

7 Environmental Resources and Hazards

Turlock's natural setting and its environmental assets are an important part of the city. The purpose of this chapter is to identify the environmental resources and hazards within the Planning Area and discuss the implications they may have for future growth and development.

7.1 AGRICULTURE

Agriculture is the historic basis of Turlock's economy. Farming began in the region in the mid 1800s, when ranchers saw a business opportunity in providing food to gold miners in the nearby Sierra foothills. The predominant agricultural activity switched from ranching to active cultivation in the 1860s, and it intensified with the formation of the Turlock Irrigation District in 1887 and the advent of refrigerated shipping. With these advances, farmers in the region were able to grow truck, orchard, and specialty crops in addition to grain and other field crops.

While Turlock's economic base has expanded substantially beyond farming, the city remains a community physically and socially characterized by its agricultural past and current farming activity. Many of Turlock's major industries are food processors, thus directly tied to agriculture. The City has maintained policies that preserve the belt of agricultural land around the city limits, maintaining Turlock as a stand-alone community within an agricultural region.

Regulatory Setting

Farmland Monitoring and Mapping Program

The California Department of Conservation uses the Important Farmlands Inventory to classify farmland into several categories based on soil type and current land use. The Farmland Mapping and Monitoring Program (FMMP) defines the following categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. All categories exclude publicly-owned land for which there is an adopted policy preventing agricultural use. The FMMP designations are informational only and do not constitute any regulatory policy.

Prime Farmland is land that has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when managed (including water management) according to current farming methods. Prime Farmland must have been used for the production of crops within the last three years.

Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production. It must have been used for crop production within the last three years.

Unique Farmland is that which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, but which is currently used for the production of specific high economic value crops (as listed in the last three years of *California Agriculture*, produced by the California Department of Food and Agriculture). It has the special combination of location, soil quality, growing season, and moisture supply to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming practices. Examples may include oranges, olives, avocados, rice, grapes, and cut flowers.

Farmland of Local Importance is either currently producing crops or has the capability to do so. It is land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, but it may be important to the local economy due to its productivity.

Grazing Land is that on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965, also known as the Williamson Act, aims to discourage the unnecessary and premature conversion of productive agricultural land to other land uses. Farmers with land under Williamson Act contracts agree not to develop their land for 10 years, and in exchange, they are taxed according to the land's farm income-producing value, as opposed to its "highest and best use." Contracts are automatically renewed every year; cancellation requires "extraordinary circumstances," payment of a penalty of 12.5 percent of the land's fair market value, and a public hearing. Local governments receive an annual subvention of foregone property taxes from the State, through the Open Space Subvention Act of 1971.

Farmland Security Zones

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, dubbed "Super Williamson Act," allows agricultural land owners to enter into contracts with a specific county

for 20-year increments instead of 10, and entitled to an additional 35 percent tax benefit over and above the standard Williamson Act contract.

Senate Bill 1835 (Johnston, Chapter 690, Statutes of 1998) and the Cortese-Knox Local Government Reorganization Act

Regarding Williamson Act contracts, Senate Bill 1835 requires the appropriate Local Agency Formation Commission (LAFCO) to determine whether a particular city is required to adhere to the rights, duties, and powers of the county under the contract or whether the city may exercise an option not to adhere to the rights, duties, and powers of the county. The determination would be required pursuant to any proposal by a city that would result in the annexation of Williamson Act contracted land.

Senate Bill 2227 (Monteith, Chapter 590, Statutes of 1998)

Senate Bill 2227 added new requirements to the Cortese-Knox Local Governmental Reorganization Act regarding any proposed annexation of Williamson Act contracted land. If the proposal would result in the annexation of land that is subject to Williamson Act contracts, then the petition shall state whether the City shall adhere to the contract or whether the City intends to exercise its option not to adhere to the contract.

Stanislaus County's Land Use and Agricultural Elements

The Stanislaus County General Plan, adopted in 1994, includes an Agricultural Element. As agriculture is the leading industry in the Stanislaus County, generating revenue not only through farm production but also through associated commercial activities such as food processing, wholesale and retail trade, warehousing, and transportation, the county has a legitimate interest in maintaining its productive farmland.

The County has recognized that with population growth, diminishing agricultural resources, and increased production costs, agriculture could no longer be assumed to always remain the mainstay of its local economy. An update to the Agricultural Element was adopted on December 18, 2007, and its purpose is to define county-wide policies that promote and protect local agriculture by:

1. Strengthening the agricultural sector of our economy;
2. Conserving our agricultural lands for agricultural uses and
3. Protecting the natural resources that sustain agriculture in Stanislaus County.

One of the Element's policies, under the objective of conserving agricultural land for agricultural uses, is to direct development away from the County's most productive agricultural areas. However, "most productive agricultural areas" is not defined for the County as a whole; instead, the policy states that it will be

determined on a case-by-case basis as proposals for agricultural land conversion arise. Analysis will include factors such as soil type, ownership and parcelization, water availability, Williamson Act contracts, flexibility of use, and contribution to the local economy. Another policy is to evaluate each proposal on a case-by-case basis to determine whether its conversion would result in significant adverse effects on the environment. If this is the case, mitigation measures are required.

Additionally, if a project or General Plan amendment results in the conversion of agricultural land to residential uses, and an associated General Plan amendment from agricultural to residential designation, then County policy requires a 1:1 replacement of the land, of equal quality, elsewhere in Stanislaus County. Replacement can be in the form of purchasing agricultural conservation easements or contributing in-lieu fees. While this policy was adopted in the December 2007 update to the Agricultural Element, the County is currently engaged in litigation over these mitigation requirements.

Currently, City and County officials from Stanislaus County jurisdictions are discussing the adoption of a coordinated countywide agriculture mitigation policy. Having a unified policy across all jurisdictions would ensure that none falls to a competitive disadvantage from the perspective of attracting new development.

Environmental Setting

Existing Farmland

As shown on Figure 7-1, the majority of land encircling the urbanized area of Turlock is categorized as Prime Farmland. The exception is to the south, where most of the land is Farmland of Statewide Importance, with significant patches of Unique Farmland, especially in the southeast quadrant of the Planning Area.

Figure 7-2 shows the crops produced on the farmland in and around the Planning Area. Most of the farmland within Turlock's Planning Area produces almonds; truck and berry crops; and grain, hay, and field crops. (Truck and berry crops include bush berries, tomatoes, melons, onions, peas, potatoes, spinach, flowers, asparagus, and other fruits and vegetables that are relatively perishable. Grain, hay, and field crops include barley, wheat, oats, dry beans, flax, corn, and safflower, among others.) Other nuts and fruits, a category that includes apples, peaches, walnuts, and other orchard products, are also grown in and around the Planning Area. Dairies constitute the other predominant agricultural use around Turlock.

Williamson Act Land in the Planning Area

As of 2007, 235 parcels in the Planning Area, totaling 2,896 acres (46 percent of the total agricultural acreage in the Planning Area) were under Williamson Act

contracts. Nineteen of them, totaling 400 acres, are in non-renewal, meaning that at the end of their 10-year period, they will not renew their contracts. Within in the boundary of the WISP, there are 27 parcels under contract, totaling 359 acres. As of 2007, 19 parcels in the Westside Industrial Specific Plan area were under Williamson Act contracts, and three had non-renewal status.

Parcels under Williamson Act contracts are fairly well distributed throughout the non-urbanized sections of the Planning Area, with the exception of the southeastern corner of the planning area within approximately one mile on either side of the railroad tracks, where very few parcels are under contract. This area is also where there is relatively little Prime Farmland. In the Northwest region of the Planning Area, north of the WISP and in between SR 99 and the Planning Boundary, approximately half of the agricultural parcels are under contract. Almost half of those that are under contract are not renewing, and this area has the largest cluster of non-renewal parcels. The relative absence of contracted parcels and the cluster of non-renewing parcels despite the presence of Prime Farmland, may be due to landowners' anticipation of forthcoming residential and commercial development in this area. Figure 7-4 overlays Williamson Act parcels and Prime Farmland on the development opportunity sites identified, so that these characteristics can be taken into consideration when deciding where the city should promote urban growth.

Planning Issues and Implications

Conversion of farmland to non-agricultural uses is one of the primary concerns surrounding future growth and development in Turlock's Planning Area. The City prides itself on remaining a stand-alone urban area surrounded by farmland, distinct from neighboring cities and unincorporated towns, and wishes for this to remain a priority. Stanislaus County, as well, emphasizes conservation of farmland and requires significant mitigation, particularly for conversion to residential use. Coordination with Stanislaus County and other neighboring municipalities over establishing a unified agriculture mitigation policy is also a key planning issue moving forward, as it is in the interest of all jurisdictions in the County to establish like policies so that agricultural land is effectively preserved and new development is fairly distributed.

However, if Turlock is to grow outside of its current city limits, some farmland must be converted. Assessing which land is converted requires balancing numerous considerations, including location, parcel size, economic productivity, Williamson Act contract status, and farmland and soil quality. The more the City targets development on infill parcels within the city limits, the more development can be accommodated with minimal farmland conversion.

¹ State of California Department of Water Resources.

Figure 7-1: Farmland



Source: Farm data, California Department of Conservation, 2006;
Map base data, City of Turlock, 2008.

