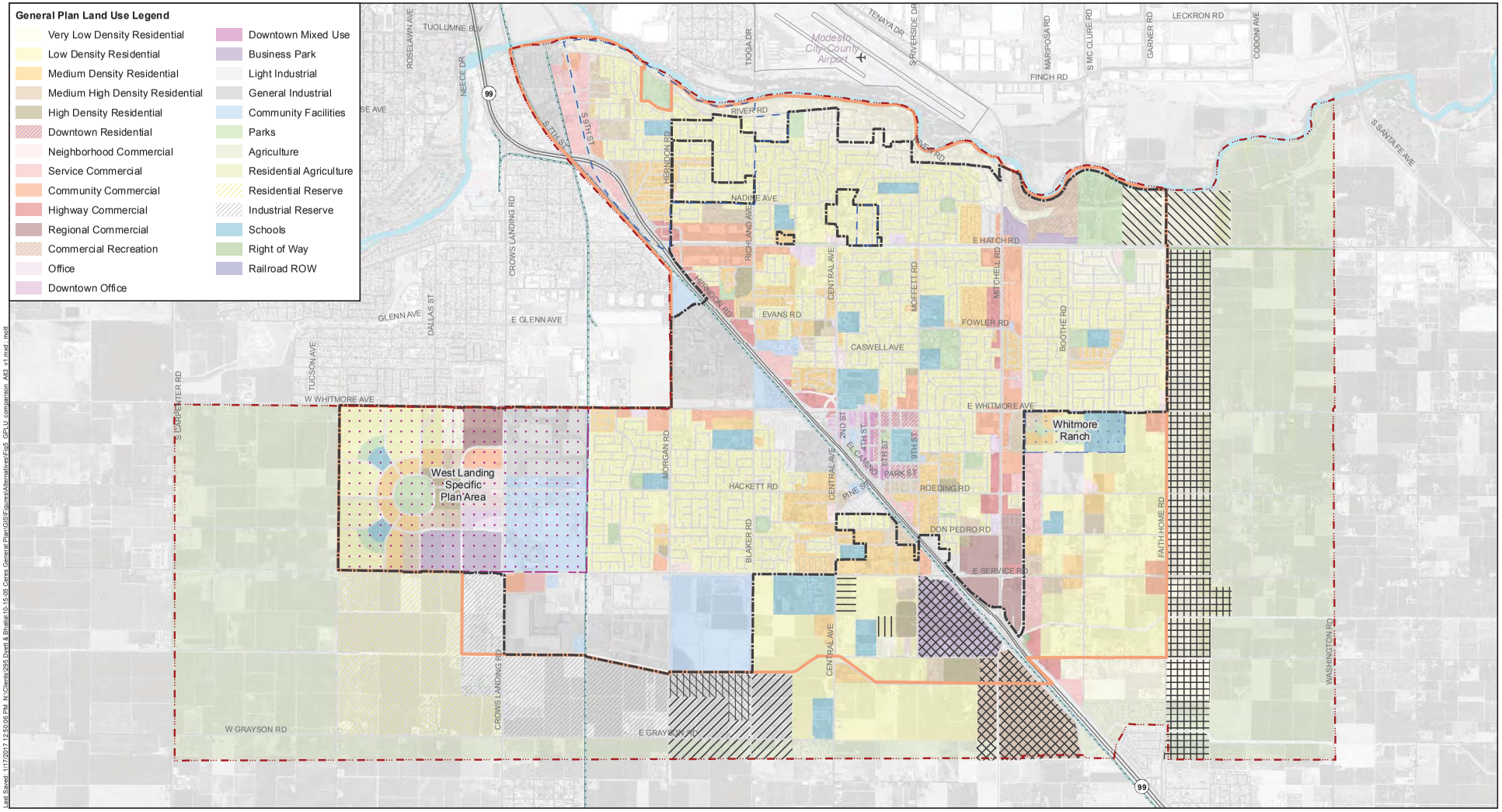


Figure 5

General Plan Land Use Comparison to Alternative 3

Dyett and Bhatia
City of Ceres
General Plan Update

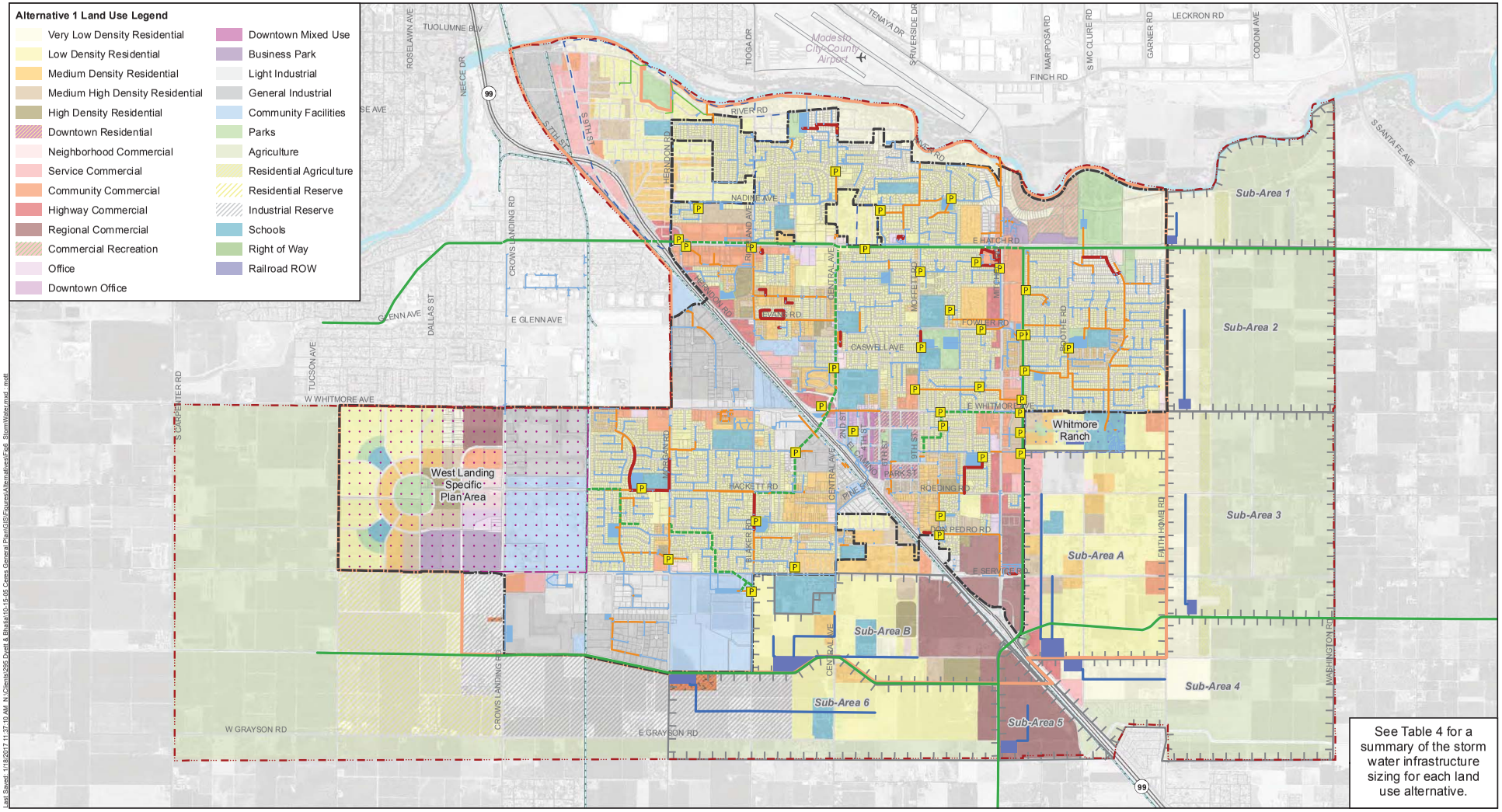


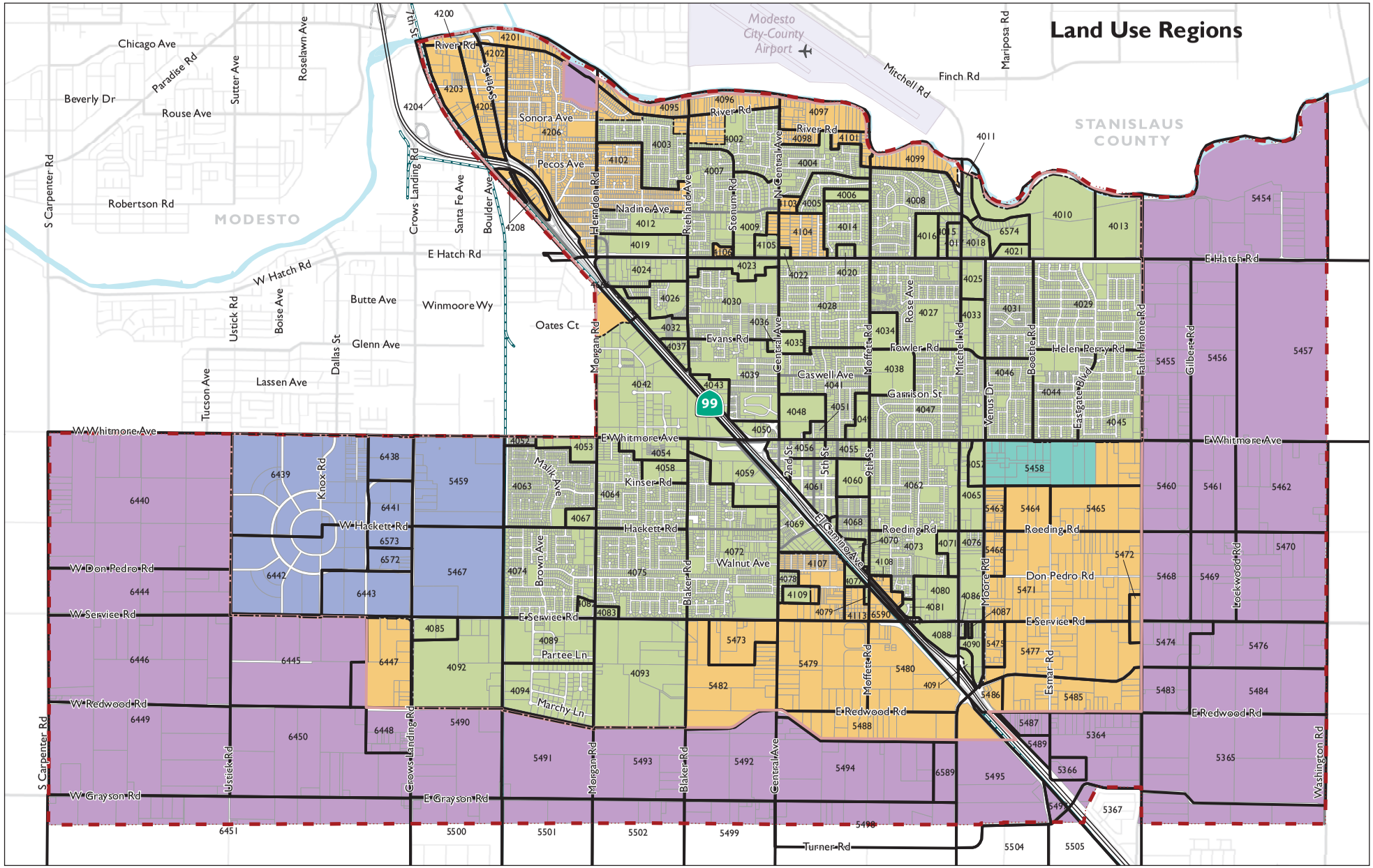
Figure 6

