HOUSING ELEMENT &
TARGETED GENERAL PLAN ELEMENT UPDATES

City of Lodi
Conservation Element

Adopted | December 4, 2024
Council Resolution No. 2024-203

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Acknowledgements

City of Lodi

City Council

Lisa Craig, Mayor
Cameron Bregman, Mayor Pro Tempore
Alan Nakanishi, District 1
Ramon Yepez, District 4
Mikey Hothi, District 5

Planning Commission

Mitchell Slater, Chair
Crystal Hicks, Vice Chair
Megan Eddy
Trenton Diehl
Magdalena Saldana
Manjit Singh
Gary Woehl

Community Development Department

John Della Monica, Community Development Director
Cynthia Marsh, Deputy Community Development Director
Jennifer Rhyne, Neighborhood Services Manager
Kari Chadwick, Community Development Program Specialist

Consultants

Rincon Consultants

Brenna Weatherby, Project Advisor
Jason Montague, MPPA, Project Manager

Mintier Harnish

Brent Gibbons, AICP, Project Director
Michael Gibbons, Project Manager
Nikki Zanchetta, Project Planner

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Council Resolution No. 2024-203 | Adopted December 4, 2024

Conservation Element

City of Lodi

Prepared for:

City of Lodi
Community Development Department
221 W Pine Street
Lodi, CA 95240

Prepared by:

Rincon Consultants
4825 J Street, Suite 200
Sacramento, CA 95819
(916) 706-0522
www.rinconconsultants.com

Mintier Harnish
1415 20th Street
Sacramento, CA 95811
(916) 446-0522
office@mintierharnish.com
www.mintierharnish.com

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7.1 Introduction

The Conservation Element establishes policies for the conservation of natural resources in Lodi. Topics addressed include agricultural and soil resources; biological resources; cultural and historic resources; hydrology and water quality, energy and climate change, and air quality. Water supply and conservation is addressed in Chapter 3: Growth Management. Flooding and drainage are addressed in Chapter 8: Safety.

7.2 Agricultural and Soil Resources

Agricultural activities play an important role in the city's economy, culture, and identity. Grapes, processed foods, nuts, fruit, and milk are all major commodities in the Planning area, with both established national and international markets. Wine growers in the Lodi area alone produce an annual crop with an estimated worth of more than $350 million[1]. In addition to the direct contributions of agriculture, there are secondary economic impacts as well, including a food processing industry, winemaking and tourism (see the Economic Development section of Chapter 2: Land Use for details). This section provides an overview of agricultural and soil resources in the Planning Area, including land classified as Important Farmlands and/or containing Williamson Act contracts. Note that Chapter 8: Safety contains policies concerning soil resources as they relate to safety concerns (e.g. geology and seismicity).

Soils

In 1992, a soil survey for San Joaquin County was conducted by the United States Department of Agriculture, Natural Resources Conservation Service, which creates maps of surface soils for use in land use decision making.

The Planning Area consists of a total of 25 different detailed soil types. Most soil types in the Planning Area are sandy loams (such as Tokay and Acampo), which are highly productive for agriculture and present little constraint to development. Limited acreages of additional types of soil types are also found throughout the Planning Area. The Tokay-Acampo soil group is characterized by moderately well-drained and well-drained, moderately coarse textured soils. The soils are deep to hardpan and located on low fan terraces. The primary detailed soil types present within this group include Tokay and Acampo. The Tokay soils are very deep and well drained. Typically, the surface layer and subsoil are moderately coarse textured. The Acampo soils are 40 to 60 inches to a hardpan and are moderately well drained. The surface layer and subsoil are moderately coarse textured.

Agriculture

Important Farmlands within the Planning Area

Farmland across the State is classified by the California Department of Conservation with respect to its potential for agricultural productivity. In 2004, an estimated 40,730 acres (roughly 80% of the total Planning Area) were designated for some type of agricultural use. As shown in Table 7-1 and Figure 7-1, lands designated as Prime Farmland account for an estimated 65% of the Planning Area.

[1] City of Lodi, 2007.

Table 7-1: Land Use in Planning Area, by FMMP Designation

FMMP Designation	Description	Acres	% of Planning Area
Prime Farmland	Land that has the best combination of physical and chemical characteristics for the production of crops.	32,926	65%
Farmland of Statewide Importance	Similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.	1,911	4%
Unique Farmland	Land of lesser quality soils used for the production of specific high-economic value crops	4,442	9%
Farmland of Local Importance	Land of importance to the local agricultural economy as determined by each county's board of supervisors and local advisory committee.	1,420	3%
Grazing Land	Land on which the existing vegetation is suited to the grazing of livestock.	31	<1%
Urban and Built-Up Land	Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to 10-acre parcel.	8,701	17%
Other Categories	Low-density rural developments; brush, timber, wetland, and riparian areas. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres.	1,400	3%

Source: California Department of Conservation, 2004b; Dyett & Bhatia, 2007; ESA, 2007.

Agricultural Production

San Joaquin County

The 2005 Agricultural Report for San Joaquin County indicates that milk and grapes are the leading agricultural commodities in the county, with annual values of nearly $315 million and $290 million, respectively. The gross value of agricultural production for 2005 in San Joaquin County was estimated at $1.75 billion, an all-time high.[2]

Lodi Planning Area

Within the Planning Area, 38,240 acres—approximately 75% of the total Planning Area—are currently in active agricultural production, with just 3% of land classified as "Idle" agricultural land. Table 7-2 identifies the type of crops within the Planning Area. Lands classified as vineyards account for a majority of the lands in agricultural production.

Table 7-2: Department of Water Resource Crop Type Distribution

Crop Type	Acres	% of Planning Area
Vineyard	25,275	50%
Urban	8,628	17%

[2] Source: San Joaquin County Agricultural Commissioner's Office, 2006.

Table 7-2: Department of Water Resource Crop Type Distribution

Crop Type	Acres	% of Planning Area
Deciduous Fruits and Nuts	4,138	8%
Pasture	3,635	7%
Field Crops	2,273	4%
Native Vegetation	1,983	4%
Idle	1,330	3%
Truck, Nursery and Berry Crops	1,152	2%
Grain and Hay Crops	976	2%
Livestock and Poultry Farms	770	2%
Native Riparian	309	<1%
Water	319	<1%
Citrus and Subtropical	22	< 1%

Source: Department of Water Resources, 1996; Dyett & Bhatia, 2007; ESA, 2007.

Preservation and Conservation

Williamson Act

The California Land Conservation Act of 1965, Sections 51200 et seq. of the California Government Code, commonly referred to as the Williamson Act, enables local governments to restrict the use of specific parcels of land to agricultural or related open space use. Landowners enter into contracts with participating cities and counties and agree to restrict their land to agriculture or open space use for a minimum of 10 years. Contracts are automatically renewed every year, for an additional year, unless a property owner initiates the non-renewal process which starts the nine-year non-renewal period, after which time the contract is terminated.

In August 1998, the Williamson Act's Farmland Security Zone (FSZ) provisions were enacted with the passage of Senate Bill 1182 (California Government Code Section 51296-51297.4). This sub-program, called the "Super Williamson Act," enables agricultural landowners to enter into contracts with a specific county for 20-year increments. Land restricted by an FSZ contract is valued for property assessment purposes at 65% of its Williamson Act valuation, or 65% of its Proposition 13 valuation, whichever is lower.

Figure 7-1 provides the locations of parcels within the Planning Area that have an active Williamson Act Contract (18,251 acres), a Williamson Act Contract in non-renewal status (124 acres), or a FSZ contract (1,343 acres).[3] The General Plan growth areas coincide with 927 acres of active contracts, 16 acres in non-renewal contracts and 37 FSZ contracts. General Plan policies support the continuation of Williamson Act contracts in anticipated urban growth areas, until the contracts have expired and the market is ready for urban development.

[3] Williamson Act contract mapping and analysis relies on the following sources: California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Sacramento, CA, 2004; Dyett & Bhatia, 2007; and ESA, 2007.

Farmland Conversion

San Joaquin County has been experiencing the conversion of agricultural land to non-agricultural uses in recent years, according to data from the Department of Conservation's Farmland Mapping and Monitoring program. In 1990, the County had 437,859 acres of Prime Farmland. By 2000, this number dropped to 419,227, a 4% decrease. By 2006, Prime Farmland stood at 407,609 acres, a 7% decrease over 1990 levels.

While one quarter of the gross new General Plan potential development area is infill and will not reduce the amount of farmland, some conversion of agricultural land to urban use is inevitable given Lodi's growth needs. If the General Plan were developed to maximum capacity, 2,893 acres of Prime Farmland would be replaced by urban development (including parks and open spaces). This area represents 69% of the new urban area delineated in the General Plan Land Use Diagram. The most prevalent crop types that would be displaced under complete buildout of the General Plan are vineyards (1,676 acres), deciduous fruits and nuts (516 acres), and field crops (322 acres).

However, multiple policies are identified in this General Plan to prevent excessive agricultural land conversion, including prioritizing infill development within the existing City limits, compact development in new growth areas, and the continuation of the vast majority of agricultural activities in the Planning Area.

7.3 Biological Resources

While a significant majority of the Planning Area is urbanized or in agricultural use, the Planning Area includes a variety of biological communities which provide habitat for both rare and common wildlife and plant species. This section describes biological resources existing or potentially occurring within the Planning Area.

Wildlife Habitats

Wildlife habitats provide food, shelter, movement corridors, and breeding opportunities for wildlife species. More common wildlife species frequently use more than one habitat type—for example, riparian habitat for breeding sites, resting sites, cover while moving from one area to another, or thermal cover, and range into open upland grasslands, scrub, or over open water to forage. The Planning Area contains mostly human-modified habitats. A mosaic of smaller areas of lacustrine, wetland, riparian, grassland, and open water habitat types occur along the Mokelumne River and other waterways in the Planning Area. All of these habitats, as classified in California Wildlife Habitats, are listed in Table 7-3 and briefly described in the section below. [4]

Table 7-3: Habitat and Land Use Acreage for the Planning Area

Land Use/Habitat	*Acres*	*% of Planning Area*
Agriculture	41,110	81%
Urban	8,400	17%
Annual Grassland	620	1%
Valley Foothill Riparian	350	<1%

[4] Mayer, Kenneth E. and W.F. Laudenslayer, Jr. "A Guide to Wildlife Habitats of California." State of California Resources Agency, Department of Fish and Game. Sacramento, CA, 1988.

Freshwater Emergent Wetland	130	<1%
Lacustrine	120	<1%
Water	120	<1%
Total	50,850	100%

Source: California Department of Forestry and Fire Protection 2002; San Joaquin County, 2003; Dyett & Bhatia, 2007; and ESA, 2007.

Agricultural Areas

Vegetation composition and structure in agricultural habitats are variable, depending on the type of crops grown, timing of operational activities, and the time of year. For these reasons, habitat value for wildlife is also variable. Croplands provide food and water for these species, but do not generally provide long-term shelter due to the frequency of disturbance. Typical wildlife species that may use agricultural habitat include a variety of rodents—such as California ground squirrel (*Spermophilus beecheyi*) and California vole (*Microtus californicus*); and birds—such as red-winged blackbird (*Agelaius phoeniceus*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and yellow-billed magpie (*Pica nuttali*).

Urban Areas

Wildlife species that use urban habitat are variable, depending on the density of development, the surrounding land use, and the types and availability of vegetation and other habitat features available for foraging, nesting, and cover. In general, wildlife habitat in urban areas consists of landscaped areas with a mix of both native and exotic ornamental plant species. Species using these areas are conditioned to a greater level of human activity than those in natural and less developed areas. Wildlife species typically found in urban habitat include American crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), American robin (*Turdus americana*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macrocoura*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*).

Annual Grassland

Annual grassland areas are generally surrounded by agricultural land, but may also border smaller areas of wetland or riparian habitat. Along the Mokelumne River, annual grassland habitats are interspersed with lacustrine and open water habitats as well. Annual grassland is typically composed of herbaceous exotic grasses and forbs, and may include weedy species such as perennial ryegrass (*Lolium perenne*), soft chess (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), wild oats (*Avena sp.*), and stork's bill (*Erodium botrys*). Annual grassland habitats that contain or are adjacent to more complex habitats or habitat features (e.g. riparian) are more likely to have a greater habitat value and support a greater diversity of wildlife species. Wildlife species that use annual grassland include a variety of sparrows, white-tailed kite, northern harrier, red-tailed hawk, burrowing owl (*Athene cunicularia*), ring-necked pheasant (*Phasianus colchicus*), various rodents, lizards, snakes, and salamanders.