Figure 7-2: Crop Pattern

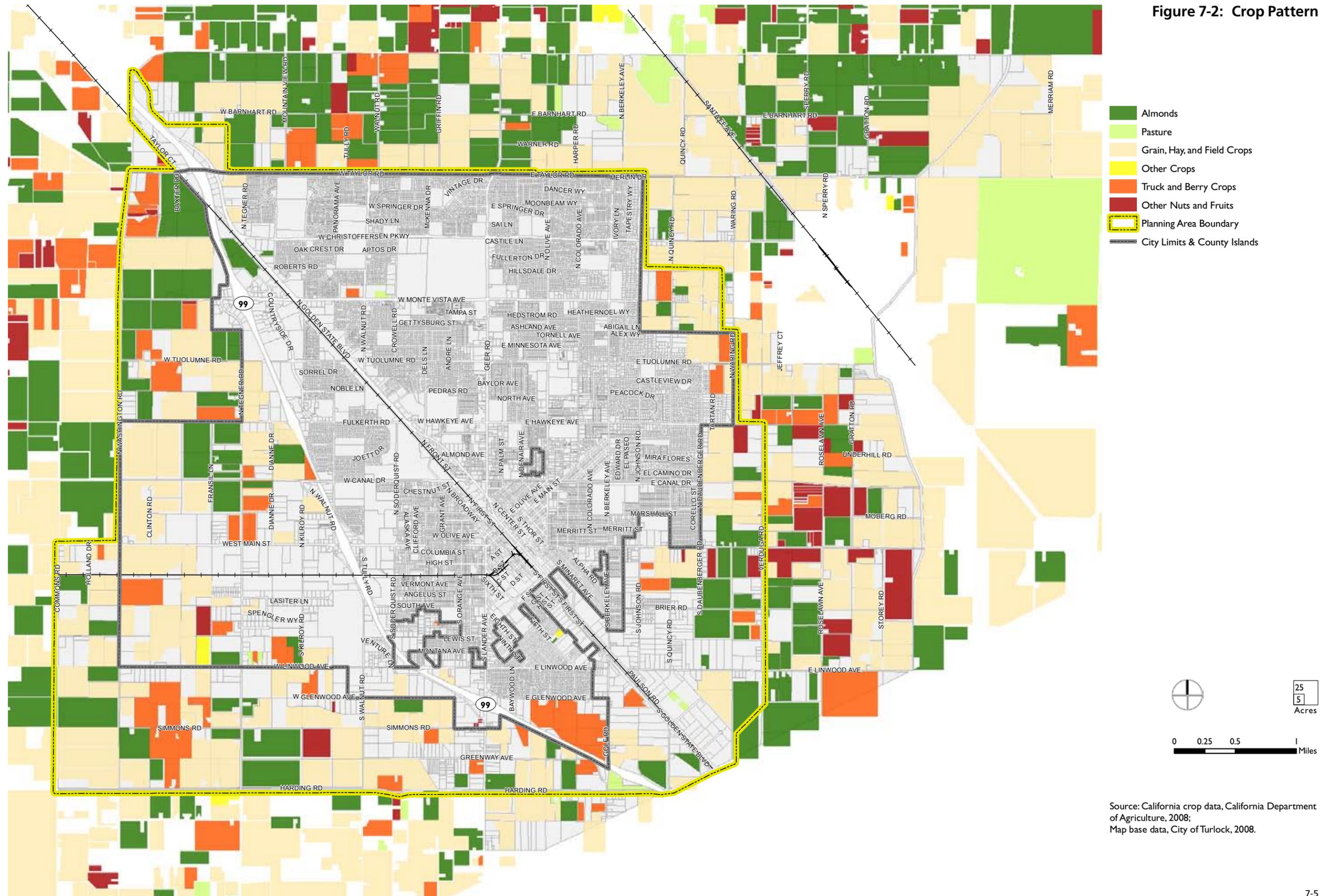
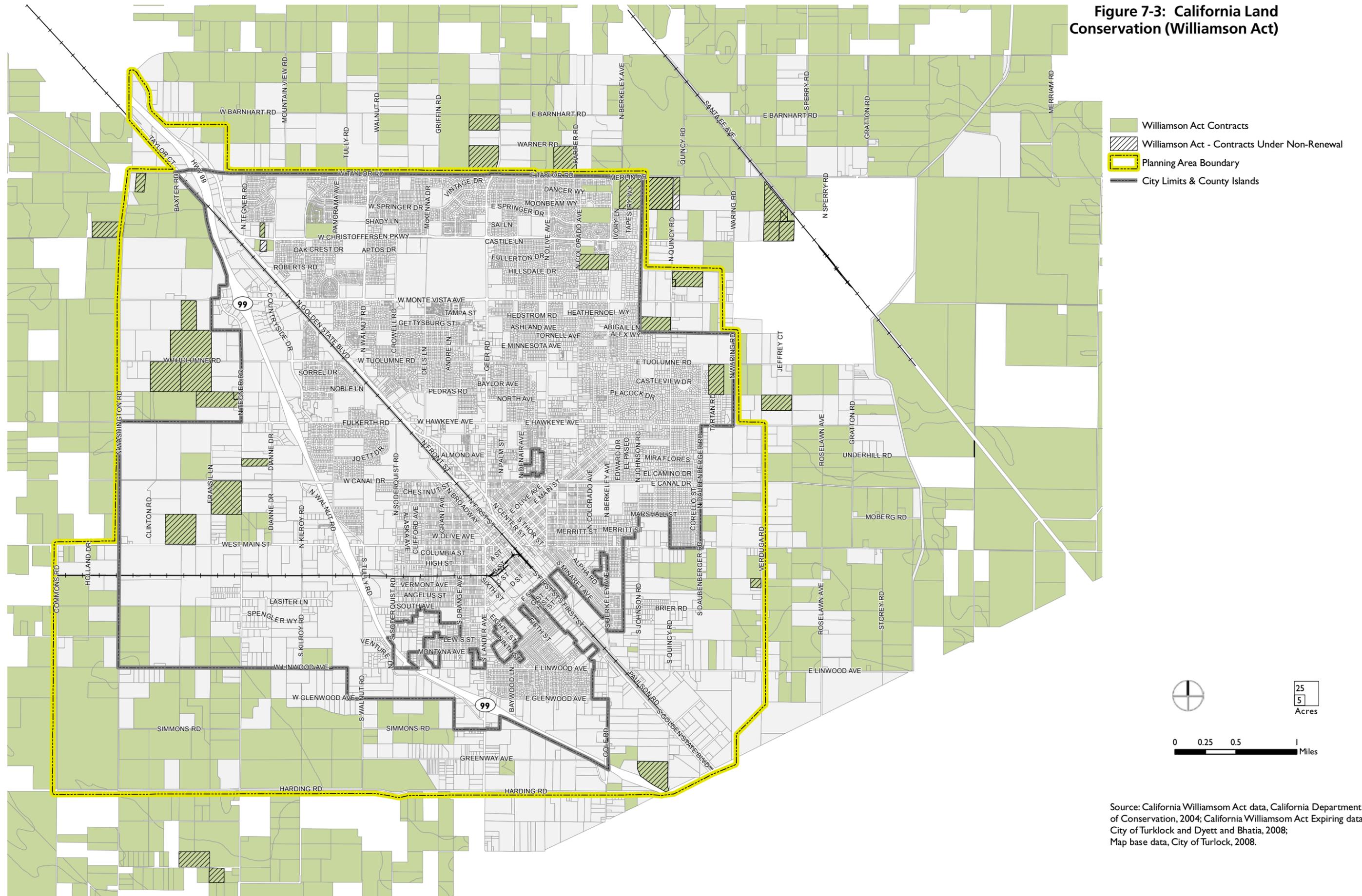
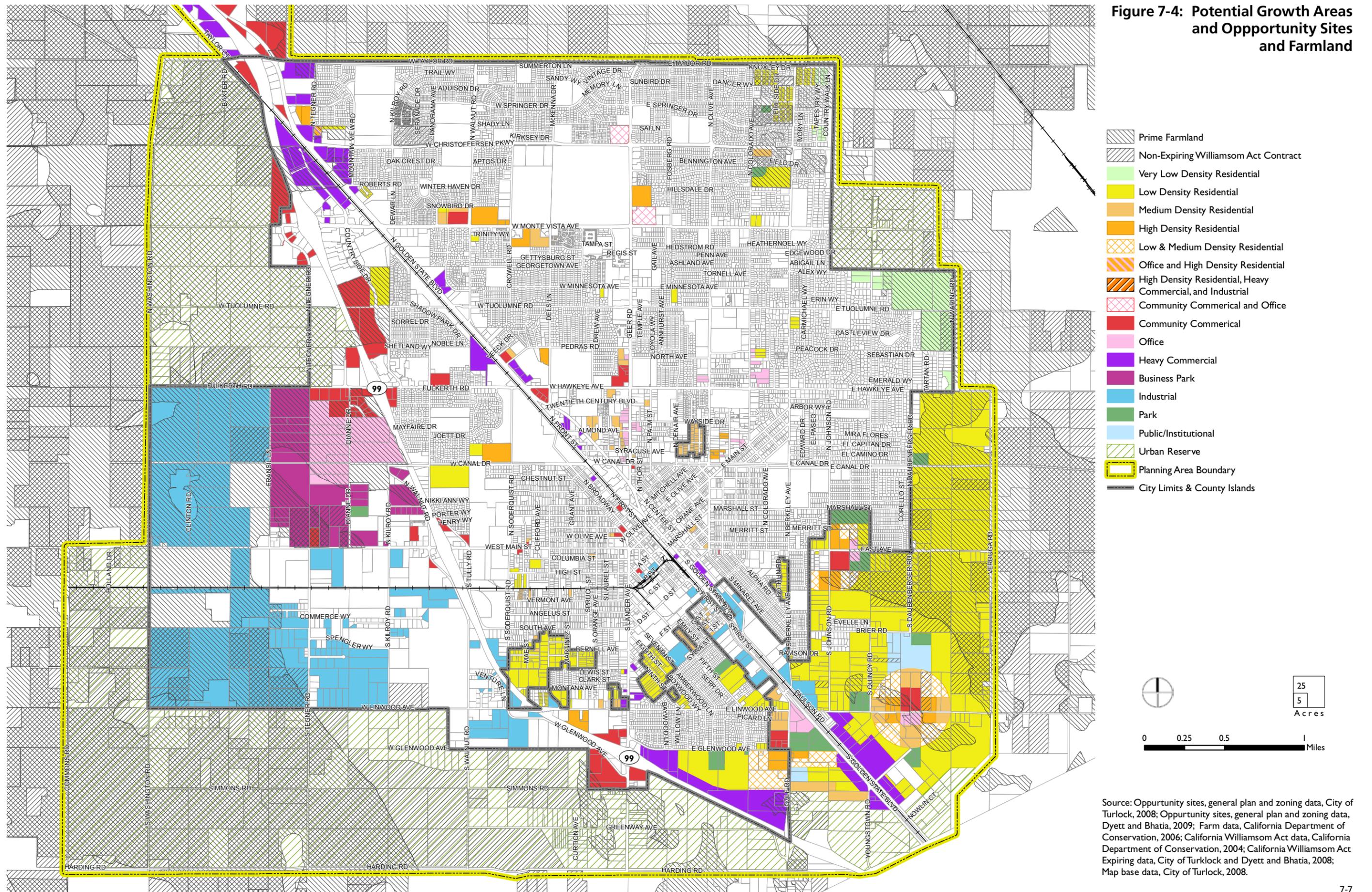


Figure 7-3: California Land Conservation (Williamson Act)

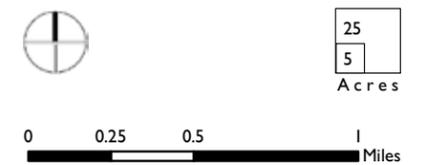


Source: California Williamson Act data, California Department of Conservation, 2004; California Williamson Act Expiring data, City of Turlock and Dyett and Bhatia, 2008; Map base data, City of Turlock, 2008.

Figure 7-4: Potential Growth Areas and Opportunity Sites and Farmland



- Prime Farmland
- Non-Expiring Williamson Act Contract
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Low & Medium Density Residential
- Office and High Density Residential
- High Density Residential, Heavy Commercial, and Industrial
- Community Commercial and Office
- Community Commercial
- Office
- Heavy Commercial
- Business Park
- Industrial
- Park
- Public/Institutional
- Urban Reserve
- Planning Area Boundary
- City Limits & County Islands



Source: Opportunity sites, general plan and zoning data, City of Turlock, 2008; Opportunity sites, general plan and zoning data, Dyett and Bhatia, 2009; Farm data, California Department of Conservation, 2006; California Williamson Act data, California Department of Conservation, 2004; California Williamson Act Expiring data, City of Turlock and Dyett and Bhatia, 2008; Map base data, City of Turlock, 2008.

7.2 GEOLOGY, SEISMIC HAZARDS, AND SOILS

The geologic setting of the Planning Area determines both the hazards associated with potential earthquake risk, as well as the nature of the soil resources on the Planning Area's surface. This section covers Turlock's underlying geology, seismic profile, and soils.

Regulatory Setting

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act, passed in 1972, intends to prevent the construction of buildings meant for human occupation on the surface traces of active faults. (The act does not address earthquake hazards not associated with surface ruptures, such as landslides and liquefaction. These are covered by the Seismic Hazards Mapping Act.) The law requires the establishment and mapping of Earthquake Fault Zones around the surface traces, to be used by local agencies in the regulation of development projects. The Turlock Planning Area is not located in an Alquist-Priolo Earthquake Fault Zone.

Seismic Hazards Mapping Act

As part of implementing Public Resources Code Section 2690 *et seq.* (Seismic Hazards Mapping Act), the California Division of Mines and Geology (DMG) has established a program known as the Seismic Hazards Mapping Act of 1990 to map liquefaction and landslide potential in various parts of the state. Efforts have initially been concentrated in major metropolitan areas in areas of high seismic activity. The DMG provides, in addition to maps, policies and criteria regarding the responsibilities of cities, counties, and State agencies pursuant to development in designated seismic hazard areas. The Act mandates that prior to approval of development within hazard zones, a geotechnical report on the site must be prepared and evaluated pursuant to these policies and criteria.

The City of Turlock is not currently included in the list of cities affected by the Seismic Hazards Zonation Program; Stanislaus County has not yet been mapped. However, it is not likely that Turlock has any risk of landslides given its essentially flat topography. Additionally, Turlock's soils are generally not prone to liquefaction during seismic events.

Environmental Setting

The Planning Area is located in the northern part of the San Joaquin Valley, in the central part of the greater Central Valley. The San Joaquin Valley is a sedimentary basin, bounded by the Sierra Nevada foothills and mountains to the east and the Coast Ranges (specific to the Planning Area, the Diablo Range) to the west. The San Joaquin River flows approximately three miles to the west of

the Planning Area; the area is in the river's drainage basin, but not in its floodplain. The Planning area is located in between two tributaries to the San Joaquin River—the Tuolumne River, approximately 10 miles north, and the Merced River, approximately six miles south. No natural waterways exist in the Planning Area itself. The area is basically flat, increasing in altitude from approximately 80 feet above mean sea level (MSL) in the southwest to 125 feet above MSL in the northeast.

The San Joaquin Valley is a trough filled with as much as six miles of sediment from the Sierra Nevada. The Planning Area is part of a low relief plain that was formed by coalescing alluvial fans formed by sediment erosion from the Sierra Nevada. Sediments in the valley range from a depth of approximately 7,000 feet in the northwest to 12,000 feet in the southwest.