Storm Water Facilities for Land Use Alternatives 1, 2, and 3

Dyett and Bhatia
City of Ceres
General Plan Update

ATTACHMENT 1

Land Use Regions



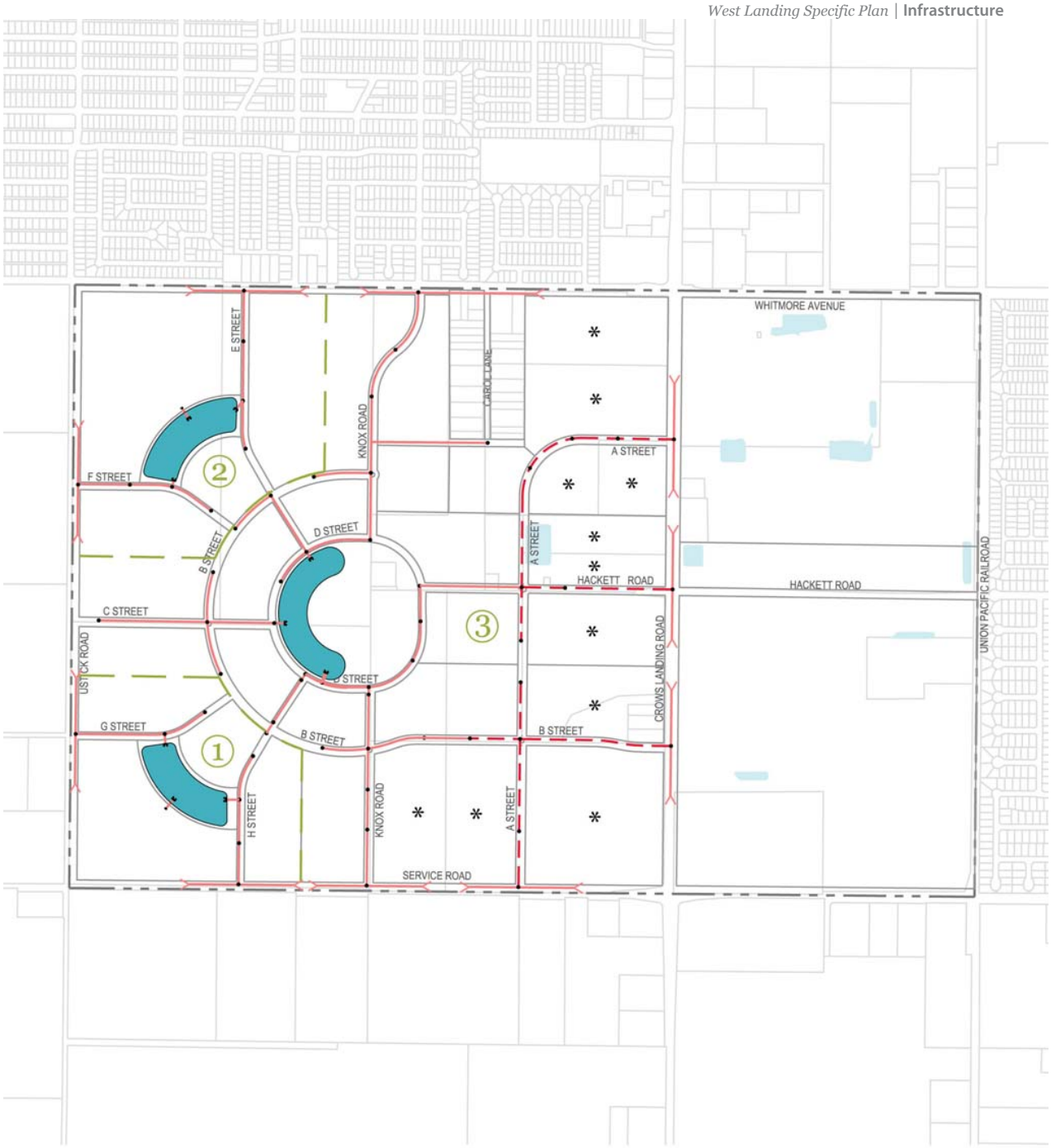
Data Source: City of Ceres, 2015; Stanislaus County Geographic Information Systems, 2015; ESRI, 2015; Dyett & Bhatia, 2015.

GENERAL PLAN UPDATE

City of Ceres

ATTACHMENT 2

West Landing Specific Plan Stormwater System



Legend

- Approximate Location of Proposed Retention Basins
- Approximate Location of Existing Retention Basins
- (1) Drainage Shed Areas
- Drain Pipe Network
- * Internal Onsite Drainage Facilities Required
- Drainage Pipe, Roadway Collection Only
- Boundary

Figure 8.2: Backbone Drainage	Date: January 2011
West Landing Specific Plan Ceres, California	NOT TO SCALE

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