Valley Foothill Riparian

Valley foothill riparian habitat consists of an overstory canopy of valley oak (*Quercus lobata*) and may include interior live oak (*Quercus wislizenii*), black walnut (*Juglans hindsii*) and boxelder (*Acer negundo*). Understory vegetation may include toyon (*Heteromeles arbutifolia*), wild grape (*Vitus californicus*), and Himalaylan blackberry (*Rubus bicolor*). Riparian habitats can be complex in structure and composition, and abundant in wildlife diversity

and richness. Many species of wildlife use this habitat type for movement corridors, foraging, cover, and breeding. Wildlife species that use valley foothill riparian habitat include black phoebe (*Sayornis nigris*), Nuttall's woodpecker (*Picoides nuttalii*), ruby-crowned kinglet (*Regulus calendulus*), red-shouldered hawk (*Buteo lineatus*), gray squirrel (*Sciurus griseus*), and raccoon.

Freshwater Emergent Wetland

Freshwater emergent wetland is adapted to frequent inundation and ponding and includes hydrophilic emergent species such as common cattail (*Typha latifolia*) and tule rush (*Scirpus acutus*). Within the Planning Area, freshwater emergent wetland occurs in small patches adjacent to annual grassland, and can be surrounded by agricultural lands, or interspersed with a variety of other habitats along the Mokelumne River corridor and other waterways in the Planning Area. Wetland habitats provide habitat for wildlife species such as waterfowl and wading birds, blackbirds (*Agelaius sp.*), amphibians, and reptiles such as garter snake (*Thamnophis sp.*) and pond turtle (*Emys marmorata*).

Lacustrine

Lacustrine is an aquatic habitat type occurring in relatively small numbers predominately along the Mokelumne River. This habitat is limited within the Planning Area. Lacustrine habitat includes lakes, reservoirs, ponds, and ponded areas along streams. Permanent lacustrine habitats typically support fish species and also provides foraging, cover, and breeding habitat for other aquatic species such as pond turtle, amphibians, various waterfowl and piscivorus species such as belted kingfisher (*Ceryle alcyon*), great blue heron (*Ardea herodias*), and bald eagle (*Haliaeetus leucocephalus*).

Open Water

Open water or riverine habitats in the Planning Area include the Mokelumne River, which runs through the northern portion of the Planning Area, and the White Slough Water Pollution Control Plant in the southwestern portion of the Planning Area along I-5. It is the least abundant habitat type in the Planning Area. Open water, like similar lacustrine habitat, provides habitat for a variety of fish and other aquatic or semi-aquatic species.

San Joaquin County Multi-Species Conservation and Open-Space Plan

The San Joaquin County Multi-Species Conservation and Open-Space Plan (SJMSCP) is a habitat conservation plan that seeks to protect agriculture, open space, habitat, and wildlife, in order to address the impacts of urban development and conversion of open space land. The Plan outlines a voluntary strategy that developers and property owners can participate in to mitigate impacts of development. In 2001, the city of Lodi adopted the SJMSCP, thereby allowing project applicants to use this plan to mitigate open space conversions while satisfying CEQA requirements. Project applicants may: pay an in-lieu fee that mitigates cumulative impacts; dedicate habitat lands as conservation easement or fee title; purchase mitigation bank credits from a mitigation bank approved by SJMSCP; or propose an alternative plan, consistent with the SJMSCP goals and equivalent in biological value.

In preparing the SJMSCP, land uses and habitats were mapped throughout the county, categorized into land use categories, and incorporated into a geographic information system database to help determine compensation fees. Many of the new urban areas defined by the General Plan are not included in the mapped extent for Lodi. Such projects will be subject to the Plan's "unmapped project process," which includes a case-by-case review by

the Habitat Technical Advisory Committee. Table 7-4 identifies the amounts, general locations, and descriptions of the land use compensation zone categories.

Table 7-4: SJMSCP Land Use Compensation Zones within the Planning Area

Land Use Compensation Zone	Biological Communities	Planning Area Acreage[1]	% of Planning Area
Multi-Purpose Open Space	Orchards, vineyards, and some water features	21,820	43%
Agricultural Habitat Open Space	Perennial and annual croplands	18,590	36%
No-Pay Zone	Urban	8,710	17%
Natural Land	Riparian, vernal pool, grassland habitats, and some agricultural rangeland	1,670	3%
Vernal Pools	Vernal Pools	40	< 1%
Total		50,830	100%

1. Total acreage for each land use compensation zone does not correspond entirely to the total acreage identified for each habitat described in Table 7-3.

Table Source: San Joaquin County, 2003; Dyett & Bhatia, 2007; and ESA, 2007.

Special Status Species in the Planning Area

Special-status species are plants and animals that, because of their documented rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives.

A table in Appendix XXX identifies the complete list of special species that may be found in the Planning Area, their general habitat requirements, and whether or not the species is covered under the SJMSCP. Species covered by the SJMSCP are subject to the requirements for mitigation or compensation as identified in the SJMSCP or as required by federal and state regulations. As shown in Figure 7-2 and Table 7-5, two CNDDB-listed species, Swainson's hawk and vernal pool tadpole shrimp, may potentially occur within the current City limits and new growth areas.

Table 7-5: Special-Status Species Potentially Occurring within the Planning Area

Scientific Name *Common Name*	Status	General Habitat	SJMSCP Covered?
Branchinecta lynchi Vernal pool fairy shrimp	Federal Threatened	Lifecycle restricted to vernal pools.	Yes
Buteo swainsoni Swainson's hawk	State Threatened	Forages in open plains, grasslands, and prairies; typically nests in trees or large shrubs.	Yes

Source: CNDDB, 2007.

Habitat Conversion

Annual grassland and riparian habitats provide important advantages to several sensitive species in the Planning Area. Development in the Planning Area could eliminate or modify agricultural land and some riparian and seasonally wet grassland. However, the General Plan does not propose any development along the Mokelumne River where the most significant concentration of sensitive resources is located. Policies seek to minimize the disturbance of habitat and wildlife and avoid fragmentation of these resources through the development review process, site-specific biological studies, and by prioritizing contiguous urban development and open space planning.

7.4 Cultural Resources

In addition to a desire by the local community to protect cultural resources, State laws, most notably CEQA, protect archaeological and other cultural resources.

Cultural resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. Information on cultural resources was obtained through archival research, contacts with knowledgeable people, and a reconnaissance-level field survey of the Planning Area.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric (before the introduction of writing in a particular area) or historic (after the introduction of writing). The majority of such places in this region are associated with either Native American or Euroamerican occupation of the area.

Contemporary Native American resources, also called ethnographic resources, can include archaeological resources, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values.

Prehistoric Context

Although the Planning Area may have been occupied by Native Americans for 12,000 years or longer, the evidence of early human use is likely buried by alluvial deposits that have accumulated during the last several thousand years. Reliable evidence from archaeological excavations indicates that this region of California has certainly been occupied for at least 6,000 years. Later periods are better understood because there is more representation in the archaeological record.

The ethnographically known people (the Native American people occupying the Planning Area at the time of contact with non-Native American peoples such as explorers and settlers) are called Northern Valley Yokut. The Northern Valley Yokut Indians held an extensive region within north-central California, which ranged between the Diablo Mountain range to the west, the Sierra Nevada to the east, the north bend of the San Joaquin River to the south, and the Mokelumne River to the north. Semi-sedentary, the Yokuts lived in single-family dwellings and depended heavily on salmon, waterfowl and acorns for subsistence. Their technology included pottery, baskets, bow and arrow, bedrock mortars, pestles, portable mortars, and flaked stone tools. The Yokut traded with the

Paiute and Shoshone to the east, Salinan and Coastanoan on the coast, and Miwok in the western central valley. (Wallace 1978)

Existing Cultural Resources

Areas of relative cultural resource sensitivity can be identified based on the patterns that are reflected in the known site locations and by applying certain assumptions regarding the environmental factors that predict archaeological site locations. For instance, areas proximal to water sources, high ranking food resources, relatively flat slope aspect, and areas of social and political importance would be factors that would predict prehistoric use. In areas where comprehensive cultural resource surveys have not been undertaken—such as the current Planning Area where only six percent of the total area is estimated to have been surveyed—there is a general greater utility in the protection and management of the resources than presenting specific site locations.

According to the record search data and the foregoing assumptions, most prehistoric settlements within and surrounding the Planning Area were focused along the Mokelumne River and Bear Creek (southeast of Lodi). Although some areas have greater sensitivity than others for the presence of prehistoric or historic archaeological resources, it is possible to encounter archaeological deposits during ground-disturbing activities in almost any location.

Prehistoric Archaeological Resources

The evidence from previous survey work and site investigations in the Planning Area indicate that prehistoric site types in unsurveyed portions of the Planning Area may include:

- Surface scatters of lithic artifacts and debitage associated with or without associated midden accumulations, resulting from short-term occupation, and/or specialized economic activities, or long-term occupation.
- Bedrock milling stations, including mortar holes and metate slicks, in areas where suitable bedrock outcrops are present.
- Petroglyphs and/or pictographs.
- Isolated finds of cultural origin, such as lithic flakes and projectile points.

Historic Archaeological Resources

Historic archaeological site in portions of the Planning Area may include:

- Historic artifact scatters and buried deposits of historic debris and artifacts;
- Building foundations and associated deposits;
- Levees and roads; and
- Remains of farms and ranches.

Native American Consultation

Cultural resource identification inquiries also included a letter to the Native American Heritage Commission requesting a review of the sacred lands file in regards to the Planning Area and a list of Native American contacts within the region. The Commission's February 13, 2007 response stated that the sacred lands files did

not contain cultural resources information for the immediate Planning Area, but cautioned that absence of specific site information does not indicate the lack of cultural resources. The response also included eight contacts who have requested information on projects such as this and who may have knowledge of cultural resources within the Planning Area. On March 7, 2007, ESA sent letters to designated contacts with information about the proposed project and a request to contact staff if there were any questions or concerns.

Since that time, one letter had been received from Billie Blue Elliston of the Ione Band of Miwok Indians, who stated that their research indicated that the project may be within their tribe's ancestral territory and asked to remain informed about the project. On May 9, 2007, follow-up phone calls were made to the individuals and organizations identified by the Native American Heritage Commission. No additional information was obtained as a result of these calls. However, as of May 14, 2007, [UPDATE?]

7.5 Historic Resources

Historic resources are standing structures of historic or aesthetic significance. Architectural sites dating from the Spanish Period (1529-1822) through the post-World War II period (1945-1955) are generally considered for protection if they are determined to be historically or architecturally significant. Sites dating after the post-World War II period may also be considered for protection if they could gain significance in the future. Historic resources are often associated with archeological deposits of the same age. A records search of pertinent survey and site data at the Central California Information Center, California State University, Stanislaus, in February, 2007 [CCIC # 6606L] revealed known and recorded cultural resources within the Planning Area. An inventory of properties listed in the National Register of Historic Places (National Register), the California Register of Historic Resources (California Register), the California Inventory of Historic Resources (1976), the California Historical Landmarks (1996), the California Points of Historical Interest (1992 and updates), and the California Office of Historic Preservation (OHP) are also provided. Due to the extensive number of surveys and archaeological sites in the project vicinity, a comprehensive listing of the reports is not included. Rather, an example of the types of studies and archaeological sites is provided.

Historic Setting

By the early 1800s, Spaniards had started exploring the area, adversely impacting the Native population. The 1848 Gold Rush further affected the Yokut population as white settlers began to inhabit the area permanently or travel through on their way to the gold fields in the Sierra Nevada. Lodi began in 1869 as the Town of Mokelumne, founded by the Central Pacific Railroad. The railroad connected Lodi with Sacramento to the north and Oakland and Stockton to the south, and the town was laid out parallel to the tracks. To avoid confusion with Mokelumne Hills and Mokelumne City, the townspeople changed the name to Lodi in 1874.[5]

Local industries, such as the Lodi Flouring Mill, and agriculture promoted further growth in the area. The Ivory Store, at the corner of Pine and Sacramento streets, was established in 1869, and other merchants soon followed with their businesses.[6] Access to rail transportation allowed crops and products to be transported throughout the country. Wheat and watermelons were the predominant crops throughout the nineteenth century.