The Planning Area, with the exception of part of the southeast region, is underlain by continental rocks and deposits from the Miocene to the Holocene Age.² In the San Joaquin Valley, these deposits are characterized by a heterogeneous mix of generally poorly sorted clay, silt, sand and gravel; some beds of claystone, siltstone, sandstone and conglomerate; and may include a range of ages of alluvium and continental deposits. Part of the southeast portion of the Planning Area is underlain by windblown sand and dune sand from the Holocene age. Six water-bearing geologic formations exist in Turlock Basin, which contains the Planning Area. From youngest (closest to the surface) to oldest (deepest), these formations are the Modesto, Riverbank, Turlock Lake, Mehrten, Valley Springs, and Ione.³

Most of these subsurface layers are laterally discontinuous, except for the E-clay, also called the Corcoran Clay, which is a relatively impermeable blue to gray silt/clay layer occurring in the middle of the older alluvium of the Riverbank Formation throughout the Planning Area. Depth to the top of the layer ranges from about 50 feet in the northeast to about 150 feet in the west. The thickness of the layer varies from about 20 feet in the eastern part of the Planning Area to about 80 feet in the west.⁴ The presence of the relatively impermeable Corcoran Clay layer has implications for ground water basin and therefore the City's water supply.

Seismic Hazards

There are no known geologic faults in the Planning Area or in the valley portion of Stanislaus County. The nearest faults are the Bear Mountain and Melones faults in the eastern part of Stanislaus County, which have been inactive for the last 150 million years⁵, and the Tesla Ortigalita fault in the Diablo Range.

² R.W. Page. Geology of the Fresh Ground-Water Basin of the Central Valley, California, With Texture Maps and Sections: Regional Aquifer-System Analysis. USGS Professional Paper 1401-C. 1986.

³ T. Durbin. Assessment of Future Groundwater Impacts Due to Assumed Water-Use Changes: Turlock Groundwater Basin, California. Prepared for Turlock Groundwater Association, 2008.

⁴ Durbin, 2008.

⁵ Stanislaus County General Plan Support Documentation, 1987.

Like any other place in the Valley, the area could be impacted by earthquakes along faults in the other parts of the region and elsewhere in California. Recorded earthquakes from faults outside the Turlock region have in the past produced ground shaking to an intensity of VI on the Modified Mercalli Intensity Scale of 1931⁶. Ground shaking to an intensity of VII is quite possible in the future.

Soils

A region's geology ultimately determines the types of soils that cover its surface, and soils have implications for both agricultural productivity and development potential. Almost all of the soils in the Turlock Planning Area are sandy loam or loamy sand, meaning they have high sand content, low clay content, and low to moderate silt content. Sandy soils are generally well drained, making them suitable for agriculture, and likely to have a low shrink swell potential. Hydric soils, generally with high clay content, have high shrink swell potentials. Soils of this type are often not suitable for development, as shrinkage and swelling can shift or damage building foundations.

Only one soil found in the Planning Area has a shrink swell potential of moderate; all the others are classified as low. The moderate shrink swell soil is Madera Sandy Loam, and it is found only in small quantities in on the eastern edge of the Planning Area and at the southwest corner of the WISP. Figure 7-5 maps the soil series found in the Planning Area.

The dominant soil types in the Planning Area are as follows:

Hilmar Loamy Sand

Hilmar Loamy Sand is a soil of Statewide Importance and covers most of the south and southeast quadrant of the Planning Area. Its parent material is wind-modified granite-derived alluvium. It is not a hydric soil; rather, it can drain somewhat excessively. It has a low shrink swell potential.

Delhi Loamy Sandy

Delhi Loamy Sandy soil is located across the central portion of the Planning Area. Its parent material is wind-modified granite-derived alluvium, and it can be Prime Farmland if irrigated. It is not a hydric soil, and has low shrink swell potential. Most areas where this soil is found in the Planning Area have been urbanized, with the exception of existing farmland in the WISP.

Dinuba Sandy Loam

Dinuba Sandy Loam is found covering most of the northwest, southwest, and eastern portions of the Planning Area. Like Delhi Loamy Sandy, this soil constitutes Prime Farmland if irrigated, and it is moderately well drained. Its parent material is granite-derived alluvium. It is also not a hydric soil and has low shrink swell potential.

Hanford Sandy Loam

Hanford Sandy Loam is found primarily in the north and northeast sections of the Planning Area. Similar to the other dominant soils in the Planning Area, it is Prime Farmland if irrigated, and its parent material is granite-derived alluvium. It is well drained, non-hydric, and has a low shrink swell potential.

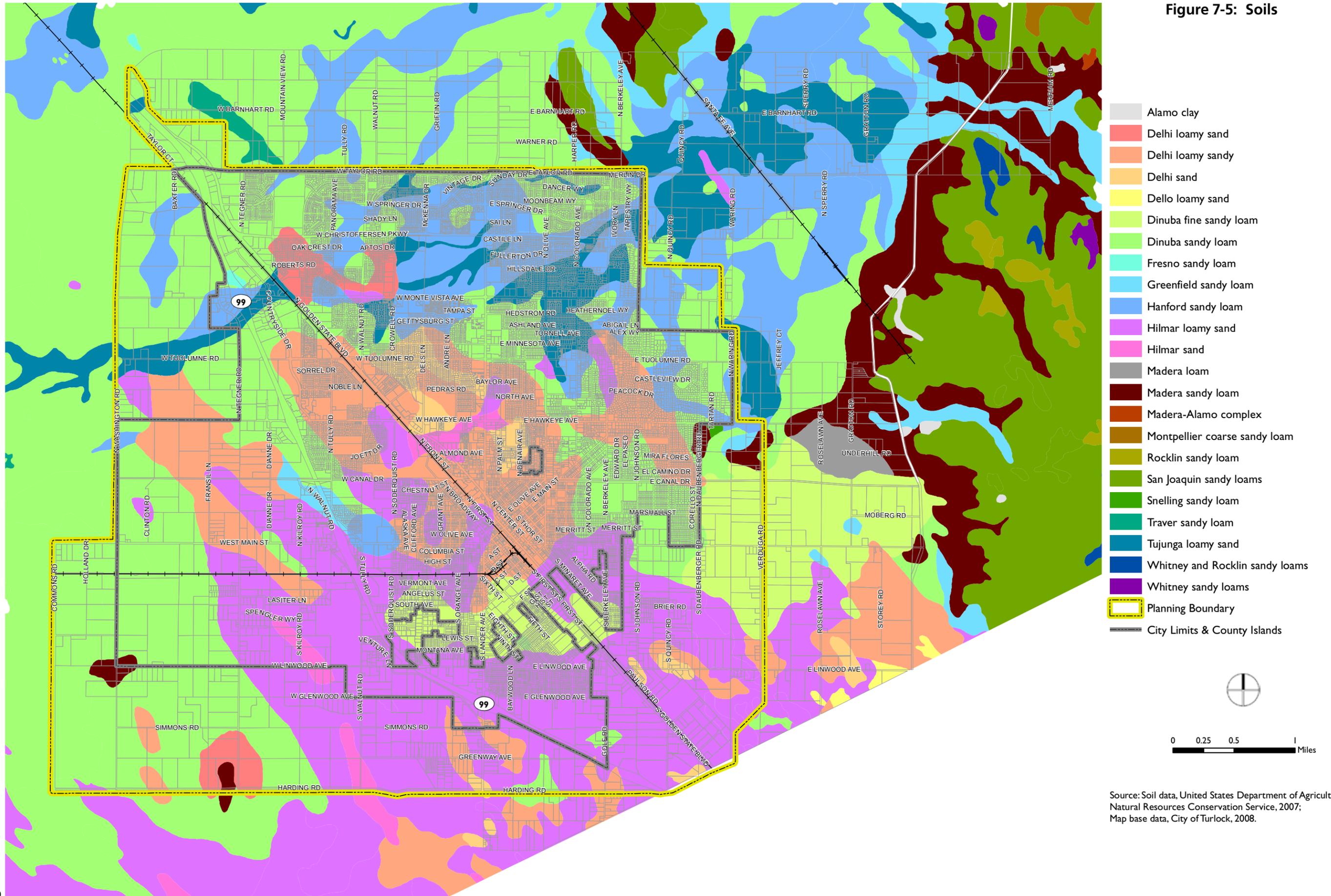
Planning Issues and Implications

Seismic conditions pose no serious threat to future development in Turlock. The potential for any damage due to distant ground shaking can be addressed through standard construction practices, and should not be considered a limitation on future development in the Planning Area.

As the vast majority of the Planning Area comprises well drained soils that are very well suited to agricultural use, virtually no hazards are associated with soils. Rather, Turlock's soils should be viewed as a resource, important components to the area's productive agricultural economy. Conservation of soils associated with Prime Farmland will be a factor to consider when evaluating location for new urban growth.

⁶ Turlock General Plan Master Environmental Impact Assessment (Part I) and Draft Environmental Impact Report (Part II), 1992.

Figure 7-5: Soils



Source: Soil data, United States Department of Agriculture, Natural Resources Conservation Service, 2007; Map base data, City of Turlock, 2008.

7.3 BIOLOGICAL RESOURCES

This section describes biological resources (plant and animal species, habitat, and wetlands) that exist or may potentially occur within the Planning Area. Information from this assessment may be used in planning or management decisions in the formulation of General Plan policies.

Regulatory Context

Federal Regulations

Federal Clean Water Act, Section 404

Section 404 of the Federal Clean Water Act (CWA) establishes the jurisdiction of the federal government (U.S. Army Corps of Engineers and the EPA) over wetlands and other waters of the United States. Certain wet areas do not fall under jurisdiction, including livestock watering ponds, agricultural ditches in upland areas, and other features that do not contribute to the ecological function of navigable rivers. For wetlands and water bodies that are under federal jurisdiction, a permit from the Corps is required for filling or discharge. The Corps may issue an individual permit on a case-by-case basis, or a program level (general) permit. If a proposed project within a general permit area cannot meet the requirements, an individual permit may then be required.

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) administer the federal Endangered Species Act (16 USC Section 153 et seq.) and thereby have jurisdiction over federally listed threatened, endangered and candidate species. NMFS assumes jurisdiction over all listed and candidate marine species. Species that are “proposed” for listing but not yet listed are generally considered as well, as there is potential for those species to become listed in the near future.

Projects that may result in “take” of a listed species must consult with the USFWS or NMFS. Under the federal Endangered Species Act, “Take” is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 CFR Section 10.12). Federal agencies that propose a project that may affect a listed species are required to consult with the USFWS or NMFS under Section 7 of the federal Endangered Species Act. If it is determined that a federally listed species may be adversely affected by the federal action, the USFWS/NMFS will issue a Biological Opinion to the federal agency that describes minimization and avoidance measures that must be implemented as part of the federal action. Projects that do not have a federal nexus must apply for a take permit under Section 10 of the

Act. Section 10 of the Act requires that the project applicant prepare a habitat conservation plan as part of the permit application.

Under the federal Endangered Species Act the USFWS/NMFS designates critical habitat, which are areas that are essential for the conservation of a threatened or endangered species and which may require special management considerations. A designation only applies to projects with a federal nexus; it has no specific regulatory impact on landowners who take actions on their land that do not involve Federal funding. However, Federal agencies must consult with the USFWS before taking actions that could harm or kill protected species or destroy their habitat.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