In 1885, Japanese immigrants settled the area to work on ranches. Over time, they purchased lands and grew grapes. In the late 1890s German nationals settled Lodi and also participated in the grape industry. Flame Tokay

[5] Gudde, 1998.

[6] City of Lodi, 2006.

grapes were first planted in the area in the late nineteenth century and by 1900, Lodi had over two million grape vines. In 1906, the City was incorporated, and held its first Tokay Carnival the next year, which would later evolve into the Lodi Grape Festival.[7] The Lodi Arch, which covers the gateway entrance to downtown, was built to commemorate the first Grape Festival in 1934.

Over the following century, Lodi grew from a population of 2,000 to over 60,000. In 1912 Lodi's first City Hall/fire station was built on Main Street. The current City Hall building was dedicated in 1928. In 1913, the Lodi Union High School opened for classes, and in 1919, entrepreneur Roy Allen brewed and sold his first batch of A&W Root beer in Lodi. Local farmers and wineries weathered the Prohibition Era well, growing grapes and shipping them out in secret for wine making. In 1956 the Federal Government officially acknowledges Lodi as a wine grape growing district. The City's continued growth led to the creation of numerous schools and public utilities and services throughout the second half of the twentieth century. Since the mid-1990s, the City has been involved in numerous restoration projects for its historic resources throughout the city, including the City Hall, the Lodi Arch, and the Southern Pacific Lodi Train Station.

Historic Preservation Framework

Federal Programs

National Historic Preservation Act

The National Historic Preservation Act (NHPA), enacted in 1966, established the National Register, authorized funding for state programs with participation by local governments, created the Advisory Council on Historic Preservation, and established a review process for protecting cultural resources. The NHPA provides the legal framework for most state and local preservation laws. The National Register is the Nation's official list of cultural resources worthy preservation. It is part of a national program to coordinate and support public and private efforts to identify, evaluate and protect historic and archaeological resources.

Certified Local Government Program

The NHPA was amended in 1980 to create the Certified Local Government (CLG) program, administered through OHP. This program allows for direct local government participation and integration in a comprehensive statewide historic preservation planning process. The City of Lodi is not currently participating in the CLG program.

The benefits derived from being a CLG include the prestige and credibility of associating the local preservation program with time-tested state and national preservation programs; technical assistance offered by OHP and other statewide CLGs; ability to compete for annual Historic Preservation Fund grants; direct participation in the nomination of historic properties to the National Register of Historic Places; and ability to perform other preservation functions delegated by OHP under the NHPA. These may include the responsibility to review and comment on development projects for compliance with federal and state environmental regulations, such activities as Section 106 reviews; National Register nomination; and rehabilitation plans for projects seeking Federal Rehabilitation Tax Credits.

[7] City of Lodi, 2006.

State Programs

California Register of Historical Resources

The California Register was established in 1992, through amendments to the Public Resources Code, as an authoritative guide to be used by state and local agencies, private groups and citizens to identify the State's historical resources and to indicate what properties are to be protected from substantial adverse change. The California Register includes resources that are formally determined eligible for, or listed in, the National Register; State Historical Landmarks numbered 770 or higher; Points of Historical Interest recommended for listing by the State Historical Resources Commission (SHRC); resources nominated for listing and determined eligible in accordance with criteria and procedures adopted by the SHRC; and resources and districts designated as city or county landmarks when the designation criteria are consistent with California Register criteria.

California Point of Historical Interest Program

The California Point of Historical Interest Program was established in 1965 to recognize local historic properties not able to meet the restrictive criteria of the State Historical Landmarks program. The criteria for the Points are the same as those that govern the Landmark program, but are directed to local (city or county) areas. California Points of Historical Interest do not have direct regulatory protection, but are eligible for official landmark plaques and highway directional signs.

Mills Act Historic Property Contract

State-enabling legislation, known as the Mills Act, allows jurisdictions to enter into contracts with private property owners of qualified historic properties to provide a property tax reduction in exchange for the owners agreeing to preserve, rehabilitate and maintain their historic properties. Mills Act historic property contracts always have provisions for rehabilitating a property with specifications for complying with the Secretary of the Interior's Standards for Rehabilitation. This property tax reduction is usually most beneficial to owners who have made recent purchases.

Local Preservation Ordinance

A historic preservation ordinance is the primary tool used by municipalities to protect historic resources in a community. Local governments in California have authority to adopt a historic preservation ordinance to provide regulations regarding historic and cultural resources. Historic preservation ordinances are structured to address the particular needs and resources within a community.

While Lodi has several individual buildings on the National Register, it does not have any designated historic or conservation districts. Such districts would ensure that the overall neighborhood character of a neighborhood—within which individual buildings may not be designated, but which contribute to the overall character—are protected and enhanced. Establishing historic districts would help address issues of incompatible new construction and additions that have been occurring in some of the city's historic neighborhood. It would also address issues of public realm—such as streets, lampposts, and trees—that contribute to the overall urban character of a district.

While delineation of historic districts is beyond the scope of the General Plan, the Plan provides the policy basis and direction for more detailed evaluation and delineation of historic districts, and a basis for implementing standards and guidelines for conservation of the character of historic districts. Within historic districts, key features such as building typology, streetscape, lighting, materials, and signage could be maintained and preserved. Regardless of inclusion in a historic district, the character of existing older neighborhoods should be preserved by ensuring that new infill development is consistent with the existing form.

Existing Historic Resources

According to the record search data and the foregoing assumptions, most of the historically significant resources are clustered around the downtown area and in Woodbridge. Properties that are listed on or found eligible for listing in the National Register of Historic Places or which have not yet been evaluated for significance are presented in Table 7-6 and Figure 7-3. Lodi currently has six buildings in the National Register of Historic Places as well as several others that are eligible.

Table 7-6: Historic Properties in Lodi and Woodbridge

Site/Building	Location	Year Built	Historic Landmark Designation	National Register Status
Bridge #29-2R	SR-99	1930		Identified, not evaluated.
Hotel Lodi	5 S. School Street	1915	NR	Listed in NR, individual property
Lodi Arch/Mission Arch	Pine Street	1907	NR, SHL No 931	Listed in NR, individual property
Lodi Armory	333 N. Washington St	1930		Determined eligible for NR as an individual property
Lodi Carnegie Library	305 W. Pine Street	1909		Determined eligible for NR as an individual property
Lodi City Hall	221 W. Pine Street	1928		Determined eligible for NR as an individual property
Miyajima Hotel	4 N. Main Street	1937		Identified, not evaluated
Morse/Skinner Ranch House	13063 SR 99	1869	NR[1]	Listed in NR, individual property
Southern Pacific Railroad Depot	2 N. Sacramento St.	1907		Removed from eligibility for NR
Theodore H Beckman Ranch House	1150 W. Kettleman Ln.	1902	SPHI4	Determined eligible for NR as a contributor to a historic district
Women's Club of Lodi	325 W. Pine Street	1923	NR	Listed in NR, individual property
IOOF Hall	18961 Lower Sacramento Rd, Woodbridge	1860	NR	Listed in NR, individual property
San Joaquin Valley College	18500 N Lilac St, Woodbridge	1879	SHL No. 520	CR, needs reevaluation
Wood's Ferry and Wood's Bridge	County Hwy JI0, Woodbridge	1852 & 1858	SHL No. 163	CR, needs reevaluation
Woodbridge	County Hwy JI0, Woodbridge	1859	SHL No. 358	CR, needs reevaluation
Woodbridge Masonic Lodge #131	1040 Augusta Street, Woodbridge	1882	NR	Listed in NR, individual property

Key:

NR – National Register

SHL – State Historic Landmark

CR – California Register

SPHI – State Point of Historic Interest

Source: Directory of Properties in the Historic Property Data File for San Joaquin County, Office of Historic Preservation.

7.6 Hydrology and Water Quality

Lodi has several water resources within the Planning Area that contribute to the water supply and provide habitat for wildlife. This section discusses surface and groundwater resources and policies that seek to ensure that future development does not negatively impact water quality. For a discussion of water supply and conveyance as the city's population grows, see Chapter 3: Growth Management. Flooding and drainage is discussed in Chapter 8: Safety.

Policies, Programs, And Regulations

Federal Regulations

Federal Clean Water Act

In 1972, Congress passed the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), with the goal of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. § 1251(a)). The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Section 319 mandates specific actions for the control of pollution from non-point sources. The U.S. EPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program, to the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs).

Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for surface waters of the United States based on the water body's designated beneficial use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. Applicable water quality standards are contained in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins.

Section 303(d) of the CWA bridges the technology-based and water quality-based approaches for managing water quality. Section 303(d) requires that states make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the U.S. EPA administrator determines they are appropriate), states are to develop total maximum daily loads (TMDL). TMDLs are established at the level necessary to implement the applicable water quality standards. A TMDL must account for sources of the pollutants that caused the water to be listed.

Section 404 of the CWA prohibits the discharge of any pollutants into "waters of the United States," except as allowed by permit. 33 Code of Federal Resources § 328.3(a)(3). Section 404 of the CWA authorizes the U.S. Army Corps of Engineers to issue permits for and regulate the discharge of dredged or fill materials into wetlands or other waters of the United States. Under the CWA and its implementing regulations, "waters of the United States" are broadly defined to consist of rivers, creeks, streams, and lakes extending to their headwaters, including adjacent wetlands.

National Pollutant Discharge Elimination System (NPDES)

In California, the National Pollutant Discharge Elimination System (NPDES) program is administered by the SWRCB through the nine RWQCBs. Lodi lies within the jurisdiction of Central Valley Regional Water Quality Control Board (CVRWQCB) (Region 5) and is subject to the State Water Resources Control Board's (SWRCB)

NPDES Water Quality Order for Small Municipal Separate Storm Sewer Systems (Phase II MS4 Permit). As a result, the City is required to develop and implement a Stormwater Management Program (SMP) that describes best management practices (BMPs), measurable goals, and timetables for implementation in six program areas: public education and outreach, illicit discharge detection and elimination, public participation/involvement, construction site runoff control, post-construction runoff control, and pollution prevention/good housekeeping. Additionally, the MS4 must reduce its discharge of pollutants to the Maximum Extent Practicable (MEP) and perform inspections and monitoring. To comply with Section E.6.c, the City is also required to develop and implement an Enforcement Response Plan.

The City has developed a Stormwater Management Plan to meet the terms of General Permit Number CAS000004, Water Quality Order No. 2003-0005-DWQ issued in 2003. The Draft Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (Small MS4), revised and effective July 1, 2013 by the State Water Resources Control Board, outlines the requirements the City must follow. On June 3, 2015, the City adopted the existing Storm Water Ordinance, Lodi Municipal Code (LMC) Chapter 13.14, which incorporates several enforcement mechanisms that can be employed to escalate the level of enforcement depending on the circumstances, including: notices of violation; cease and desist orders; abatement; administrative citations; civil enforcement; and criminal prosecution.

State Regulations

State Water Resources Control Board and Regional Water Quality Control Board

Under the Clean Water Act (CWA) of 1977, the U.S. Environmental Protection Agency (USEPA) seeks to restore and maintain the chemical, physical, and biological integrity in the nation's waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the USEPA to implement water quality regulations. The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402(p) of the CWA controls water pollution by regulating stormwater discharges into the waters of the U.S. California has an approved state NPDES program. The USEPA has delegated authority for water permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The Central Valley Regional Water Quality Control Board (CVRWQCB) regulates water quality in the Planning area.

The State Water Resources Control Board (SWRCB) administers water rights, water pollution control, and water quality functions throughout the state, while the Regional Water Quality Control Board (RWQCB) conducts planning, permitting, and enforcement activities. As required by Section 404 of the Clean Water Act, a Section 401 water quality certification must be obtained or waived from the Regional Water Quality Control Bard (RWQCB) for permit compliance.

Porter-Cologne Water Quality Act

The California Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal agencies for coordinating and controlling water quality in the State. Specifically, the Porter-Cologne Act authorizes the SWRCB to adopt, review, and revise policies for waters of the State (including both surface and groundwater) and directs the RWQCBs to develop regional basin plans.

The Porter-Cologne Water Quality Control Act, as revised in December 2007, provides for protection of the quality of all waters of the state for use and enjoyment by the people of California. It further provides that all activities that may affect the quality of waters of the state shall be regulated to obtain the highest water quality that is reasonable, considering all demands being made and to be made on those waters. The Act also establishes provisions for a statewide program for the control of water quality, recognizing that waters of the state are increasingly influenced by interbasin water development projects and other statewide considerations, and that

factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally within the state. The statewide program for water quality control is therefore administered most effectively on a local level, with statewide oversight. Within this framework, the Act authorizes the State Water Resources Control Board and regional boards to oversee responsibility for the coordination and control of water quality within California.

Conservation element: wildlife and habitat connectivity (California Assembly Bill 1889)

The California Assembly Bill 1889 in the California Government Code Section 65302 (d)(3) requires the conservation element to identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. Through this, the conservation element not only mitigates the impacts of development but also prepares the City for the environmental challenges of the future.

Local Regulations

San Joaquin County Multi-Species Habitat Conservation and Open-Space Plan

The San Joaquin County Multi-Species Conservation and Open-Space Plan (SJMSCP) is a 50-year habitat conservation plan that seeks to protect agriculture, open space, habitat, and wildlife in order to address the impacts of urban development and conversion of open space land.

The Multi-Purpose Open Space Land Use Compensation Zone of the SJMSCP supports a variety of uses including agriculture, recreation, scenic resources and other beneficial open space uses. These open space lands may also provide flood control, groundwater recharge, and interpretive/educational opportunities. Although these lands do not qualify for designation as Natural Lands, Agricultural Habitat Lands, or Urban Lands, the conversion of Multi-Purpose Open Space Lands contributes to the overall loss of open space. These lands have the potential to supply food for SJMSCP covered species and provide habitat for several SJMSCP covered bat species. Additionally, conversion of these lands limits the ability of plants and wildlife to disperse through or move through open space corridors within the Planning Area.

Topography and Climate

The Planning Area is a low-lying, gently sloping former floodplain of the Mokelumne River that lies within six miles of the San Francisco Bay-San Joaquin River Delta (Delta). Elevations of the Planning Area range from about 50 feet above sea level along the river bank in the northeastern portion to about 25 feet in the southwest corner. The average slope is about 0.1-0.2 percent, with west-southwest aspect toward the Delta sloughs.

The climate in the Planning Area consists of long, dry, hot summers and mild winters. Between 1948 and 2006, the average annual temperature ranged from a low of 46 degrees Fahrenheit (ºF) and a high of 74ºF. Within this same time period, annual rainfall was approximately 18 inches.[8]

Surface Water Resources

Small streams or creeks that pass through the Planning Area include Pixley Slough and Bear Creek, located in the southeastern portion of the Planning Area (see Figure 7-4). A number of canals and drainages are scattered

[8] Western Regional Climate Center, 2007.

throughout the Planning Area and in particular near the western boundary closer to the Delta. No other surface streams are recognized within the Planning Area.

Lodi Lake is located behind Woodbridge Dam on the Mokelumne River within the City's northern boundary. Lodi Lake also serves as a diversion for Woodbridge Irrigation District's (WID) South Main Canal, providing irrigation waters to currently undeveloped lands in the western and southern portions of the Planning Area. The South Main Canal runs through the central portion of the Planning Area and within the existing City limits.

The Mokelumne River is the major waterway running through the northeastern portion of the Planning Area. This important waterway is located within the San Joaquin Valley watershed and drains about 660 square miles above the Planning Area and extends to 10,000 feet high in the Sierra Nevada. The Comanche Reservoir is located on the Mokelumne River approximately 20 miles northeast of the Planning Area.[9]

The City relies on both surface water and groundwater to provide municipal water within the city limits. The City of Lodi Water Utility is the sole provider of surface water to domestic users within the City's limits and operates a Surface Water Treatment Facility (SWTF).[10] Since 2016 the city's water supply has been evenly split between groundwater and surface water, where surface water sources include purchased water from the Mokelumne River and banked surface water (agreements with WID), and treated water from the SWTF. To secure future surface water supplies to support municipal deliveries beyond the agreements with WID, the city should consider extension of those agreements or identify new sources of surface water agreements.

Surface Water Quality

Impacts to water quality result from runoff during wet weather events, direct discharge associated with industrial/commercial activities, leaking sewer infrastructure, and illicit dumping which is primarily released into the WID canal. Excess stormwater is temporarily stored in retention basins and released into the Mokelumne River, WID canal, and Lodi Lake.[11] Additionally, sewage generated in the Planning Area is eventually discharged to the San Joaquin River via the City's wastewater treatment facility. Additional pollutant sources within the Planning Area include past waste disposal practices, agricultural chemicals, and chemicals and fertilizers applied to landscaping. Typical contaminants may include sediment, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash.

The State Water Resources Control Board (SWRCB), in compliance with the Clean Water Act, Section 303(d), has prepared a list of impaired water bodies in the State of California. As of 2006, the Lower Mokelumne River was listed as being impaired by zinc and copper. These contaminants likely originated upstream from the Planning Area from mining activities. The Central Valley Regional Water Quality Control Board is required to develop and implement a plan to lower the amounts of these contaminants in this water body to an acceptable level.[12]

Groundwater Resources

As discussed under surface water, the City relies on groundwater for approximately half of its water supplies. The Planning Area overlies the Eastern San Joaquin sub-basin of the greater San Joaquin Valley Groundwater

[9] City of Lodi, 1988; Department of Water Resources, 2006.

[10] City of Lodi 2022 Municipal Service Review and Sphere of Influence Plan, 2022.

[11] City of Lodi 2022 Municipal Service Review and Sphere of Influence Plan, 2022.

[12] SWRCB, 2006.

Basin. Groundwater in the Planning Area is recharged by local precipitation and through percolation from surface waters. The Mokelumne River is the primary source of groundwater recharge in the Planning Area. The city of Lodi, as well as the entire Central Valley, is underlain by a vast thickness of alluvium that was derived from surrounding mountains, transported by the Mokelumne River and other streams, and deposited in shallow seas of river floodplains. This alluvium is now saturated below a relatively shallow depth. Thus, the sedimentary layers underlying the Planning Area are a part of the major aquifer system that extends throughout the Central Valley from Red Bluff to Bakersfield.[13]

In 2014, the California Department of Water Resources (DWR) enacted the Sustainable Groundwater Management Act (SGMA) in response to continued overdraft of groundwater resources within California. At this time, DWR identified the Eastern San Joaquin sub-basin as critically overdrafted due to decreasing groundwater levels. The city of Lodi is located within, and a member of the Eastern San Joaquin Groundwater Authority Groundwater Sustainability Agency (ESJGSA) formed in 2017. In response to SGMA, the ESJGSA developed a Groundwater Sustainability Plan (GSP) in compliance with SGMA to address measures to attain sustainability within the subbasin by 2040.[14]

Groundwater Recharge

Groundwater levels in the aquifer beneath Lodi have fluctuated over the past century, with periods of decline between 1930 to 1980 and periods of increases from 1980 through 2015. Future groundwater levels will be influenced by precipitation and water demand. To reduce the risk of a future shortage in water supply, the city can maximize groundwater recharge through implementation of floodwater accommodation and green infrastructure as part of the city's capital improvement projects. The City's long-term goals include implementing projects to expand the City's surface water supply reliability and to continue implementing the City's Water Conservation Ordinance for residents to prevent the waste of water.[15]

FIGURE 7-1 shows areas the City can utilize to capture floodwater and promote groundwater recharge. These areas include existing wetlands and waterbodies on the periphery of the city and are primarily located near the White Slough Water Pollution Control Facility and along the Mokelumne River. Most wetland areas in proximity to Lodi are within unincorporated areas of the County. Therefore, the City will need to collaborate with San Joaquin County to implement floodwater capture.

Groundwater Quality

Contaminants

As a significant source of drinking water for the city of Lodi, groundwater quality issues can seriously threaten the city's water supply. Currently, the primary contaminants of concern are Dibromochloropropane (DBCP), 1,2,3,-Trichloropropane (1,2,3-TCP), Per- and Polyfluoroalkyl Substances (PFAS), Tetrachloroethylene (PCE), and Trichloroethylene (TCE). Nine of the City's wells utilize granular activated carbon for to remove DBCP from the water. While PCE, TCE, PFAS compounds, and 1,2,3-TCPhave been detected in some of the City's wells, all municipal wells in use are compliant with all drinking water standards. Efforts to clean up the contamination are ongoing, with significant progress having been made. [16]

[13] Department of Water Resources, 2006.

[14] Eastern San Joaquin Groundwater Subbasin Groundwater Sustainability Plan, 2019.

[15] City of Lodi Water Shortage Contingency Plan, 2020.

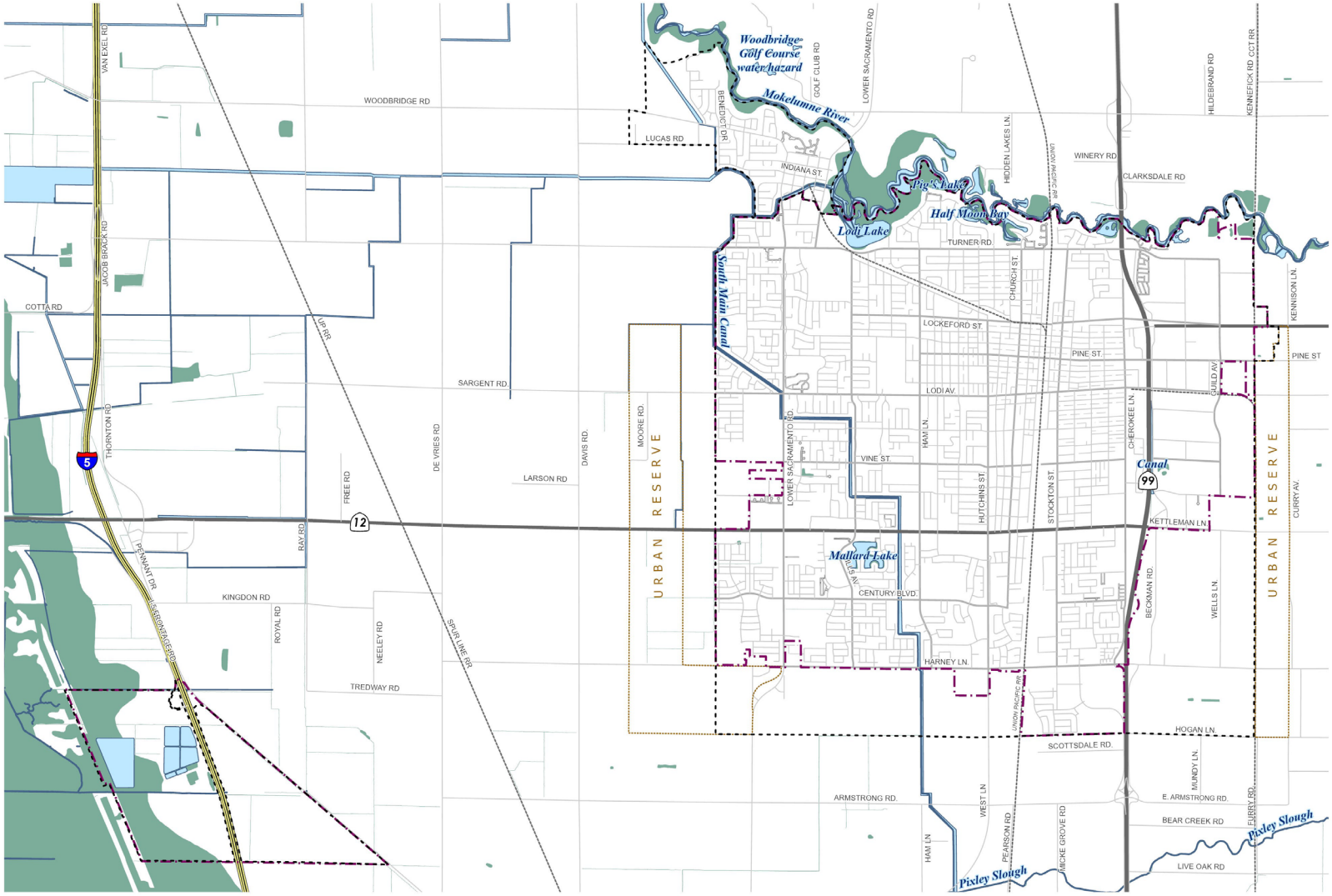
[16] City of Lodi, 2006.