State Regulations

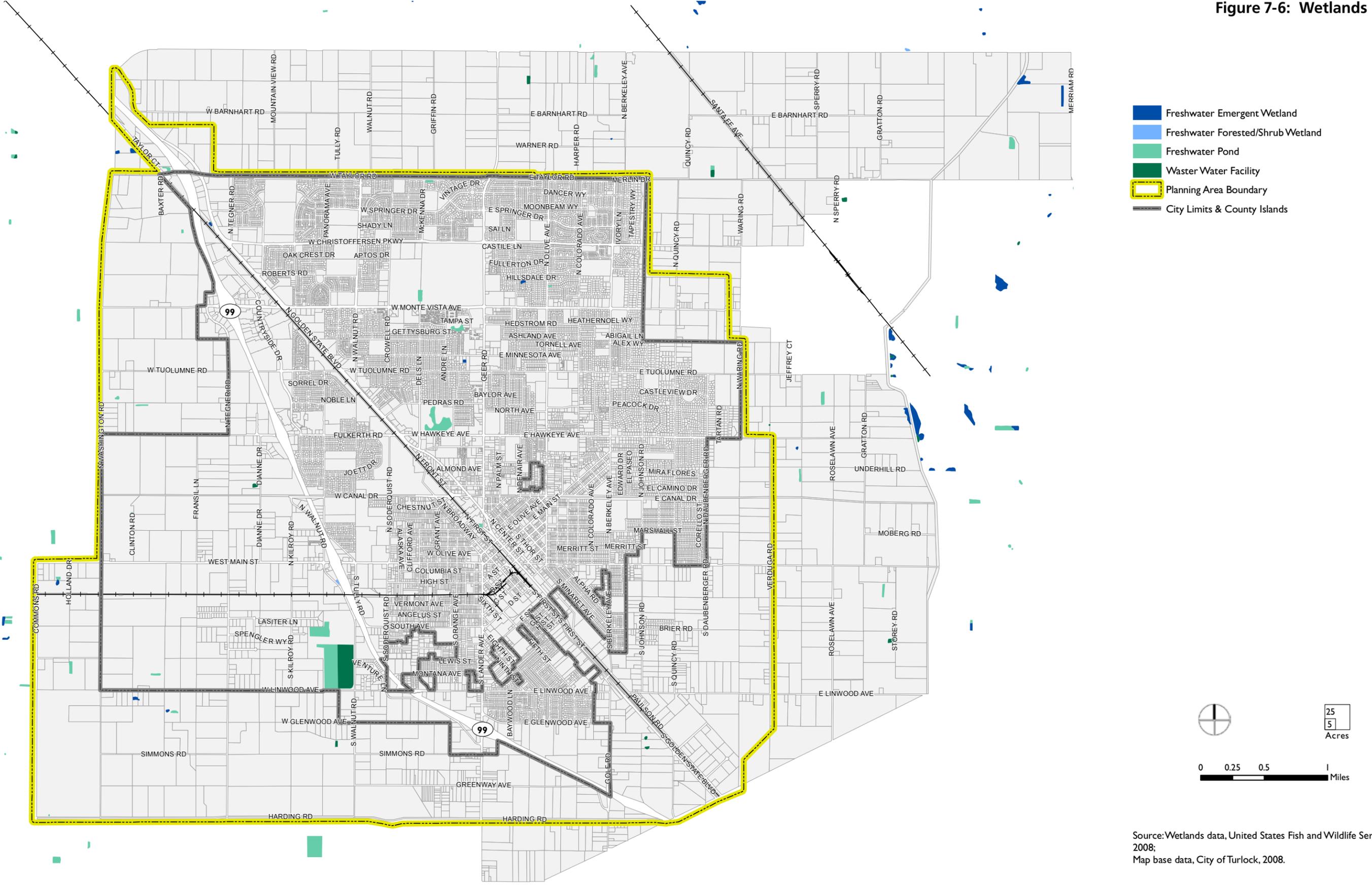
California Fish and Game Code Sections 1600 – 1616

The CDFG regulates the modification of streams, rivers, and lakes under Sections 1600-1616 of the California Fish and Game Code. Modification includes diverting, obstructing, or changing the natural flow or bed, channel, or bank of a regulated feature. While most of the features regulated by the Fish and Game Code meet the definition of other waters of the U.S., the Code may regulate some ephemeral features that do not have all the criteria to qualify as other waters of the U.S. A project proponent, including both private parties and public agencies, who proposes an activity that may modify a feature regulated by the Fish and Game Code must notify the CDFG before project construction. The CDFG will then decide whether to enter into a Streambed Alteration Agreement with the project proponent.

California Endangered Species Act

The CDFG administers the California Endangered Species Act of 1984 (Fish and Game Code Section 2070), which regulates the listing and “take” of endangered and threatened species. “Take” may be permitted by CDFG through implementing a management agreement. Under the State laws, the CDFG is empowered to review projects for their potential impacts to listed species and their habitats. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the Planning Area, and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any proposed

Figure 7-6: Wetlands



- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Waster Water Facility
- Planning Area Boundary
- City Limits & County Islands

25

5

Acres

0
0.25
0.5
1

Miles

Source: Wetlands data, United States Fish and Wildlife Service, 2008;
 Map base data, City of Turlock, 2008.

project that may affect a candidate species. Project-related impacts to species on the CESA endangered list and threatened list would be considered significant in an EIR. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

CDFG maintains lists for Candidate-Endangered Species (SCE) and Candidate-Threatened Species (SCT). California Candidate species are afforded the same level of protection as listed species. Species that are “proposed” for listing are also considered as they may become listed during the development of the project. California also designates Species of Special Concern (CSC), which are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future. The CSC list is intended by CDFG as a management tool for consideration in future land use decisions.

Porter-Cologne Water Quality Control Act State and Regional Water Quality Control Boards

The Porter-Cologne Water Quality Control Act establishes the SWRCB and the RWQCBs as the principal state agencies having primary responsibility in coordinating and controlling water quality in California. The Porter-Cologne Act establishes the responsibility of the RWQCBs for adopting, implementing, and enforcing water quality control plans (i.e. Basin Plans), which set forth the state’s water quality standards (i.e. beneficial uses of surface waters and groundwaters) and the objectives or criteria necessary to protect those beneficial uses. The Turlock Planning Area lies within the jurisdiction of the Central Valley RWQCB, which has adopted a Water Quality Control Plan for the Sacramento and San Joaquin River Basins to implement plans, policies, and provisions for water quality management.

National Pollutant Discharge Elimination System

In 1987, amendments to the CWA added section 402(p), which established a framework to protect water quality by regulating industrial, municipal, and construction-related sources of pollutant discharges to waters of the U.S. In California, the National Pollutant Discharge Elimination System (NPDES) is administered by the SWRCB through the RWQCBs and requires that municipalities obtain permits which outline programs and activities to control storm water pollution.

Environmental Setting

Wetlands

Most of the federally-recognized wetlands in the Planning Area are freshwater ponds, which in this case are ponds or detention basins associated with municipal parks. Several other small freshwater ponds are identified in agricultural areas. The ponds associated with Turlock’s wastewater treatment facility are also recognized as a wetland, although their function is tied exclusively to the facility. Several very small freshwater emergent wetlands are also present in the Planning Area, again on agricultural properties, mostly in the southwest quadrant. Figure 7-6 maps the locations and types of wetlands in the Planning Area.

Wildlife

Turlock has a long history of agricultural land use, which, combined with urban development, has resulted in a general absence of native vegetation in the Planning Area. In addition, the lack of natural waterways and distinguishing topography contribute to a dearth of distinctive habitat. However, agricultural uses do not preclude the use of the land by some species, particularly birds and small mammals. Orchards act as food sources and migratory corridors for some wildlife; livestock pastures serve as habitat to rodents and snakes. Detention basins, when holding water, can act as intermittent water sources and habitat for waterfowl.

The Planning Area is located at the intersection of the Turlock, Denair, Ceres, and Hatch 7.5 minute USGS quadrangles. A computerized search of the California Natural Diversity Database, run by the California Department of Fish and Game, for these four quadrangles lists species found in the area as well as their federal and state legal statuses under the Federal and State Endangered Species Act or State Native Plant Protection Act, and whether they are considered a Species of Special Concern by the California Department of Fish and Game. Table 7-1 summarizes the species identified.

Swainson’s hawk is present in the Ceres and Hatch quadrangles and is listed as Threatened in the state of California. Swainson’s hawk is found in portions of the Central Valley, usually breeds in stands along riparian areas, and forages in grasslands, pastures, hay and alfalfa fields, and row cropland.⁷ While the Planning Area does not contain land appropriate for the hawk’s breeding and nesting, Turlock’s farmland is within range of the rivers surrounding the Planning Area, and may serve as foraging habitat.

The tricolored blackbird, also found in the Ceres and Hatch quadrangles, and the western pond turtle, found in the Hatch quadrangle, do not have legal status

⁷ Audubon Society WatchList, <http://www.audubon2.org/watchlist/viewSpecies.jsp?id=199> and California Department of Fish and Game Life History Accounts and Range Maps, <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>

Table 7-1 Sensitive Biological Resources Potentially Found in Planning Area

Common Name (Scientific Name)	Federal/State Status	CDFG Status	CNPS Status
Animal Species			
Valley Elderberry	Threatened/None		
Longhorned Beetle (<i>Desmocerus californicus dimorphus</i>)			
Swainson's Hawk (<i>Buteo swainsoni</i>)	None/Threatened		
Tricolored Blackbird (<i>Agelaius tricolor</i>)	None/None	SC	
Suisun Song Sparrow (<i>Melospiza melodia maxillaris</i>)	None/None	SC	
Cackling (=Aleutian Canada) Goose (<i>Branta hutchinsii leucopareia</i>)	Delisted/None		
Western Pond Turtle (<i>Actinemys marmorata</i>)	None/None	SC	
Vegetation			
Merced Mondarella (<i>Monardella leucocephala</i>)	None/None		IA
San Joaquin Valley Orcutt Grass (<i>Orcuttia inaequalis</i>)	Threatened/Endangered		IB.I

Key to Special Status Designations

California Department of Fish and Game (CDFG)

SC: Species of Special Concern (those considered to be indicators of regional habitat changes; no legal status but should be taken into special consideration)

California Native Plant Society (CNPS)

IA: Presumed extinct; has not been seen or collected in the wild in California for many years.

IB: Rare, threatened, or endangered in California and elsewhere; category fulfills the criteria of "rare" under CEQA and should be considered in Environmental Impact Reports

2: Rare, threatened, or endangered in California but more common elsewhere

3: Plants about which more information is needed

4: Plants of limited distribution; watch list

0.1 to 0.3 indicates level of endangerment, with 0.1 being most endangered.

Source: California Natural Diversity Database, California Department of Fish and Game 2008; California Native Plant Society 2008

but are considered to be species of Special Concern. Both of these species rely on riparian, pond, or marsh habitats, which are present in the region but not in the Planning Area.

Two species of native vegetation, Merced Mondarella and San Joaquin Valley Orcutt Grass, were identified as potentially existing in the Planning Area. The California Native Plant Society presumes the Merced Mondarella to be extinct; San Joaquin Valley Orcutt Grass is listed as threatened by the federal government and endangered in California. Due to the prevalence of urban and agricultural uses in the Planning Area, it is more likely that this grass species is present in the general region but not in the Planning Area.

Planning Issues and Implications

Because Turlock has an absence of distinct habitat, the primary negative impact on biological resources caused by future development in the Planning Area will be due to destruction of farmland. However, because farmland remains a dominant land use surrounding the planning area, future development is not likely to result in serious wildlife habitat loss or fragmentation.

Development in Turlock does have the potential to create additional intermittent habitat and water resources for wildlife, through the construction of detention ponds. Many of the ponds constructed as part of municipal parks serve local and migratory waterfowl, and new development of detention basins would augment this ecological function.

7.4 CULTURAL RESOURCES

This section covers cultural resources found in the Planning Area. Cultural resources include sites, buildings, structures, or objects that may have archaeological, historical, cultural, or scientific significance. The General Plan update will take the City's cultural heritage into account in development alternatives and policy formation.

Regulatory Setting

Federal Regulations

National Historic Preservation Act

The National Historic Preservation Act (NHPA) is the most prominent federal law dealing with historic preservation. The NHPA established guidelines to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." The NHPA includes regulations specifically for federal land-holding agencies, but also includes regulations (Section 106) which pertain to all projects that are funded, permitted, or approved by any federal agency and which have the potential to affect cultural resources. All projects that are subject to the National Environmental Policy Act (NEPA) are also subject to compliance with Section 106 of the NHPA. At the federal level, the Office of Historic Preservation (OHP) carries out reviews under Section 106 of the NHPA.

National Register of Historic Places

NHPA authorizes the Secretary of the Interior to establish a National Register of Historic Places (National Register), an inventory of districts, sites, buildings, structures, and objects significant on a national, State, or local level in American history, architecture, archeology, engineering, and culture. The National Register is maintained by the National Park Service, the Advisory Council on Historic Preservation, State Historic Preservation Office, and grants-in-aid programs.

To be potentially eligible for listing on the National Register of Historic Places (NRHP), a building must usually be over 50 years old and must have historic significance and must retain its physical integrity. More detailed eligibility criteria are described in the Code of Federal Regulations, Title 36, Part 60. Historical Resources achieving significance with less than 50 years may be considered for listing if they are of "exceptional importance," or if they are integral parts of districts that are eligible for listing in the National Register.

State Regulations

California Register of Historic Resources

The State Historical Preservation Office maintains the California Register of Historic Resources (California Register). Historic properties listed, or formally designated for eligibility to be listed, on the National Register are automatically listed on the California Register (Public Resources Code, Section 5024.1). State Landmarks and Points of Interest are also automatically listed. The California Register can also include properties designated under local preservation ordinances or identified through local historic resource surveys.

For a historic resource to be eligible for listing on the California Register, it must be significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the pre-history or history of the local area, California, or the nation (California Public Resources Code, Section 5024.1).

Additional criteria are listed in California Code of Regulations, Title 14, Chapter 11.5. A building must usually be over 50 years old, must have historic significance, and must retain its physical integrity. Historical resources achieving significance within less than 50 years may be considered for listing in the California Register if it can be demonstrated that sufficient time has passed to understand its historical importance.