Overdraft

Over the past 40 years, pumping for municipal and agricultural uses in the eastern San Joaquin groundwater subbasin has exceeded the basin's sustainable yield. This has caused groundwater elevations to decline at an average rate of 1.7 feet per year and has dropped by as much as 100 feet in some areas. Groundwater overdraft has reduced storage in the basin by as much as two million acre feet and caused groundwater depressions in the sub-basin east of Lodi. Overdraft has the potential to decrease the water quality in the groundwater basin by allowing brackish water from the Delta to move into the basin underlying the western portion of the Planning Area.[17]

[17] Department of Water Resources, 2006.

FIGURE 7-1: FLOODWATER



7.7 Energy and Climate Change

This section describes climate change and its potential impacts on the city and region. It provides an overview of the energy and mineral resource sector, including the city's contributions to global climate change (GCC) and its energy conservation efforts to try to reduce greenhouse gas (GHG) emissions and the rate of GCC. Air quality is discussed separately, in Section 7.7, but also has a direct impact on GHG emissions, GCC, public health, and overall quality of life.

Although, oil, gas and mineral resources have been mined previously in the county and even within the Planning Area, currently there are no significant resources or extraction operations in the Planning Area.

Global Climate Change

Greenhouse Gases

The Earth's atmosphere is naturally composed of gases that act like the glass panes of a greenhouse, retaining heat to keep the temperature of the Earth stable and hospitable for life at an average temperature of 60°F. Recently, elevated concentrations of these gases in the atmosphere have had a destabilizing effect on the global climate, fueling the phenomenon commonly referred to as GCC. GCC is defined as a change in the average weather of the earth that may be measured by wind patterns, storms, precipitation, and temperature. (See Section 2.7 for a detailed description of GHG emissions sources.)

Potential Impacts

While many scientists are certain that human activities are changing the composition of the atmosphere and thus the planet's climate, they are less certain about how much the climate will change, at what rate it will change, or what the exact global, or even regional, effects will be. Nonetheless, the world's leading climate scientists—the Intergovernmental Panel on Climate Change (IPCC)—have reached consensus that global climate change is "very likely" caused by humans, and that hotter temperatures and rising sea levels will continue for centuries no matter how much humans control their future emissions.

According to the California Climate Action Team, accelerating GCC has the potential to cause a number of adverse impacts in California, including but not limited to: shrinking Sierra snowpack that would threaten the state's water supply; public health threats caused by higher temperatures and more smog; damage to agriculture and forests due to reduced water storage capacity, rising temperatures, increasing salt water intrusion, flooding, and pest infestations; critical habitat modification and destruction; eroding coastlines; increased wildfire risk; and increased electricity demand. The IPCC predicts that global mean temperature increase from 1990-2100 could range from 2.0 to 11.5 degrees Fahrenheit. It projects a sea level rise of seven to 23 inches by the end of the century, with a greater rise possible depending on the rate of polar ice sheet melting. Just as GCC is a result of the cumulative impact of billions of actions at many levels, including the local and individual levels, the solution to GCC requires taking action at each of these levels.

State Regulations

State regulations offer direction and regional and local goals and policy measures.

Executive Order S-3-05

Executive Order S-3-05, signed on June 1, 2005, recognized California's vulnerability to climate change, noting that increasing temperatures could potentially reduce snow pack in the Sierra Nevada, which is a primary source of the State's water supply. Additionally, according to this Order, climate change could influence human health, coastal habitats, microclimates, and agricultural yield. The Order set the GHG reduction targets for California: by 2010, reduce GHG emissions to 2000 levels; by 2020 reduce GHG emissions to 1990 levels; by 2050 reduce GHG emissions to 80 percent below 1990 levels.

California Global Warming Solutions Act of 2006

Assembly Bill (AB) 32 outlines measures by which the State and its businesses and residents can reduce heat-trapping emissions from a variety of sources, including mobile sources and stationary sources such as power plants and refineries. In addition to setting a binding limit on greenhouse gas emissions, AB 32 requires the California Air Resources Board (CARB), the State Energy Resources Conservation and Development Commission, and the California Climate Action Registry to jointly administer State policy specific to global warming issues.

In addition, AB 32 requires CARB to institute a mandatory emissions reporting and tracking system to monitor compliance with the emissions limit. To that end, CARB adopted a scoping plan in December 2008 to guide the development of detailed regulations in accordance with AB 32. This plan includes local government targets to reduce emissions by 15% by 2020 over 2008 levels. GHG rules and market mechanisms adopted by CARB will take effect and are legally enforceable beginning in 2012. As a result, the plan seeks to limit GHG emissions to reduce global warming pollution by 145 million tons by 2020 or to 25 percent below forecasted emissions (reduced to 1990 levels by 2020).

Senate Bill 375

Senate Bill (SB) 375 (Chapter 728, Statutes of 2008) links transportation and land use planning with the CEQA process to help achieve the GHG emission reduction targets set by AB 32. Regional transportation planning agencies are required to include a sustainable community strategy (SCS) in regional transportation plans. The SCS must contain a planned growth scenario that is integrated with the transportation network and policies in such a way that it is feasible to achieve AB 32 goals on a regional level. SB 375 also identifies new CEQA exemptions and stream lining for projects that are consistent with the SCS and qualify as Transportation Priority Projects.

Local Energy Resources and Conservation Efforts

Sources and Service Providers

Electrical service to the city is provided by the Lodi Electric Utility. The Lodi Electric Utility is a customer-owned and City-operated utility that provides electrical services for residential, commercial, and industrial customers in the city.

For 30 years, the Lodi Electric Utility has been a member of the Northern California Power Agency (NCPA), which is a collective comprised of utilities that own and operate their own power plants. The NCPA allows the Lodi Electric Utility to purchase and supply electricity at cost. The NCPA owns and operates a variety of electric generation facilities, such that the Lodi has access to a variety of energy sources. In 2007, 53% of the city's

power came from renewable energy sources, primarily geothermal and hydroelectric; natural gas (29%) and coal (18%) composed the remaining power sources.[18]

Natural gas service for the Planning Area is provided by Pacific Gas and Electric Company (PG&E) and is piped from gas fields in Tracy and Rio Vista.

Energy and Mineral Resources

Natural gas extraction used to be common within the Planning Area, but most wells are no longer in use. As of 2005, there were only 74 active wells in the county producing approximately 9,600,000 million cubic feet of natural gas.[19] Locally, the Lodi Gas field is located approximately one mile north of the northeastern corner of the Planning Area, buffered by agricultural land. Lodi Gas Storage, LLC utilizes wells in this field for gas storage. The 1,450-acre field was originally determined to be depleted in 1972. However, there are still large pockets of gas in two reservoirs. These reservoirs are now used to store gas, which is transported via a 33-mile long pipeline that runs along Acampo Road, the northern boundary of the Planning Area, from Lower Sacramento Road to Interstate-5. The pipeline connects the storage facility with two PG&E connections east of the Planning Area.[20]

The Planning Area does not contain significant mineral resources. The California Geological Survey's (formerly the Division of Mines and Geology) Special Report 160 identifies the classification of aggregate resources within the Stockton-Lodi Production-Consumption Region. According to this report, the Planning Area is designated as MRZ-1, meaning it is highly unlikely to contain significant mineral resources.[21]

Energy Conservation

Reducing the carbon content of the fuel source and overall energy consumption can reduce GHG emissions and limit the negative impacts of GCC. The City currently administers and implements a variety of local energy conservation and waste reduction programs, including:

- Low-voltage LED lighting equipment in traffic signals.
- Solar assisted equipment at all new bus shelters/stops.
- Curbside recycling (which has allowed the city to meet the California Integrated Waste Management Act of 1989 requirement to divert at least 50% of waste from landfills).
- Energy education programs for children and students.
- Standards for photovoltaic panel installation.
- Lighting, heating, solar, and air conditioning rebate programs for residential and non-residential customers through the City's Electric Utility.

The General Plan seeks to reduce energy consumption through conservation efforts and renewable energy sources, as well as through land use, transportation, water, and green building and construction strategies, discussed elsewhere in the Plan.

[18] City of Lodi, Electric Utility Department. "Power Content Label: Actual Power Mix 2007." http://lodielectric.com/about/powercontent.php

[19] California Department of Conservation, Division of Oil, Gas, and Geothermal Resources. Annual Report of the State Oil and Gas Supervisor, 2006.

[20] Jones and Stokes, 1999.

[21] California Division of Mines and Geology. Mineral Land Classification of Portland Cement Concrete Aggregate in the Stockton-Lodi Production-Consumption Region, Special Report 160. 1988.

7.8 Air Quality

Good air quality is essential for protecting public health, ensuring a high quality of life, and maintaining a low rate of GHG emissions. However, Lodi is located in the San Joaquin Valley Air Basin (SJVAB), considered one of the most polluted air basins in California due to its unique topography and weather patterns. Therefore, a review of existing air quality sources and strategy for improvement is an essential component of the General Plan.

This section complies with AB 170 (an update to Government Code Section 65302.1) by providing existing conditions data (including attainment, and standards); local, district, state, and federal programs and regulations; and a comprehensive set of guiding and implementing policies. General Plan policy measures seek to reduce air quality impacts, in order to improve public health, reduce GHG emissions and enhance overall quality of life.

Climate and Atmospheric Conditions

Air pollutant emissions overall are fairly constant throughout the year, yet the concentrations of pollutants in the air vary from day to day and even hour to hour. This variability is due to complex interactions of weather, climate, and topography. These factors affect the ability of the atmosphere to disperse pollutants. Conditions that move and mix the atmosphere help disperse pollutants, while conditions that cause the atmosphere to stagnate allow pollutants to concentrate. Local climatological effects, including topography, wind speed and direction, temperature, inversion layers, precipitation, and fog can exacerbate the air quality problem in the SJVAB.

San Joaquin Valley Air Basin

The SJVAB is approximately 250 miles long and averages 35 miles wide, and is the second largest air basin in the state. The SJVAB is defined by the Sierra Nevada in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Straits where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The San Joaquin Valley (Valley), thus, could be considered a “bowl” open only to the north.

Wind Conditions and Air Pollutants

During the summer, wind speed and direction data indicate that summer wind usually originates at the north end of the Valley and flows in a south-southeasterly direction through the Valley, through Tehachapi pass, into the Southeast Desert Air Basin. In addition, the Altamont Pass also serves as a funnel for pollutant transport from the San Francisco Bay Area Air Basin into the region.

During the winter, wind speed and direction data indicate that wind occasionally originates from the south end of the Valley and flows in a north-northwesterly direction. Also during the winter months, the Valley generally experiences light, variable winds (less than 10 mph). Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high carbon monoxide (CO) and respirable and fine particulate matter (PM10 and PM2.5, respectively) concentrations.

Climate

The SJVAB has an “Inland Mediterranean” climate averaging over 260 sunny days per year. The valley floor is characterized by warm, dry summers and cooler winters. For the entire Valley, high daily temperature readings in summer average 95ºF. Temperatures below freezing are unusual. Average high temperatures in the winter are in

the 50s, but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low temperature is 45ºF.

The vertical dispersion of air pollutants in the Valley is limited by the presence of persistent temperature inversions. Solar energy heats up the Earth's surface, which in turn radiates heat and warms the lower atmosphere. Therefore, as altitude increases, the air temperature usually decreases due to increasing distance from the source of heat. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Inversions can exist at the surface or at any height above the ground, and tend to act as a lid on the Valley, holding in the pollutants that are generated here.

Policies, Programs, and Regulations

Federal

At the federal level, the Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA). The federal CAA was first signed into law in 1963. Congress substantially amended the federal CAA in 1970, 1977, and 1990. The EPA sets federal standards for vehicle and stationary sources and provides research and guidance in air pollution programs.

Federal Clean Air Act

The federal CAA required the EPA to set National Ambient Air Quality Standards (NAAQS) for several problem air pollutants on the basis of human health and welfare criteria. The federal CAA requires air quality plans to include measures necessary to achieve these standards and requires that all City plans, programs and projects that require federal approval (including regional transportation plans), conform to air quality plans. Sanctions will apply if feasible measures are not expeditiously adopted.

Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare (e.g., crops, forests, materials, visibility, etc.). Primary NAAQS have been established for the following criteria air pollutants: CO, ozone (O3), PM10, PM2.5, nitrogen dioxide (NO2), sulfur dioxide (SO2), lead (Pb).

All of the above, except CO, also have some form of secondary standard. The primary NAAQS standards are intended to protect, within an adequate margin of safety, those persons most susceptible to respiratory distress, such as people suffering from asthma or other illness, the elderly, very young children, or others engaged in strenuous work or exercise.

Transportation Funding and Programs

In addition to setting health-based standards for air pollutants, the EPA also oversees state and local actions to improve air quality. The Intermodal Surface Transportation Efficiency Act requires transportation projects to not impact the ability to attain air quality standards and requires demonstration of expeditious implementation of Transportation Control Measures (TCM). In addition, Federal Transportation Funding Reauthorization provides funding for transportation projects that enhance air quality and for expeditious implementation of TCMs included in air quality plans.

State

States are required to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. States may also establish their own standards, provided the state standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to Health and Safety Code Section 39606(b) and its predecessor statutes.

The California Legislature established CARB in 1967. CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. Other CARB duties include monitoring air quality in conjunction with air monitoring networks maintained by air pollution control districts (APCDs) and air quality management districts (AQMDs), establishing CAAQS (which are more stringent than the NAAQS in many cases), setting emissions standards for new motor vehicles, and reviewing district input for the State Implementation Plan (SIP) required by the federal CAA amendments. The SIP consists of the emissions standards for vehicular sources set by the ARB as well as attainment plans adopted by the APCD or AQMD and approved by the ARB, with objective of attain the NAAQS.

The State of California, through the CARB and Bureau of Automotive Repair, develops programs to reduce pollution from vehicles and consumer products. The following list provides a brief explanation of important regulations set forth by the State of California.

California Clean Air Act

The CCAA provides a planning framework for attainment of the CAAQS for ozone, CO, SO2, and NO2. The CCAA classifies ozone nonattainment areas as moderate, serious, severe, and extreme based on severity of violation of state ambient air quality standards. For each class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air districts responsible for air basins with air quality that is in violation of CAAQS for ozone, CO, SO2, and NO2 are required to prepare an air quality attainment plan that lays out a program to attain the CCAA mandates.

The CCAA requires all feasible control measures, including TCM, to reduce emissions; provides for indirect source programs in attainment plans; and contains targets for emission reductions, vehicle miles traveled, and average vehicle ridership.

Assembly Bill 170

In adding Section 65302.1 to the Government Code, AB 170 requires cities and counties in the Valley to incorporate strategies to improve air quality in their general planning efforts.

Senate Bill 709

Senate Bill 709 adds Chapter 5.7 to Part 3 of Division 26 of the Health and Safety Code, giving the San Joaquin Valley Air Pollution Control District (SJVAPCD) more responsibility in terms of permitting, fee implementation, and agricultural assistance, but also gives the District the authority to require the use of best available control technology for existing sources, promote cleaner-burning alternative fuels, and encourage and facilitate ridesharing. It also adds Section 9250.16 to the Vehicle Code to allow the District to adopt a surcharge on motor vehicle registration fees.

California Government Code Section 65089

This section of the Government Code requires trip reduction and travel demand management in Congestion Management Programs.

Regional

Air pollution does not follow political boundaries. Therefore, many air quality problems are best managed on a regional basis. In 1991, the State Legislature determined that management of an air basin by a single agency would be more effective than management through each county within that basin. Air basins are geographic areas sharing a common "air-shed." Most major metropolitan areas in California now fall under the authority of multi-county APCDs or AQMDs.

Air districts have the primary responsibility for control of air pollution from all sources other than direct motor vehicle emissions, which are the responsibility of CARB and EPA. Air districts adopt and enforce rules and regulations to achieve state and federal ambient air quality standards and enforce applicable state and federal law.

San Joaquin Valley Air Pollution Control District

The SJVAPCD has jurisdiction over air quality matters in the SJVAB. Until the passage of the CCAA, the primary role of county APCDs was controlling stationary sources of pollution, such as industrial processes and equipment. With the passage of the CCAA and federal CAA amendments, air districts were required to implement transportation control measures and were encouraged to adopt indirect source control programs to reduce mobile source emissions. These mandates created the necessity for air districts to work closely with cities, counties, and regional transportation planning agencies to develop new programs.

The SJVAPCD entered into a memorandum of understanding with the transportation planning agencies of the eight counties in the SJVAB in 1992. This memorandum of understanding ensures a coordinated approach in the development and implementation of transportation plans throughout the Valley. This action has helped the Regional Transportation Planning Agencies comply with pertinent provisions of the federal and state Clean Air Acts as well as related transportation legislation (such as the Intermodal Surface Transportation Efficiency Act).

The SJVAPCD develops plans and implements control measures in an effort to advance Valley attainment of CAAQS and NAAQS. The District has developed plans to attain state and federal standards for ozone and particulate matter. The SJVAPCD's air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control methods have worked, and to show how air pollution will be reduced. The plans also use computer modeling to estimate future levels of pollution and make sure that the Valley will meet air quality goals on time. The SJVAPCD Governing Board approved three major plans in 2007-2008:

2007 Ozone Plan

This plan includes an in-depth analysis of all possible control measures and projected that the Valley will achieve the 8-hour ozone standard (as set by EPA in 1997) for all areas of the SJVAB no later than 2023. This plan went above and beyond minimum legal requirements by including a "Fast Track" control strategy. Through Fast Track, new strategies produce real reductions (even though they cannot be legally counted in the plan at this time) and will clean the air before the deadline. The ARB approved the 2007 Ozone Plan on June 14, 2007.

2007 PM10 Plan

The SJVAPCD has compiled a series of PM10 plans, with the first one in 1991. Based on PM10 measurements from 2003-2006, EPA found that the SJVAB had reached the federal PM10 standard. The SJVAPCD's 2007 PM10

Maintenance Plan assures that the Valley will continue to meet the PM10 standard and requests that EPA formally redesignate, or label, the Valley to attainment status. On April 5, 2008, EPA stated their intent to approve the PM10 Maintenance Plan.

2008 PM2.5 Plan

Building upon the strategy used in the 2007 Ozone Plan, the SJVAPCD agreed to additional control measures to reduce directly produced PM2.5. The 2008 PM2.5 Plan estimates that the SJVAB will reach the PM2.5 standard (as set by EPA in 1997) in 2014. The ARB approved the Plan on May 22, 2008, and the plan has been submitted to EPA.

District Tools

The SJVAPCD has prepared guidance documents to aid agencies in performing environmental reviews. The documents are briefly described below:

- Air Quality Guidelines for General Plans (AQGGP): The AQGGP is a guidance and resource document for cities and counties to use to address air quality in their general plans. The AQGGP includes goals, policies, and programs to reduce vehicle trips, reduce miles travelled, and improve air quality.
- Guideline for Assessing and Mitigating Air Quality Impacts (GAMAQI): The GAMAQI is an advisory document, that provides Lead Agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents.
- Environmental Review Guideline (ERG): The ERG fulfills CEQA requirements for agencies to adopt procedures and guidelines for implementing CEQA. The document is intended to guide District staff in carrying out CEQA and to assure the public that environmental impacts related to District actions are thoroughly and consistently addressed.
- Transportation Infrastructure: The federal CAA amendments require transportation plans to conform to the air quality goals of the SIP. This means that states must assure that transportation programs do not undermine the attainment of air quality standards. The Regional Transportation Planning Agencies are responsible for making the conformity finding. The Air District's role in this process is one of consultation.
- Air Quality Programs: The CCAA allows air districts to delegate the implementation of transportation control measures to any local agency as long as the following conditions are met: (1) the agency must submit an implementation plan to the district for approval; (2) the agency must adopt and implement measures at least as stringent as those in the district's plan; and (3) the district must adopt procedures for reviewing the performance of the local agency in implementing the measures.

San Joaquin Council of Governments

In addition, SJCOG is expected to take on a collaborative role in climate change and air quality planning, as a result of SB 375. As the region’s metropolitan planning organization, SJCOG will be required to prepare an SCS to reduce vehicle miles traveled in the regions and demonstrate the ability for the region to attain CARB's targets. (See Section 2.6, for details on SB 375 and related bills). CARB is expected to finalize targets by September 2010.

Local

Local government's responsibility for air quality increased significantly with the passage of the CCAA and the federal CAA amendments. The SJVAPCD is required to address state air quality standards by way of TCMs and indirect source programs in its air quality attainment plans; but, cities and counties, through their Councils of Government, are responsible for most implementation.

Local government responsibilities for air quality include:

1. Land use planning: the data, analysis, and the guiding and implementing policies identified in this General Plan;
2. Environmental Review: reviewing and mitigating the environmental impacts of development projects;
3. Transportation: developing and maintaining the transportation infrastructure in the community, including transit systems and bicycle networks;
4. Local programs: implementing local air quality programs such as commute-based trip reduction and rideshare.
5. GHG emissions reduction: reducing emissions, pursuant to AB 32 and SB 375, as regional targets are defined by CARB and local targets by SJCOG.

Attainment Status

CARB and the EPA have established criteria air pollution standards in an effort to protect human health and welfare. Geographic areas are deemed "attainment" if these standards are met or nonattainment if they are not met. Nonattainment status is classified by the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from marginal to serious.

The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of Air Basins as reported by the agencies with jurisdiction over them. The EPA reviews SIPs to determine if they conform to the mandates of the federal CAA amendments and will achieve air quality goals when implemented. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan for the nonattainment area and impose additional control measures.

At the federal level the District is currently designated as serious nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and nonattainment for PM2.5. A new finding of “extreme” nonattainment with the 8-hour ozone standard is currently pending, and is expected to be approved by the federal EPA in 2009. At the state level the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 standards.

Existing Emission Sources and Emission Levels

Criteria Pollutants

In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. Air pollution in the Valley results from emissions generated in the Valley as well as from emissions and secondary pollutants transported into the Valley. It is thought that the bulk of the Valley’s summer and winter air pollution is caused by locally generated emissions. Due to the Valley’s meteorology, topography, and the chemical composition of the air pollutants, NOx is the primary culprit in the formation of both ozone and PM2.5.

The SJVAPCD’s *Annual Report to the Community, October 2008* provides a brief discussion of sources of air pollution and identifies the top sources of emissions in the SJVAB, as shown in Table 7-7.

Table: 7-7: Top 10 Sources Criteria Pollutant Emissions

NOx	VOC	PM2.5
Heavy Heavy-Duty Diesel Trucks	Farming Operations	Managed Burning and Disposal
Off-Road Equipment	Oil and Gas Production	Residential Fuel Combustion
Farm Equipment	Consumer Products	Farming Operations
Trains	Pesticides/Fertilizers	Heavy Heavy-Duty Diesel Trucks
Medium Heavy Duty Diesel Trucks	Light Duty Passenger Vehicles	Fugitive Windblown Dust
Light Duty Passenger Vehicles	Heavy Heavy-Duty Diesel Trucks	Paved Road Dust
Light Duty Trucks – LDT2	Off-Road Equipment	Unpaved Road Dust
Food and Agricultural Processing	Recreational Boats	Cooking
Oil and Gas Production	Light Duty Trucks – LDT2	Off-Road Equipment
Medium Duty Trucks	Food and Agriculture	Chemical Industrial Processes

Source: San Joaquin Valley Air Pollution Control District, 2008.

Greenhouse Gases

GHGs are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. There are no "attainment" concentration standards established by the federal or state government for greenhouse gases. In fact, GHGs are not generally thought of as traditional air pollutants because greenhouse gases, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere[22]. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and chlorofluorocarbons (CFCs). Some greenhouse gases occur naturally and are emitted to the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are CO_2, CH_4, N_2O, and fluorinated carbons.