California Environmental Quality Act

CEQA directs the lead agency on any project undertaken, assisted, or permitted by the State to include in its environmental impact report for the project a determination of the project's effect on unique archeological resources. It enables a lead agency to require an applicant to make reasonable effort to preserve or mitigate impacts to any affected unique archeological resource. CEQA also establishes that adverse effects on an historical resource qualifies as a significant effect on the environment.

CEQA Guidelines

Historic Resources

CEQA guidelines define three ways that a property can qualify as a significant historical resource:

1. If the resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR);
2. If the resource is included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code, or is identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code unless a preponderance of evidence demonstrates that it is not historically or culturally significant; or,
3. If the lead agency determines the resource to be significant as supported by substantial evidence (California Code of Regulations, Title 14, Division 6, Chapter 3, section 15064.5).

In addition to determining the significance and eligibility of any identified historical resource under CEQA and the California Register, historic properties must be evaluated under the criteria for the National Register should federal funding or permitting become involved in any undertaking subject to this document.

Archeological Resources

CEQA Guidelines state that “public agencies should, whenever feasible, seek to avoid damaging effects on any historical resources of an archeological nature.” The Guidelines further state that preservation-in-place is the preferred approach to mitigate impacts on archeological resources, but permits recovery through excavation where it is the only feasible measure, and if it is done according to an approved plan.

Native American Heritage Act

Also relevant to the evaluation and mitigation of impacts to cultural resources, the Native American Heritage Act (NAHA) of 1976 established the Native American Heritage Commission (NAHC) and protects Native American religious values on state property (see California Public Resources Code 5097.9). PRC 5097.98 defines the steps that need to be taken if human remains are identified on a site.

Public Notice to California Native American Indian Tribes

Government Code, Section 65092 includes California Native American tribes that are on the contact list maintained by the Native American Heritage Commission in the definition of “person” to whom notice of public hearings shall be sent by local governments.

Tribal Consultation Guidelines

Passed in 2004, Senate Bill (SB) 18, now Government Code Section 65351 and 65352, establishes a procedure to help tribes and jurisdictions define tribal cultural resources and sacred areas more clearly and incorporate protection of these places earlier into the General Plan and Specific Plan processes. The SB 18 process mirrors the federal 106 Review process used by archaeologists as part of the environmental review conducted under NEPA. While not a component of CEQA review per se, the Lead agency is required to request consultation with responsible and trustee agencies, such as NAHC and neighboring tribes, during the initial study and EIR process.

Disposition of Human Remains

Health and Safety Code Section 7050.5 states that when an initial study identifies the existence, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials.

Native American Graves Protection and Repatriation Act

Health and Safety Code Section 8010-8011 establishes a state repatriation policy intent that is consistent with and facilitates implementation of the federal Native American Graves Protection and Repatriation Act. The Act strives to ensure that all California Indian human remains and cultural items are treated with dignity and respect. It encourages voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums in California. It also states the intent for the state to provide mechanisms for aiding California Indian tribes, including non-federally recognized tribes, in filing repatriation claims and getting responses to those claims.

California Historical Resources Information System

The California Historical Resources Information System (CHRIS) is a statewide system for managing information on the full range of historical resources identified in California. CHRIS is a cooperative partnership between the citizens of California, historic preservation professionals, twelve Information Centers, and various agencies. This system bears the following responsibilities: integrate newly recorded sites and information on known resources into the California Historical Resources Inventory; furnish information on known resources and surveys to governments, institutions, and individuals who have a justifiable need to know; and supply a list of consultants who are qualified to do work within their area. The Central California Information Center, located at CSU, Stanislaus, is the regional resource for Turlock.

Environmental Setting

Prehistoric Context and Resources

The prehistoric occupation of Central California can be interpreted using the Paleo-Archaic-Emergent chronological sequence. (Fredrickson, 1974) The sequence consists of three broad periods: The Paleo-Indian period (10,000 – 6,000 BC); the Archaic period (6,000 BC to AD 500); and the Emergent period (AD 500 – 1800). The entry and spread of people into California dates to the Paleo-Indian period. No prehistoric resources have been formally recorded in Turlock.

Historic Context

Before the arrival of Europeans, the Stanislaus County area was home to Miwok and Yokut people. Spanish explorations in the late 18th Century were followed by visits from American trappers and Mexican soldiers in the first decades of the 19th Century. Large land grants were given in the 1840s; ranching was introduced, and small settlements were created along the rivers. Around 1870, the Central Pacific Railroad was built through the valley, triggering the development of agriculture and towns. A station was established in 1871 on land owned by John Mitchell, a prominent cattle rancher; streets were platted, and the new city of Turlock was established. The Wright Act of 1887 set the stage for a system of irrigation in the San Joaquin Valley, and the Turlock Irrigation District became the first in the state ten years later. By the time Turlock was formally incorporated as a City in 1908, agriculture was well-established all around it.

Historic Resources

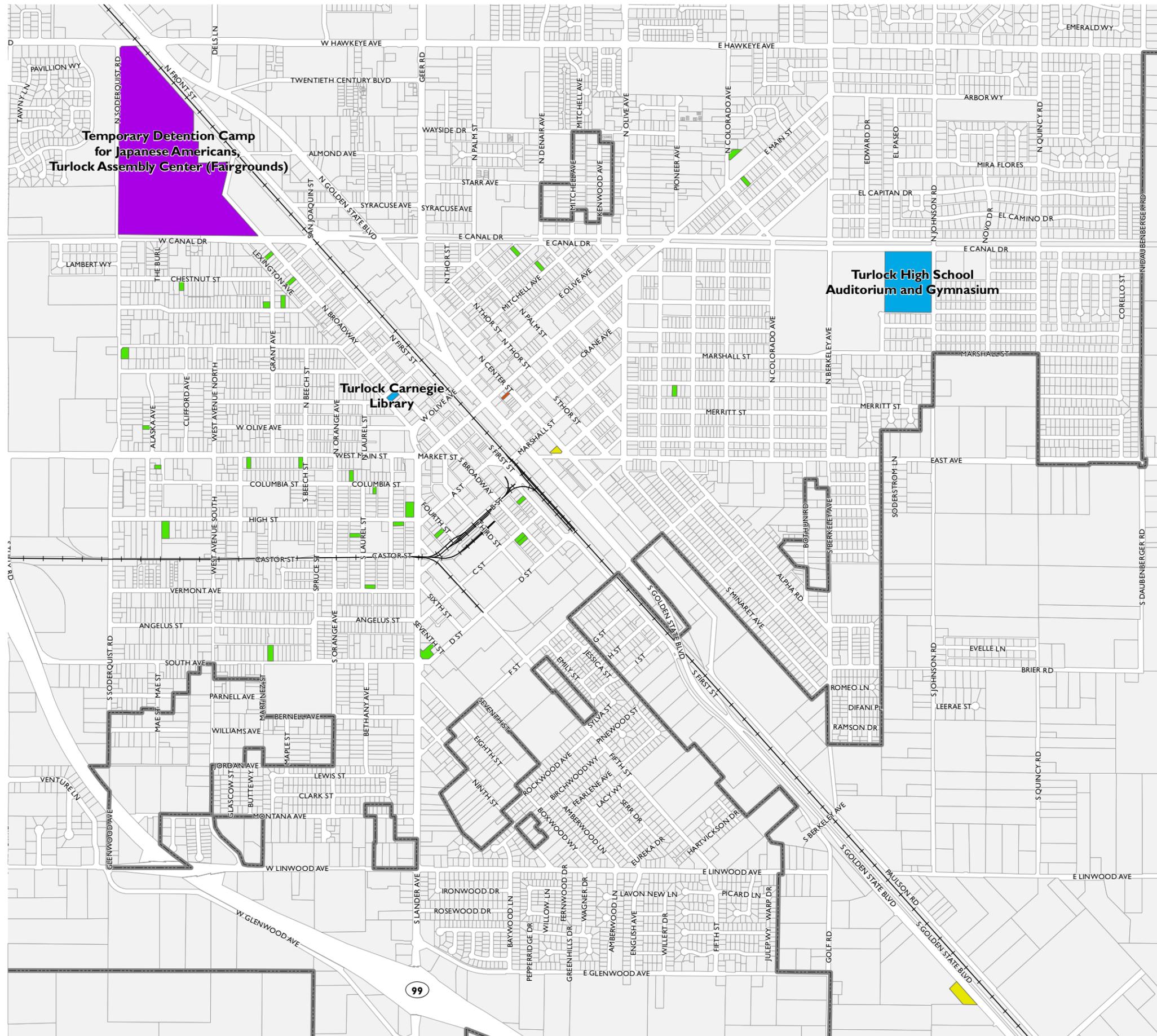
There are three properties listed on the National Register of Historic Places and the California Register of Historic Places in Turlock. The oldest of these is the Turlock Carnegie Library, built in 1916 in the Classical Revival style, and among many public libraries across the country sponsored by Andrew Carnegie. While under renovation in 2006, the library was gutted by fire. Also on the National and State Register is the Turlock High School Auditorium and Gymnasium, a handsome example of the Mission-Spanish Revival style, from 1925. The complex burned in 1979, but both interiors and exteriors have been restored and are in use.

Last, the site of the Turlock Assembly Center, at the Stanislaus County Fairgrounds, is a nationally- and state-listed historic property and is also a California Historical Landmark. In the summer of 1942, the Fairgrounds was used as an “assembly center” where 3,699 Japanese-Americans were imprisoned before being moved to longer-term relocation sites. Later, the place was used as a U.S. Army Rehabilitation Center, where army prisoners received special training and discipline. While many of the Fairgrounds buildings from that time remain, there is no evidence of Assembly Center structures, and no historical marker.

A records search conducted by the Central California Information Center (CCIC) of the California Historic Resources Information System at Stanislaus State University identified 38 properties in the planning area included in the state’s *Historic Property Data File*. Most of Turlock’s historic properties are residential, dating from as early as 1906 and as late as 1957 (buildings must be at least fifty years old to qualify).

In addition to the three properties discussed above, two properties on the list (Iwata Store, 2305 Golden State Boulevard, and Turlock Social Hall, 326 S. Center Street, were identified in a Reconnaissance Level Survey, but have not been evaluated for National Register status. All of the remaining properties in the Historic Property Data File have been determined ineligible for the National Register. Figure 7-7 maps Turlock’s historic properties, most of which are in and around the Downtown area. Table 7-2 lists all of the properties and their status.

Figure 7-7: Historical Sites



- California Historical Landmark, and listed on National Register of Historic Places and California Register of Historical Resources
- Properties listed on National Register of Historic Places and California Register of Historical Resources
- Other Properties Listed in the Directory of Properties in the Historic Property Data File**
- Determined Ineligible for National Register (NR). Not evaluated for California Register (CR) or Local Listing
- Identified in Reconnaissance Level Survey: Not evaluated for NR, CR, or Local Listing
- Submitted to Office of Historic Preservation (OHP), and Withdrawn
- City Limits & County Islands



Area Shown at Left



Source: California historical resources information system data, Central California Information Center and Dyett and Bhatia, 2008; Map base data, City of Turlock, 2008.

TABLE 7-2 TURLOCK PROPERTIES IN THE CALIFORNIA HISTORIC PROPERTY DATA FILE	
<i>ADDRESS (NAME)</i>	<i>YEAR CONSTRUCTED</i>
California Historical Landmarks, and Listed on National Register of Historic Places and California Register of Historic Places	
Turlock Assembly Center	1942 (Year of historic occupancy)
<i>National Register of Historic Places and California Register of Historic Places</i>	
250 N Broadway (Turlock Carnegie Library)	1916
1574 E Canal Drive (Turlock High School Auditorium and Gymnasium)	1925
Properties Identified in Historic Property Data File and Not Evaluated for National Register or California Register	
326 S Center Street (Turlock Social Hall)	1913
2305 Golden State Boulevard (Iwata Store)	1921
Properties Identified on Historic Property Data File but Determined Ineligible for Listing on National Register or Historic Register	
108 S Center Street (Palace Market/Chatom, Albert Co.)	1910
404 S Broadway	1910
216 Fourth Street	1910
434 S Laurel Street	1910
133 High Street	1914
321 S Laurel Street	1915
619 Wolfe Street	1915
816 N Broadway	1920
724 N Broadway	1925
569 Julian Street	1925
314 S First Street	1925
220 Columbia Street	1926
309 Columbia Street	1930
1008 E Main Street	1931
1212 Sycamore Street	1933
189 Alaska Street	1940
647 Mitchell Street	1940
1166 Park Street	1940
589 South Avenue	1940
2230 Waldorf Drive	1940
992 High Street	1941
720 Lander Avenue	1945
129 Radio Street	1945
928 Chestnut Street	1947
615 Julian Street	1947
312 S Tegner Road	1951
105 Grant Street	1952
1104 Colorado Avenue	1957
670 W Main Street	
400 S Broadway	
3400 N Golden State Boulevard	

Source: Central California Information Center, 2008.