Emission Levels

The SJVAPCD's regional air quality monitoring network provides information on existing ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. Table 7-8 presents a five-year summary of air pollutant (concentration) data collected at the three monitoring stations in the vicinity of the project area on Hazelton Street, East Mariposa Road, and at the Wagner-Holt School in Stockton. The Hazelton Street station measures concentrations of all air pollutants, including the two for which the SJVAB remains "nonattainment", ozone, PM10, and PM2.5. The East Mariposa Road Station measures ozone concentrations only and has not been collecting data for the last four year. The Wagner-Holt School Station measures PM10 concentrations only. Pollutant concentrations measured at these stations should be representative of background air pollutant concentrations at or near the Planning Area. These measured air pollutant concentrations are then compared with state and national ambient air quality standard.

[22] In April 2007, the U.S. Supreme Court concluded (Massachusetts v. EPA) that GHGs meet the CAA definition of an air pollutant, and are thus subject to regulation by EPA.

Table 7-8: Summary of Monitoring Data for the Nearest Stations to the Planning Area 2002–2006

Pollutant	State Standard	National Standard	Pollutant Concentration by Year 1				
			2002	2003	2004	2005	2006
Ozone (Hazelton Street)							
Highest 1-hour average, ppm[2]	0.09	NA	0.102	0.104	0.096	0.099	0.109
Days over State Standard			2	3	1	3	6
Days over National Standard			0	0	0	0	0
Highest 8-hour average, ppm	0.07[c]	0.08	0.081	0.088	0.080	0.086	0.092
Days over National Standard			0	1	0	1	3
Ozone (E Mariposa Road)							
Highest 1-hour average, ppm[2]	0.09	NA	0.108	NA	NA	NA	NA
Days over State Standard			5	NA	NA	NA	NA
Days over National Standard			0	NA	NA	NA	NA
Highest 8-hour average, ppm	0.07	0.08	0.086	NA	NA	NA	NA
Days over National Standard			1	NA	NA	NA	NA
PM10 (Hazelton Street)							
Highest 24-hour avg (µg/m^3)[2]	50	150	138.7	116.4	176.1	84.0	77.0
Est. Days over State Standard			58	17	18	47	N/A
Est. Days over National Standard			0	0	1	0	N/A
Annual average, µg/m^3	20	50	36.1	28.4	29.4	29.8	N/A
PM10 (Wagner-Holt School)							
Highest 24-hour avg (µg/m^3)[2]	50	150	84.0	53.0	50.0	74.0	52.0
Est. Days over State Standard			39	20	0	18	N/A
Est. Days over National Standard			0	0	0	0	N/A
Annual average, µg/m^3	20	50	30.6	22.8	22.4	23.1	N/A
PM2.5 (Hazelton Street)							
Highest 24-hour avg (µg/m^3)[2]	NA	65	64.0	45.0	41.0	63.0	46.2
Days over National Standard			0	0	0	0	0

Annual average, µg/m^3	12	15	16.7	13.6	13.2	12.5	13.0
Carbon Monoxide (Hazelton Street)							
Highest 8-hour average, ppm	9.0	9	3.2	3.1	2.5	2.9	2.2
Days over Standard			0	0	0	0	0

NOTE: Bold values are in excess of applicable standard. NA = Not Applicable or Not Available.

1. Data was collected at the Hazelton Street monitoring station unless otherwise noted. The E Mariposa Road station monitors for ozone only.
2. ppm = parts per million; µg/m3 = micrograms per cubic meter.
3. This concentration was approved by the Air Resources Board on April 28, 2005 and became effective May 17, 2006.

Source: California Air Resources Board, Summary of Air Quality Data, 2006b, Gaseous and Particulate Pollutants, 2002, 2003, 2004, 2005, and 2006 data are from the ARB web site at <www.arb.ca.gov/adam>.

7.9 Goals and Policies

Guiding Policies

C-G1 Promote preservation and economic viability of agricultural land surrounding Lodi.

C-G2 Maintain the quality of the Planning Area's soil resources and reduce erosion to protect agricultural productivity.

C-G3 Protect sensitive wildlife species and their habitats.

C-G4 Protect, restore and enhance local watercourses and associated plant, wildlife, and fish species, particularly in the Mokelumne River and floodplain areas.

C-G5 Encourage the identification, protection, and enhancement of archaeological resources.

C-G6 Preserve and enhance districts, sites, and structures that serve as significant, visible connections to Lodi's social, cultural, economic, and architectural history.

C-G7 Promote community awareness and appreciation of Lodi's history, culture and architecture.

C-G8 Protect and improve water quality in the Mokelumne River, Lodi lake, and major drainage ways.

C-G9 Conserve energy and reduce per capital energy consumption.

C-G10 Reduce greenhouse gas emissions by 15% over 2008 levels by 2020, to slow the negative impacts of global climate change.

C-G11 Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

C-G12 Minimize the adverse effects of construction related air quality emissions and Toxic Air Contaminants on human health.

Implementing Policies

Agricultural and Soil Resources

C-P1 Work with San Joaquin County and the City of Stockton to maintain land surrounding Lodi in agricultural use. Encourage the continuation of Flag City as a small freeway-oriented commercial node, with no residential uses.

C-P2 Work with San Joaquin County and relevant land owners to ensure economic viability of grape growing, winemaking, and supporting industries, to ensure the preservation of viable agricultural land use.

C-P3 Support the continuation of agricultural uses on lands designated for urban uses until urban development is imminent.

C-P4 Promote the use of the California Land Conservation Act (Williamson Act) on all agricultural lands in and around the City.

C-P5 Encourage San Joaquin County to conserve agricultural soils, preserve agricultural land surrounding the City and promote the continuation of existing agricultural operations, by supporting the county's economic programs.

C-P6 Ensure that urban development does not constrain agricultural practices or adversely affect the economic viability of adjacent agricultural practices. Use appropriate buffers consistent with the recommendations of the San Joaquin County Department of Agriculture (typically no less than 150 feet) and limit incompatible uses (such as schools and hospitals) near agriculture.

C-P7 Require new development to implement measures that minimize soil erosion from wind and water related to construction and urban development. Measures may include:

C-P8 Construction techniques that utilize site preparation, grading, and best management practices that provide erosion control and prevent soil contamination.

C-P9 Tree rows or other windbreaks shall be used within buffers on the edge of urban development and in other areas as appropriate to reduce soil erosion.

C-P10 Maintain the City's Right-to-Farm Ordinance, and update as necessary, to protect agricultural land from nuisance suits brought by surrounding landowners.

C-P11 Adopt an agricultural conservation program (ACP) establishing a mitigation fee to protect and conserve agricultural lands:

C-P12 The ACP shall include the collection of an agricultural mitigation fee for acreage converted from agricultural to urban use, taking into consideration all fees collected for agricultural loss (i.e., AB1600). The mitigation fee collected shall fund agricultural conservation easements, fee title acquisition, and research, the funding of agricultural education and local marketing programs, other capital improvement projects that clearly benefit agriculture (e.g., groundwater recharge projects) and administrative fees through an appropriate entity ("Administrative Entity") pursuant to an administrative agreement.

C-P13 The conservation easements and fee title acquisition of conservation lands shall be used for lands determined to be of statewide significance (Prime or other Important Farmlands), or sensitive and necessary for the preservation of agricultural land, including land that may be part of a community separator as part of a comprehensive program to establish community separators.

C-P14 The ACP shall encourage that conservation easement locations are prioritized as shown in Figure 7-5: (A) the Armstrong Road Agricultural/Cluster Study area east of Lower Sacramento Road; (B) the

Armstrong Road Agricultural/Cluster Study area west of Lower Sacramento Road; (C) elsewhere in the Planning Area, one mile east and west of the Urban Reserve boundaries respectively; and (D) outside the Planning Area, elsewhere in San Joaquin County.

C-P15 The mitigation fees collected by the City shall be transferred to the Central Valley Farmland Trust or other qualifying entity, which will arrange the purchase of conservation easements. The City shall encourage the Trust or other qualifying entity to pursue a variety of funding sources (grants, donations, taxes, or other funds) to fund implementation of the ACP.

Biological Resources

C-P16 Support the protection, preservation, restoration, and enhancement of habitats of State or federally-listed rare, threatened, endangered and/or other sensitive and special status species, and favor enhancement of contiguous areas over small segmented remainder parcels.

C-P17 Continue to coordinate with the San Joaquin Council of Governments and comply with the terms of the Multi Species Habitat Conservation and Open Space Plan to protect critical habitat areas that support endangered species and other special status species.

C-P18 Work with other agencies to ensure that the spread of invasive/noxious plant species do not occur in the Planning Area. Support efforts to eradicate invasive and noxious weeds and vegetation on public and private property.

C-P19 Protect the river channel, pond and marsh, and riparian vegetation and wildlife communities and habitats in the Mokelumne River and floodplain areas. Prohibit any activity that will disturb bottom sediments containing zinc deposits in Mokelumne River, because such disturbance could cause fish kills. Prohibit activities that could disturb anadramous fish in the Mokelumne River during periods of migration and spawning.

C-P20 Support the protection, restoration, expansion, and management of wetland and riparian plant communities along the Mokelumne River for passive recreation, groundwater recharge, and wildlife habitat.

C-P21 Explore the purchase of or establishment of a joint agreement for open space preservation and habitat enhancement in the Woodbridge Irrigation District's property located north of the Mokelumne River. Ensure the open space preservation and enhancement of this property, while exploring opportunities for public access.

C-P22 Site new development to maximize the protection of native tree species and sensitive plants and wildlife habitat. Minimize impacts to protect mature trees, Swainson's hawk, vernal pool tadpole shrimp, and any threatened, endangered or other sensitive species when approving new development. Mitigate any loss.

C-P23 Work with the California Department of Fish and Game in identifying an area or areas suitable for Swainson's hawk and burrowing owl habitat. Preserve land through a mitigation land bank to mitigate impacts on existing habitat for these species. Establish a mechanism for developer funding for the acquisition and management of lands in the mitigation bank.

Cultural Resources

C-P24 For future development projects on previously un-surveyed lands, require a project applicant to have a qualified archeologist conduct the following activities: (1) conduct a record search at the Central California Information Center at the California State University, Stanislaus, and other appropriate historical repositories, (2) conduct field surveys where appropriate and required by law, and (3) prepare technical reports, where appropriate, meeting California Office of Historic Preservation Standards (Archeological Resource Management Reports).

C-P25 In the event that archaeological/paleontological resources are discovered during site excavation, the City shall require that grading and construction work on the project site be suspended until the significance of the features can be determined by a qualified archaeologist/paleontologist. The City will require that a qualified archeologist/paleontologist make recommendations for measures necessary to protect any site determined to contain or constitute an historical resource, a unique archaeological resource, or a unique paleontological resource or to undertake data recovery, excavation, analysis, and curation of archaeological/paleontologist materials. City staff shall consider such recommendations and implement them where they are feasible in light of project design as previously approved by the City.

C-P26 If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The San Joaquin County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and
- If the remains are of Native American origin: (1) the descendants of the deceased Native Americans have made a timely recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or (2) The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

Historic Resources

C-P27 Encourage the preservation, maintenance, and adaptive reuse of existing historic buildings to by developing incentives for owners of historically-significant buildings to improve their properties. This may include reducing or waiving building permit fees for improvements to historic structures.

C-P28 Require that, prior to the demolition of a historic structure, developers offer the structure for relocation by interested parties.

C-P29 Require that environmental review consistent with the California Environmental Quality Act be conducted on demolition permit applications for buildings designated as, or potentially eligible for designation as, historic structures.

C-P30 Conduct a comprehensive survey of historic resources in Lodi, including consideration of potentially eligible historic resources. Update Figure 7-3 upon completion of the survey. Designate a structure as historic if it:

- Exemplifies or reflects special elements of the city's cultural, architectural, aesthetic, social, economic, political, artistic, and/or engineering heritage;
- Is identified with persons, businesses, or events significant to local, State, or National history;
- Embodies distinctive characteristics of style, type, period, or method of construction or is a valuable example of the use of indigenous materials or craftsmanship;
- Represents of the notable work of a builder, designer, engineer, or architect;
- Is unique location or singular physical characteristic represents an established and familiar visual feature of a neighborhood, community, or the city; and/or

C-P31 Designate a district as historic if it:

- Is a geographically definable area possessing a concentration or continuity of sites, buildings, structures, or objects as unified by past events or aesthetically by plan or physical development.
- Identify relevant key neighborhoods either as historic districts or merit districts. Designate accordingly if 50% of property owners in the proposed district agree to the designation.
    - An "Historic District" means any area containing a concentration of improvements that has a special character, architectural importance, historical interest, or aesthetic value, which possesses integrity of location, deign, setting, materials, workmanship, feeling, and association or which represents one or more architectural periods or styles typical to the history of Lodi.
    - A "Merit District" recognizes a district's history but does not provide for a regulatory structure at this time. The structures of these districts may not be architecturally significant, but the role that these neighborhoods have played in the city's development, the cultural and economic conditions that resulted in the construction of these neighborhoods and the stories surrounding them make them an important part of the city's history for which they should be acknowledged and celebrated.