Contemporary Native American Resources

A record search of the sacred lands file was conducted by the Native American Heritage Commission, for the Turlock General Plan. The search failed to indicate the presence of Native American cultural resources within the Planning Area. Letters of inquiry have been sent to the six tribal representatives listed in the NAHC response, who may provide further information.

Paleontological Resources

Fossil remains are considered to be important as they provide indicators of the earth's chronology and history. These resources are afforded protection under CEQA and are considered to be limited and nonrenewable, and they provide invaluable scientific and educational data. No research into paleontological resources has as yet been conducted for the Turlock General Plan.

PLANNING ISSUES AND IMPLICATIONS

The National and State Registers are meant to facilitate public recognition of significant historical and cultural buildings and places, and to encourage preservation. Federal listing does not create any restrictions on use or sale; CEQA review may be necessary for major changes proposed to properties listed on the California Register. On the other hand, listed properties may be given flexibility in meeting building code requirements, and may be eligible for National Park Service grants. (Tax reductions are also available, though Turlock's three listed properties are in public ownership.) Historic listing has likely raised public awareness of Turlock's two listed buildings.

The cluster of properties included in the state Historic Property Data File and located near downtown suggests the possibility for Turlock to showcase its older neighborhoods and houses, to raise their visibility and generate identity.

7.5 AIR QUALITY

Air quality is a persistent problem for California's Central Valley, due to its geography, land use pattern, and industrial development. This section discusses air pollutants as originally defined as well as greenhouse gas emissions.

Regulatory Setting

Regulation of air pollution is achieved through both national and State ambient air quality standards and emissions limits for individual sources of air pollutants. As required by the Federal Clean Air Act, US EPA has established National Ambient Air Quality Standards (national standards) to protect public health and welfare. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards or State standards). In addition, California has established State ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Federal Regulations

The U.S. Environmental Protection Agency (EPA) is responsible for implementing the programs established under the Federal Clean Air Act. The Clean Air Act establishes the framework for federal air pollution control, including direction for the EPA to develop national emission standards for hazardous air. Table 7-3 provides the 2008 Ambient Air Quality Standards for the State of California and federal standards. This table also summarizes the related health effects and principal sources of each pollutant. If an area does not meet the federal standard for a pollutant, the state is required to prepare and adopt State Implementation Plans (SIPs) to show how the standards will be attained.

The federal Clean Air Act also outlines requirements for ensuring that federal transportation plans, programs, and projects conform to the SIP's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards. As such, Regional Transportation Plans (RTPs) and Transportation Improvement Programs (TIPs) that require federal funding or approval must be included in the SIP emissions budget.

National Emission Standards for Hazardous Air Pollutants developed by US EPA in accordance with Title III of the 1990 federal Clean Air Act Amendments regulate "major source" facilities that emit large quantities of toxic air contaminants (TACs). These rules require that emissions be reduced using the Maximum Achievable Control Technology (MACT).

Table 7-3 State and National Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	California Standard	National Primary Standard	Major Pollutant Sources	Pollutant Health and Atmospheric Effects
Ozone	1 hour	0.09 ppm	---	On-road motor vehicles, other mobile sources, solvent extraction, combustion, industrial and commercial processes.	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.
	8 hour	0.07 ppm	0.08 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.
	8 hour	9.0 ppm	9.0 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	---	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.	Irritating to eyes and respiratory tract. Colors atmosphere reddish brown.
	Annual Average	0.03 ppm	0.053 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	---	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.	Irritates upper respiratory tract, injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron and steel. Limits visibility and reduces sunlight.
	24 hour	0.04 ppm	0.14 ppm		
	Annual Average	---	0.03 ppm		
Respirable Particulate Matter (PM-10)	24 hour	50 µg/m ³	150 µg/m ³	Dust- and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).	May irritate eyes and respiratory tract, decreases lung capacity and increases risk of cancer and mortality. Produces haze and limit visibility.
	Annual Average	20 µg/m ³	---		
Fine Particulate Matter (PM-2.5)	24 hour	---	35 µg/m ³	Fuel combustion in motor vehicles, equipment and industrial sources; residential and agricultural burning. Also formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.	Increases respiratory disease, lung damage, cancer and premature death. Reduces visibility and results in surface soiling.
	Annual Average	12 µg/m ³	15 µg/m ³		
Lead	Monthly Average	1.5 µg/m ³	---	Present source: lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.
	Quarterly	---	1.5 µg/m ³		

1. Note: ppm=parts per million; and µg/m³=micrograms per cubic meter

Source: California Air Resource Board, available at www.arb.ca.gov/research/aaqs/aaqs2.pdf, Published April 2008. Accessed June 2, 2008.

Climate Change Measures

In *Massachusetts v. EPA* (2007), 12 states, 3 cities, and 13 environmental groups filed suit to argue that the EPA should be required to regulate carbon dioxide and other greenhouse gases as pollutants under the federal Clean Air Act. In April 2007, the U.S. Supreme Court found that the EPA has a statutory authority to formulate standards and regulations to address greenhouse gases, which it historically has not done. The effects of any EPA actions on California communities may be muted because California has adopted more stringent regulations at the state level.

In December 2007, President Bush signed the Energy Independence and Security Act of 2007 to move the U.S. toward greater energy independence and security. This energy bill increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022. It also tightens the Corporate Average Fuel Economy (CAFE) standards that regulate the average fuel economy in the vehicles produced by each major automaker.

State Regulations

The California Air Resources Board (CARB) is responsible for establishing and reviewing California ambient air quality standards, developing and managing the California SIP, securing approval of this plan from US EPA, and identifying TACs. The California Clean Air Act of 1988 focuses on attainment of the state ambient air quality standards, which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards. Local and regional air districts are required to prepare and adopt air quality attainment plans if the district violates the state standards.

The State of California's regulatory efforts regarding the identification and control of toxic air contaminants are embodied in AB 1807, the Tanner Bill (effective 1984). The California Air Resources Board (CARB) identifies the most important toxic pollutants by considering risk of harm to public health, amount or potential amount of emissions, manner of usage of the substance, its persistence in the atmosphere, and its concentration in the outdoor air. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. All new diesel-powered engines and vehicles sold in California are required to meet both federal and state emissions certification requirements. The Air Toxics "Hot Spots" Act (AB 2588) was enacted in 1987 with the objective of collecting information concerning industrial emissions of toxic air contaminants and making the information available to the public.

Climate Change Measures

In September 2004, pursuant to AB 1493 (Pavley), the CARB approved regulations to reduce greenhouse gas emissions from new motor vehicles. The regulations set near-term emission standards, phased in from 2009 through 2012, and mid-term emission standards, phased in from 2013 through 2016. CARB calculates that the AB 1493 vehicle requirements will cumulatively produce 41 percent more GHG reductions by 2020 compared to the new federal CAFÉ standard in the Energy Independence and Security Act of 2007 (above).

Executive Order S-20-04, signed by Governor Schwarzenegger in 2004, commits the State to aggressive action to increase building energy efficiency. It has been determined that commercial buildings use 36 percent of the state's electricity and account for a large percentage of greenhouse gas emissions, raw materials use and waste. In addition to requiring state-owned building to be retrofit to be more energy efficient, this EO requires the California Energy Commission to undertake all actions within its authority to increase efficiency by 20 percent by 2015, compared to Titles 20 and 24 non-residential standards adopted in 2003.

In June 2005, the Governor signed Executive Order S-3-05, which recognizes California's vulnerability to climate change, noting that increasing temperatures could reduce snow pack in the Sierra Nevada, 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 greenhouse gas 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.

In September 2006, Governor Schwarzenegger signed AB 32, the California Climate Solutions Act. The Act requires the reduction of statewide GHG emissions to 1990 levels by the year 2020. This change, which is equivalent to a 25 percent reduction from current emission levels, will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012.

AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources and address GHG emissions from vehicles. CARB has stated that the regulatory requirements for stationary sources will be first applied to electricity power generation and utilities, petrochemical refining, cement manufacturing, and industrial/commercial combustion. The second group of target industries will include oil and gas production/distribution, transportation, landfills and other GHG-intensive industrial processes.

Senate Bill (SB) 1368, also signed in September 2006, requires the California Public Utilities Commission (PUC) to establish a GHG emissions performance standard for "baseload" generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) was required to establish

a similar standard for local publicly-owned utilities by June 30, 2007. The legislation further required that all electricity provided to California, including imported electricity, must be generated from plants that meet or exceed the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim performance standard for new long-term commitments (1,100 pounds of CO₂ per megawatt-hour), and in May 2007, the CEC approved regulations that match the PUC standard.

In January 2008, Governor Schwarzenegger established a Low-Carbon Fuel Standard by Executive Order. Executive Order S-01-07 calls for a statewide goal to be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020, and for a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. The LCFS applies to all refiners, blenders, producers or importers ("Providers") of transportation fuels in California, will be measured on a full fuels cycle basis, and may be met through market-based methods by which Providers exceeding the performance required by a LCFS shall receive credits that may be applied to future obligations or traded to Providers not meeting the LCFS. CARB has approved the LCFS as a Discrete Early Action item under AB 32.

SB 97 (Chapter 185, Statutes 2007)

Senate Bill (SB) 97 directs the Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Resources Agency guidelines for feasible mitigation of GHG emissions or the effects of GHG emissions, by July 1, 2009. The Resources Agency is required to certify and adopt amendments to the Guidelines implementing the California Environmental Quality Act ("CEQA Guidelines") on or before January 1, 2010. These new CEQA Guidelines will provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents. In the interim, the OPR offered informal guidance regarding steps lead agencies should take to address climate change in their CEQA documents. (Governor's Office of Planning and Research, 2008)

In September 2008, Governor Schwarzenegger signed Senate Bill (SB) 375 into law. This legislation 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 streamlining for projects that are consistent with the SCS and qualify as Transportation Priority Projects (TPP). TPPs must meet three requirements: 1) contain at least 50 percent residential use; commercial use must have floor area ratio (FAR) of not less than 0.75; 2) have a minimum net density of 20 units per acre; and 3) be located within one-half mile of a major transit stop or high quality transit corridor included in the regional transportation plan.

In November 2008, Governor Schwarzenegger issued Executive Order (EO) S-13-08 directing state agencies to plan for sea level rise and climate change impacts. There are four key actions in the EO including: (1) initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies by early 2009; (2) request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts; (3) issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects; and (4) initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

California Attorney General Actions

As the chief law enforcement officer of the State, charged by the Constitution to protect the public interest and the State's natural resources, California Attorney General Edmund G. Brown Jr. is committed to doing everything in his power to ensure that California meets its greenhouse gas reduction targets⁸. Examples of the Office of Attorney General's efforts include suing companies in the power industry and the auto industry for their contributions to global warming and writing letters or submitting oral testimony in over 30 different CEQA environmental review processes for city general plans, county general plans, regional transportation plans, and specific projects throughout California.

Regional Regulations

The San Joaquin Valley Air Quality Management District (SJVAQMD) is the regional agency with regulatory authority over emission sources in the San Joaquin Valley. Air quality management districts are primarily responsible for regulating stationary emissions sources at facilities within their geographic areas and for preparing the air quality plans required under the Federal Clean Air Act and California Clean Air Act.

Ozone

SJVAQMD, in collaboration with the CARB, EPA, and eight regional transportation planning agencies, prepared an air quality plan to bring the San Joaquin Valley Air Basin into attainment with state and federal ozone standards. The 2004 Extreme Ozone Attainment Demonstration Plan, together with amendments approved in 2006 and clarifications adopted in 2008, describes the Valley's strategy for compliance with the federal 1-hour ozone standard. Although the US EPA revoked the federal 1-hour ozone standard on June 15, 2005, the emission reduction commitments in the plan are still being carried out by the SJVAQMD.

⁸ The Attorney General global warming web portal may be found at <http://ag.ca.gov/globalwarming/>. The portal contains information on global warming generally, impacts in California, and documentation of the comments, speeches, op-eds, testimony, and litigation actions he has taken to support AB 32 goals.

Table 7-4 Air Quality Data Summary (2002-2007) for the Planning Area

Pollutant	Standard ^b	Monitoring Data by Year ^a					
		2002	2003	2004	2005	2006	2007
Ozone:							
Highest 1 Hour Average (ppm) ^c	0.09 ^c	<u>0.14</u>	<u>0.12</u>	<u>0.11</u>	<u>0.10</u>	<u>0.11</u>	<u>0.10</u>
Days over State Standard ^b		31	21	6	1	15	1
Highest 8 Hour Average (ppm) ^c	0.07 ^c	<u>0.11</u>	<u>0.10</u>	<u>0.09</u>	<u>0.08</u>	<u>0.10</u>	<u>0.09</u>
Days over State Standard ^b		61	62	27	13	37	12
Respirable Particulate Matter (PM-10):							
Highest 24 Hour Average (mg/m ³) ^c	50 ^c	<u>97.0</u>	<u>88.0</u>	<u>60.0</u>	<u>87.0</u>	<u>98.0</u>	<u>77.0</u>
Days over State Standard ^b		*	48	32	49	*	55
Annual Average (mg/m ³) ^c	20 ^c	*	<u>31.4</u>	<u>30.7</u>	<u>29.8</u>	*	<u>31.5</u>
Fine Particulate Matter (PM-2.5)							
Highest 24 Hour Average (mg/m ³) ^d	35 ^d	<u>83.0</u>	64.0	53.0	<u>80.0</u>	<u>71.0</u>	<u>64.0</u>
Days over National '06 Standard ^b		52	21	27	27	27	49
State Annual Average (mg/m ³) ^c	12 ^c	<u>18.6</u>	<u>14.5</u>	<u>13.6</u>	<u>14.4</u>	<u>15.8</u>	<u>16.0</u>

^a Data for ozone and PM-2.5 are from the Minaret Avenue monitoring station in Turlock. Data for PM-10 is from the 14th Street station in Modesto.

^b Generally, state standards are not to be exceeded and national standards are not to be exceeded more than once per year. ppm = parts per million; mg/m³ = micrograms per cubic meter.

^c State measurement and standard

^d National standard

^e U.S. EPA lowered the 24-hour PM-2.5 standard from 65 mg/m³ to 35 mg/m³ in 2006; the averages for 2003 and 2004 did not exceed the standard that was in place at that time.

* No data.

Note: Values underlined are in excess of applicable standard.

Source: California Air Resources Board, Summaries of Air Quality Data, 2002, 2003, 2004, 2005, 2006, 2007; <http://www.arb.ca.gov/adam>.

Carbon Monoxide

The 1996 Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Areas was developed by the air districts with jurisdiction over ten planning areas (including the SJVAPCD) to ensure continued attainment of the Federal carbon monoxide standard. In June 1998, the EPA approved this plan and designated the ten areas as attainment. The maintenance plan was revised most recently in 2004.

Particulate Matter

After the Air Basin was determined to be in nonattainment of federal standards for particulate matter with a diameter of 10 microns or less (PM-10), the SJVAQMD adopted the 2003 PM10 Plan, which presents SJVAQMD’s strategy for improving air quality in this category. An updated plan was adopted in 2006, as directed in the 2003 plan, and the control strategy was reaffirmed. The District’s monitoring data showed that the Valley had attained national standards for PM-10, and the following year SJVAQMD submitted the 2007 Maintenance Plan and Request for Redesignation as an attainment area. EPA approved the maintenance plan in September 2008, and redesignated the San Joaquin Valley as an attainment area for PM10.

Also in 2008, the District adopted the 2008 PM_{2.5} Plan, which sets a course for the Air Basin to achieve both federal and state standards for fine particulate matter (2.5 micron diameter or smaller.)

Transportation Planning

The Stanislaus Council of Governments (StanCOG) is responsible for regional transportation planning for Stanislaus County and its cities, including Turlock. StanCOG develops and implements the Regional Transportation Plan (RTP), which was last updated in 2007, and which guides the allocation of Federal and State funds to transportation projects in the County. The RTP is a long-term strategy for accommodating growth with transportation investments. Its stated goals for the transportation system are mobility, safety and efficiency, environmental quality, economic and community vitality, equity and accessibility.

The transportation system has an important influence on air quality because it impacts the vehicle miles traveled, a major source of air pollutants. The Plan is required to evaluate regional environmental effects, and to demonstrate conformity with the transportation emissions “budgets” in the San Joaquin Valley Air Quality Plan.

Environmental Setting

Atmospheric conditions such as wind speed, wind direction, and air temperature interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

Turlock is located in the San Joaquin Valley Air Basin, a largely flat area bordered on the east by the Sierra Nevada Mountains; on the west by the Coast Ranges; and to the south by the Tehachapi Mountains. Marine air flows eastward through gaps in the Coast Range at the Golden Gate and Carquinez Strait. The mountain ranges ringing the San Joaquin Valley restrict air movement through and out of the air basin, making the region highly susceptible to pollutant accumulation over time (San Joaquin Valley Air Pollution Control District, 2002.) Air quality in the Valley is compromised both by pollutants transported eastward from the urbanized Bay Area and by local emissions.

During winter, low wind speeds contribute to high concentrations of certain air pollutants. In the summer, winds usually originate from the north end of the San Joaquin Valley and flow in a south-southeasterly direction through the valley, through the Tehachapi pass and into the neighboring Southeast Desert Air Basin. But persistent summertime inversions – when a layer of cool, marine air is trapped below a mass of warmer air above – prevent vertical dispersion of air pollutants.

Turlock is located in the northern portion of the San Joaquin Valley. Compared to points further south it is relatively near to the source of southeast-flowing winds transporting both marine air from the Pacific Ocean and pollutants generated in the urbanized San Francisco Bay Area.

Existing Air Quality

The San Joaquin Valley Air Basin is considered in “attainment” for Federal and state standards for carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. The region is designated a “severe nonattainment” area for the federal one-hour ozone standard and in “serious nonattainment” for the eight-hour standard. While the Air Basin has recently achieved federal attainment status for PM₁₀, it fails to attain California’s standards for PM₁₀ and PM_{2.5} particulate matter.

Air pollutants in the Valley are generated by motor vehicles, farming operations, industrial activities, wood burning, and windblown dust. The San Joaquin Valley Air Pollution Control District (SJVAPCD) operates a regional monitoring network to measure ambient concentrations of the six criteria pollutants. One of these monitoring stations is located on South Minaret Avenue in Turlock, providing a very good gauge for air quality in the planning area. Table 13.1 shows measured pollutant concentrations for ozone and PM_{2.5} (fine particulate matter) from the Turlock monitoring station over the last six years, and ambient air quality standards for these criteria pollutants. PM₁₀ (respirable particulate matter) was not monitored in Turlock until 2007, so data from a monitoring station approximately 14 miles to the northwest in Modesto is used.

As shown in Table 7-4, ozone levels in Turlock have exceeded state standards for both the one-hour and eight-hour periods in each of the past six years. Turlock’s air also violated state standards for respirable particulate matter (PM₁₀) in each year since 2002, and surpassed contemporary standards for PM_{2.5} in four out of the six years (if the stricter national standard set in 2006 had been in effect earlier, all years would have had days of non-attainment.)

Ozone and PM₁₀ pollutants are recorded at significantly higher levels elsewhere in the San Joaquin Valley Air Basin, by all measures and in all of the last six years. For example, while Turlock’s air violated state one-hour and eight-hour ozone standards an average of approximately 13 and 35 days per year, respectively, the San Joaquin Valley Air Basin recorded averages of 102 and 154 days of ozone non-attainment.

The San Joaquin Valley Air Pollution Control District maintains an Emissions Inventory, which estimates the total volume of air pollutants generated each day by approximately 100 “areawide” sources, point sources such as factories, gas stations and power plants, and mobile sources (vehicles.) From estimates for Stanislaus County for 2006, shown in Table 7-5, it is clear that the proportion of air pollution generated by different sources varies by pollutant. Cars and trucks are responsible for most of the smog-producing pollutants (nitrogen oxides and reactive organic gases) in the air and two-thirds of the carbon monoxide. Farming is the major source of organic gases, including reactive organic gases that contribute to smog, while other areawide sources, especially dust from roads and construction, produce most of the particulate air pollutants. Fuel combustion in factories, food processing plants, electric utilities, and similar sources accounts for more than half of sulfur oxide production.

The SJVAPCD keeps detailed information on this last source category - stationary or “point sources.” In Turlock, major air pollutant point sources in 2006 included Walnut Energy Center; California Dairies; Purina Mills; Associated Feed; Evergreen Beverage Packaging; Foster Farms; Varco Pruden Buildings; West Coast Equipment; and Cargill.

Planning Issues and Implications

Levels of some criteria pollutants in the San Joaquin Valley meet federal and state standards, but the Air Basin is in “nonattainment” for ozone and particulate matter (PM-10 and PM-2.5.) As required by the Clean Air Act, the San Joaquin Valley Air Pollution Control District (SJVAPCD), in partnership with eight local transportation planning agencies, has developed a series of plans to meet ozone standards by reducing the emission of ozone precursors, the most recent and comprehensive of which was adopted in 2007. After the EPA reclassified the Air Basin from serious to severe nonattainment for the federal one-hour ozone standard, the District was required to prepare a Rate of Progress Report, responding to the practical impossibility of attaining ozone standards immediately. In 2004, the District adopted a plan to meet federal standards for PM-10, aiming for attainment at all monitoring stations by 2010.

According to CEQA guidelines, local plans, such as Turlock’s General Plan, should be evaluated for their consistency with the most recent regional air quality plans (the 2007 Ozone Plan and the 2003 PM10 Plan). While areawide sources of pollution like farming, and point sources like factories, may be outside the purview of the General Plan, the Plan’s impact on land use, development intensity, and transportation has real implications for air pollution generated by motor vehicles. The General Plan’s consistency with the population and vehicle use projections used in the those plans, and its implementation of the the transportation control measures incorporated by those plans, should be analyzed. Additionally, land use decision-making must be guided in part by determining what uses are appropriate to locate near point sources of air pollution.

Table 7-5 2006 Sources of Air Pollutants in Stanislaus County

Category ¹	Percent of Total Air Pollutant, by Type							
	TOG	ROG	CO	NO _x	SO _x	PM	PM10	PM2.5
Stationary Sources								
Fuel Combustion	0.1%	0.2%	0.6%	13.9%	56.8%	0.5%	0.8%	2.3%
Waste Disposal	15.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cleaning and Surface Coatings	1.3%	5.9%	0.0%	0.0%	0.0%	0.1%	0.1%	0.4%
Petroleum Production, Marketing	0.3%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Industrial Processes	0.4%	2.0%	0.0%	0.7%	12.5%	6.6%	6.9%	9.4%
<i>Subtotal</i>	<i>17.9%</i>	<i>10.8%</i>	<i>0.6%</i>	<i>14.7%</i>	<i>69.3%</i>	<i>7.2%</i>	<i>7.8%</i>	<i>12.1%</i>
Areawide Sources								
Solvent Evaporation	3.1%	15.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Residential Fuel Consumption	0.8%	1.8%	7.6%	1.5%	2.3%	3.2%	5.5%	15.5%
Farming	69.4%	30.0%	0.0%	0.0%	0.0%	35.6%	31.9%	24.6%
Other	0.7%	2.0%	6.2%	1.4%	1.7%	49.4%	46.6%	27.9%
<i>Subtotal</i>	<i>73.9%</i>	<i>49.0%</i>	<i>13.8%</i>	<i>2.9%</i>	<i>4.0%</i>	<i>88.3%</i>	<i>84.0%</i>	<i>68.0%</i>
Mobile Sources								
On-Road Motor Vehicles	5.2%	25.9%	65.5%	57.1%	14.2%	2.7%	4.9%	11.4%
Other Mobile Sources	2.9%	14.3%	20.1%	25.4%	12.5%	1.8%	3.3%	8.5%
<i>Subtotal</i>	<i>8.1%</i>	<i>40.2%</i>	<i>85.6%</i>	<i>82.5%</i>	<i>26.7%</i>	<i>4.6%</i>	<i>8.2%</i>	<i>19.9%</i>
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: San Joaquin Valley Air Pollution Control District, 2006.

Notes:

¹ TOG: Total Organic Gases; ROG: Reactive Organic Gases; CO: Carbon Monoxide; NO_x: Nitrogen Oxides; SO_x: Sulfides; PM: Particulate Matter; PM10: Particulate Matter With Diameter < 10 Microns; PM2.5: Particulate Matter With Diameter < 2.5 Microns.

7.6 FLOODING

Flood risk is a consequence of rainfall characteristics, topography, water features, vegetation and soil coverage, impermeable surfaces, and the city's urban storm-water management infrastructure. This section discusses the Planning Area's watershed characteristics and various flood hazards, and the city's capacity to address these issues.