C-P32 Establish a Historic Preservation Commission to serve as an advisory board to the City Council. The Commission should:

- Guide the protection, appreciation and preservation of Lodi's historic resources;
- Lead the implementation, enforcement and education efforts related to the historic preservation ordinance called for by the General Plan; and
- Partner with property owners, residents, business owners, and the community at large to retain and improve historic resources.
- Be made up of individuals with qualifications in such fields as architecture, history, architectural history, cultural anthropology or other disciplines related to historic preservation, to the extent feasible.

C-P33 Prepare and adopt an historic preservation ordinance consistent with the guidelines from the Office of Historic Preservation's Drafting *Effective Historic Preservation Ordinances*.

C-P34 Pursue status as a Certified Local Government through the National Parks Service and California Office of Historic Preservation in order to access technical assistance services and funding opportunities for historic preservation. CLGs must comply with the following requirements:

- Enforce appropriate state and local laws and regulations for the designation and protection of historic properties, including adoption of a historic preservation plan or inclusion of a historic preservation element in the General Plan
- Establish a historic preservation review commission by local ordinance
- Maintain a system for the survey and inventory of historic properties
- Provide for public participation in the local preservation program
- Satisfactorily perform responsibilities delegated to it by the State.

C-P35 Follow preservation standards outlined in the current Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, for structures listed on the National Register of Historic Places or California Register of Historical Resources.

C-P36 Coordinate historic preservation efforts with other agencies and organizations, including the Lodi Historical Society, Chamber of Commerce, San Joaquin County Historical Society and other historical organizations.

Hydrology and Water Quality

See Chapter 3: Growth Management and Chapter 6: Parks, Recreation, and Open Space for water-related policies that address water supply and conservation; and riparian areas within open spaces, respectively.

C-P37 Monitor water quality regularly to ensure that safe drinking water standards are met and maintained in accordance with State and EPA regulations and take necessary measures to prevent contamination. Comply with the requirements of the Clean Water Act with the intent of minimizing the discharge of pollutants to surface waters.

C-P38 Monitor the water quality of the Mokelumne River and Lodi Lake, in coordination with San Joaquin County, to determine when the coliform bacterial standard for contact recreation and the maximum concentration levels of priority pollutants, established by the California Department of Health Services, are exceeded. Monitor the presence of pollutants and variables that could cause harm to fish, wildlife, and plant species in the Mokelumne River and Lodi Lake. Post signs at areas used by water recreationists warning users of health risks whenever the coliform bacteria standard for contact recreation is exceeded.

C-P39 Prohibit new industrial development that will adversely affect water quality in the Mokelumne River or in the area's groundwater basin. Control use of potential water contaminants through inventorying hazardous materials used in City and industrial operations.

C-P40 Regularly monitor water quality in municipal wells for evidence of contamination from dibromochloropropane (DBCP), saltwater intrusion, and other toxic substances that could pose a health hazard to the domestic water supply. Close or treat municipal wells that exceed the action level for DBCP.

C-P41 Minimize storm sewer pollution of the Mokelumne River and other waterways by maintaining an effective street sweeping and cleaning program.

C-P42 Require, as part of watershed drainage plans, Best Management Practices, to reduce pollutants to the maximum extent practicable.

C-P43 Require all new development and redevelopment projects comply with the post-construction Best Management Practices (BMPs) called for in the Stormwater Quality Control Criteria Plan, as outlined in the City's Phase 1 Stormwater NPDES permit issued by the California Water Quality Control Board, Central Valley Region. Require that owners, developers, and/or successors-in-interest to establish a maintenance entity acceptable to the City to provide funding for the operation, maintenance, and replacement costs of all post-construction BMPs.

C-P44 Require, as part of the City's Storm Water NPDES Permit and ordinances, the implementation of a Grading Plan, Erosion Control Plan, and Pollution Prevention Plan during the construction of any new development and redevelopment projects, to the maximum extent feasible.

C-P45 Require use of stormwater management techniques to improve water quality and reduce impact on municipal water treatment facilities.

C-P46 Protect groundwater resources by working with the county to prevent septic systems in unincorporated portions of the county that are in the General Plan Land Use Diagram, on parcels less than two acres.

C-P47 Reduce the use of pesticides, insecticides, herbicides, or other toxic chemical substances by households and farmers by providing education and incentives.

C-P48 Collaborate with San Joaquin County to identify suitable land areas within riparian zones or other designated zones for floodwater accommodation to facilitate groundwater recharge. These areas shall be managed and maintained to allow controlled floodwater infiltration, aiding in recharging local aquifers and supporting sustainable groundwater levels.

C-P49 Prioritize the implementation of green infrastructure solutions, such as permeable pavements, vegetated swales, and rain gardens, to manage stormwater runoff as part of capital improvement projects.

C-P50 New developments and redevelopment projects shall incorporate best practices for stormwater management that mimic natural hydrological processes, reducing the burden on conventional drainage systems.

C-P51 Explore opportunities to establish conservation easements on private properties and in unincorporated County land located in creeks' riparian zones or ecologically valuable areas adjacent to creeks and woodlands habitats, ensuring long-term protection. Consider acquiring lands of significant ecological importance or strategic value for floodwater management and groundwater recharge purposes through partnerships or direct purchases.

C-P52 Implement a regular monitoring program to assess the health and resilience of the identified natural features, including creeks, and woodlands. Findings from the monitoring program will be used to inform adaptive management strategies, making necessary adjustments to policies and practices to ensure the continued protection and enhancement of natural features.

C-P53 Collaborate with the Regional Water Quality Control Board for conducting an assessment of the City's water systems. This includes the identification of flood risk areas and the determination of suitable locations for floodwater accommodation and groundwater recharge zones.

C-P54 Revise existing zoning regulations or develop new ones to align with the identified policies, promoting sustainable land use practices, and ensuring compliance with flood management and conservation goals.

C-P55 Conduct a comprehensive inventory of existing riparian habitats, woodlands, environmentally sensitive areas, and potential floodwater management sites that would inform decision-making and resource allocation.

C-P56 Actively explore funding opportunities and grants to support urban forest expansion, riparian habitat restoration, and floodwater management projects.

Energy and Climate Change

C-P57 Prepare and adopt a comprehensive climate action plan (CAP). The CAP should include the following provisions:

- An inventory of citywide greenhouse gas emissions,
- Emissions targets that apply at reasonable intervals through the life of the CAP,
- Enforceable greenhouse gas emissions control measures,
- A monitoring and reporting program to ensure targets are met, and
- Mechanisms to allow for revision of the CAP, as necessary.

C-P58 Promote incorporation of energy conservation and weatherization features into existing structures. Update the Zoning Ordinance and make local amendments to the California Building Code, as needed, to allow for the implementation of green building, green construction, and energy efficiency measures.

C-P59 Encourage the development of energy efficient buildings and communities. All new development, including major rehabilitation, renovation, and redevelopment projects, shall incorporate energy conservation and green building practices to the maximum extent feasible and as appropriate to the project proposed. Such practices include, but are not limited to: building orientation and shading, landscaping, and the use of active and passive solar heating and water systems. The City may implement this policy by adopting and enforcing a Green Building Ordinance.

C-P60 Reduce energy consumption within City government facilities and motor fleets.

C-P61 Encourage the use of passive and active solar devices such as solar collectors, solar cells, and solar heating systems into the design of local buildings. Promote voluntary participation in incentive programs to increase the use of solar photovoltaic systems in new and existing residential, commercial, institutional, and public buildings. Study the fiscal feasibility of an incentive program for property owners who install photovoltaic or comparable solar energy generating devices.

C-P62 Work with the California Energy Commission and other public and non-profit agencies to promote the use of programs that encourage developers to surpass Title 24 Energy Efficiency standards by utilizing renewable energy systems and more efficient practices that conserve energy, including, but not limited to natural gas, hydrogen or electrical vehicles. Offer incentives such as density bonus, expedited process, fee reduction/waiver to property owners and developers who exceed California Title 24 energy efficiency standards.

C-P63 Develop, adopt, and implement a heat island mitigation plan to reduce carbon dioxide emissions, smog, and the energy required to cool buildings. This plan should contain requirements and incentives for the use of cool roofs, cool pavements, and strategic shade tree placement, all of which may result in as much as 6-8° F temperature decrease from existing conditions.

C-P64 Encourage the planting of shade trees along all City streets and residential lots (but, particularly in areas that currently lack street trees) to reduce radiation heating and greenhouse gases. Develop a tree planting informational packet to help future residents understand their options for planting trees.

C-P65 Promote public education energy conservation programs that strive to reduce the consumption of natural or human-made energy sources.

C-P66 Post and distribute hard-copy and electronic information on currently available weatherization and energy conservation programs.

C-P67 Require that new extractive energy and/or mineral operations are designed to provide a buffer between existing or likely adjacent uses to minimize incompatibility with nearby sites and adequately mitigate their environmental and aesthetic impacts.

C-P68 Ensure the prompt and complete rehabilitation of energy and/or mineral extraction or exploratory sites upon termination of the use.

Air Quality

See Chapter 2: Land Use, Chapter 3: Community Design and Livability, and Chapter 5: Circulation for related policies that seek to improve air quality and reduce emissions through land use, transportation, and urban design strategies.

C-P69 Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements and when new emission control devices or operational modifications are found to be effective, such devices or operational modifications are to be required on construction equipment.

C-P70 Continue to require mitigation measures as a condition of obtaining permits to minimize dust and air emissions impacts from construction.

C-P71 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.

C-P72 Cooperate with other local, regional, and State agencies in developing and implementing air quality plans to achieve State and Federal Ambient Air Quality Standards and address cross-jurisdictional and regional transportation and air quality issues.

C-P73 Use the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Guide for Assessing and Mitigating Air Quality Impacts for determining and mitigating project air quality impacts and related thresholds of significance for use in environmental documents. The City shall consult with the SJVAPCD during CEQA review for projects that require air quality impact analysis and ensure that the SJVAPCD is on the distribution list for all CEQA documents.

C-P74 Support recommendations to reduce air pollutants found in the San Joaquin Valley Air Pollution Control District (SJVAPCD) local attainment plans and use its regulatory authority to mitigate "point" sources of air pollution (e.g., factories, power plants, etc.).

C-P75 Ensure that air quality impacts identified during the project-level CEQA review process are fairly and consistently mitigated. Require projects to comply with the City's adopted air quality impact assessment and mitigation process, and to provide specific mitigation measures as outlined in policies of Chapter 5: Circulation.

C-P76 Continue the program for assessing air quality mitigation fees for all new development, with the fees to be used to fund air quality programs.

C-P77 Require the use of natural gas or the installation of low-emission, EPA-certified fireplace inserts in all open hearth fireplaces in new homes. Promote the use of natural gas over wood products in space heating devices and fireplaces in all existing and new homes. Follow the guidelines set forth in San Joaquin Valley Air Pollution Control District's Rule 4901.

C-P78 Review, support, and require implementation (as applicable) of San Joaquin Valley Air Pollution Control District guidance and recommendations (including those identified in the Guide for Assessing and Mitigating Air Quality Impacts) in regards to several key issues including:

- Environmental Assessment;
- Air Quality Mitigation Agreements;
- Integrated Planning;
- Air Quality Education;
- Congestion Management/Transportation Control Measures;
- Toxic and Hazardous Pollutant Emissions;
- Fugitive Dust and PM10 Emissions; and

- Energy Conservation and Alternative Fuels.

C-P79 Require new sensitive uses proposed to be located within 500 feet of high volume traffic routes where daily vehicle counts exceed 100,000, to use an HVAC system with filtration to reduce/mitigate infiltration of vehicle emissions as warranted by exposure analysis.

C-P80 Require industrial development adjacent to residential areas to provide buffers and institute setback intended to ensure land use compatibility in regards to potential Toxic Air Contaminant exposure.