Regulatory Context

Federal Regulations

Federal Emergency Management Agency (FEMA)

Federal Emergency Management Agency (FEMA) regulations govern the delineation of floodplains and establish requirements for floodplain management. FEMA also administers the National Flood Insurance Program (NFIP), which provides flood insurance to communities that have enacted ordinances restricting development in the 100-year floodplain. As part of NFIP, FEMA prepares Flood Insurance Rate Maps (FIRMs), which delineate the 100-year floodplain and shows further areas and levels of flood risk. FIRMs form the basis of floodplain development regulation.

State Regulations

AB 162 (Wolk): General Plan Updates for Flood Hazards

Chapter 369, Statutes of 2007, amends Sections 65302, 65303.4, 65352, 65584.04, and 65584.06, and adds Sections 65300.2 and 65302.7 to the Government Code, relating to the Planning and Zoning Law. Signed into law on October 2007, AB 162 requires cities and counties to address flood-related matters in the land use, conservation, safety, and housing elements of their general plans. Upon the next revision of the General Plan on or after January 1, 2009, cities and counties will need to revise the following elements:

- The Conservation Element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.
- The Safety Element shall identify information regarding flood hazards and establish a set of comprehensive goals, policies, objectives, and feasible implementation measures to protect the community from the unreasonable risks of flooding.

After the initial revision of the elements, the planning agency shall review and, if necessary, revise elements to identify new information that was not available during previous revisions.

Environmental Setting

Turlock has an extremely low risk of a major flood event. FEMA creates Flood Insurance Rate Maps (FIRMs) that indicate severity of flooding risk for the purpose of informing insurance necessity. While Turlock is proximate to several rivers—San Joaquin to the west, Tuolumne to the north, and Merced to the south, they are sufficiently distant such that no part of the Planning Area is located in the 100-year floodplain of any of them. The Planning Area also has no natural creeks or streams; the only water features are irrigation canals, stormwater detention ponds, and a few small freshwater ponds. Therefore, on the FEMA FIRMs, the entire Planning Area is designated as “Zone X: Areas determined to be outside the 0.2% annual chance floodplain.” In other words, Turlock is not expected to experience a major flood event once in 500 years.

However, due to its flat terrain, Turlock can occasionally experience shallow flooding in the streets as a result of heavy rainfall in the winter months. Stormwater accumulates on streets and other impervious surfaces, as well as in depressed areas. This type of flooding generally does not impact homes and other buildings, but may affect driving conditions. Urbanization has converted permeable surfaces to impervious ones, increasing stormwater runoff and flooding potential in the absence of proper drainage. The current General Plan outlines numerous policies for stormwater management, including providing detention basins in parks, encouraging developments to manage or detain water on site through the use of porous pavers, detention ponds, and specially graded playing fields and parking lots. The City's Storm Drain Master Plan outlines suggested improvements to the stormwater drainage system.

Planning Issues and Implications

Because the Planning Area is not located in the 100-year floodplain, flood hazard management will not be an issue of concern for the General Plan update. However, the Plan must retain policies addressing stormwater management.

7.7 FIRE THREATS

This section discusses fire hazards in the Planning Area. Fire hazards include both urban and wildland fires. Urban fires involve the uncontrolled burning of built structures due to human-made causes; wildland affect grassland, forest, and brush (and the structures on them), and can result from either human or natural causes.

Regulatory Setting

The California Department of Forestry and Fire Protection (CDF) maps areas of significant fire hazards in the state. These areas are identified based on weather, terrain, fuels (e.g. type of ground vegetation), and other factors. The CDF designates land as State or Local Responsibility Areas (SRA and LRA), based on population density, land use, and land ownership. CDF has legal responsibility for SRA land and local jurisdictions have responsibility for LRA land. LRA land generally includes densely populated urban areas and agricultural land.

Environmental Setting

Wildland fire threats are greatest in mountain and foothill areas, where steep slopes, volatile vegetation, and windy conditions increase fire risk. As the vast majority of land in the Planning Area is flat urbanized or agricultural land, fire risk is low. The characteristics of the urban environment in Turlock do not make it a high risk area for urban fires—the building stock is in generally good condition and the City Fire Department can provide adequate service to the area. Therefore, the entire Planning Area is designated as LRA. Only two small areas on the northwest corner of the planning area, near Keyes, are designated as being “moderate” fire hazard areas; the rest is designated as “low” by CDF. Figure 7-8 shows Turlock’s fire severity area.

Planning Issues and Implications

Fire hazard conditions do not pose constraints on future development in the Planning Area.

7.8 HAZARDOUS MATERIALS AND CONTAMINATED SITES

Sites where hazardous chemical compounds have been released into the environment can pose health threats. Historic or current activities, most often associated with industrial or commercial uses (including gas stations, car washes, etc.) may result in the release, leak, or disposal of toxic substances on or below the ground surface, where they can then contaminate soil and ground water. Furthermore, disturbance of the ground through grading or excavation can result in exposure of these chemicals to the public. Improper handling of contaminated sites may result in further exposure via airborne dust, surface water runoff, or vapors.

This section describes the nature and location of hazardous materials and contaminated sites in the Planning Area, and the implications their presence may have for future development.

Regulatory Setting

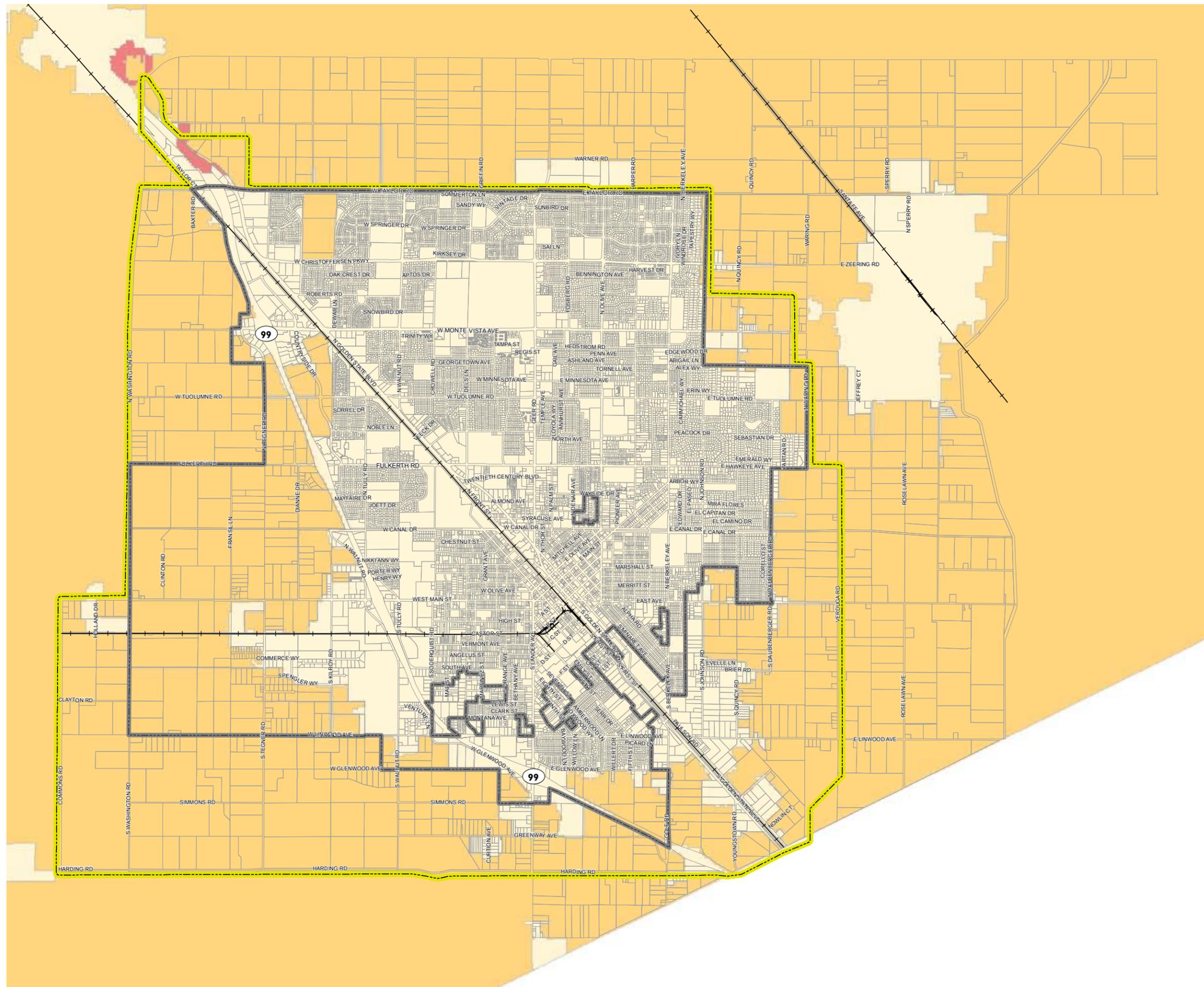
Areas where activities resulting in contamination are known or suspected to have taken place are tracked and monitored by federal and state agencies. Sites eligible for federal remediation funding through CERCLA are on EPA’s Superfund list. The California Department of Toxic Substances Control and the State Water Resources Control Board list other sites in the state. These may be categorized as Leaking Underground Storage Tanks (LUST)—common at gas stations—or Spills, Leaks, Investigations, and Cleanups (SLIC), which are generally not fuel-related.

Federal Regulations

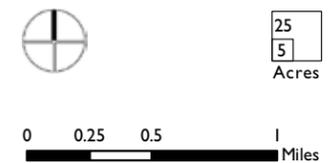
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA, commonly referred to as Superfund, was enacted on December 11, 1980. The purpose of CERCLA was to provide authorities the ability to respond to uncontrolled releases of hazardous substances from inactive hazardous waste sites that endanger public health and the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at such sites, and established a trust fund to provide for cleanup when no responsible party could be identified. Additionally, CERCLA provided for the revision and republishing of the National Contingency Plan (NCP) that provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also provides for the National Priorities List, a list of national priorities among releases or threat-

Figure 7-8: Fire Severity Areas



- Threat Level**
- Moderate
 - Non-Wildland/Non-Urban
 - Urban
 - Planning Area Boundary
 - City Limits & County Islands



Source: Fire threat data, California Department of Forestry and Fire Protection, 2006;
Map base data, City of Turlock, 2008.

ened releases throughout the United States for the purpose of taking remedial action.

The Superfund Amendments and Reauthorization Act (SARA)

SARA amended CERCLA on October 17, 1986. This amendment increased the size of the Hazardous Response Trust Fund to \$8.5 billion, expanded EPA's response authority, strengthened enforcement activities at Superfund sites; and broadened the application of the law to include federal facilities. In addition, new provisions were added to the law that dealt with emergency planning and community right to know. SARA also required EPA to revise the Hazard Ranking System to ensure that it accurately assesses the relative degree of risk to human health and the environment posed by sites and facilities subject to review for listing on the National Priorities List.

Federal Resource Conservation and Recovery Act of 1976 (RCRA)

RCRA is the nation's hazardous waste control law. It defines hazardous waste, provides for a cradle-to-grave tracking system and imposes stringent requirements on treatment, storage and disposal facilities. RCRA requires environmentally sound closure of hazardous waste management units at treatment, storage, and disposal facilities. The EPA is the principal agency responsible for the administration of RCRA, SARA, and CERCLA.

State Regulations

Hazardous Substance Account Act (1984), California Health and Safety Code Section 25300 ET SEQ (HSAA)

This act, known as the California Superfund, has three purposes: 1) to respond to releases of hazardous substances; 2) to compensate for damages caused by such releases; and 3) to pay the state's 10 percent share in CERCLA cleanups. Contaminated sites that fail to score above a certain threshold level in the EPA's ranking system may be placed on the California Superfund list of hazardous wastes requiring cleanup.

California Environmental Protection Agency (CAL/EPA)

The Cal/EPA was created in 1991 to coordinate state environmental programs, reduce administrative duplication, and address the greatest environmental and health risks. Cal/EPA unifies the state's environmental authority under a single accountable, cabinet-level agency. The Secretary for Environmental Protection oversees the following agencies: Air Resources Board, Integrated Waste Management Board, Department of Pesticide Regulation, State Water Resources Control Board, Department of Toxic Substances Control, and the Office of Environmental Health Hazard Assessment.

California Department of Toxic Substance Control (DTSC)

Cal/EPA has regulatory responsibility under Title 22 of the California Code of Regulations (CCR) for administration of the State and federal Superfund programs for the management and cleanup of hazardous materials. The DTSC is responsible for regulating hazardous waste facilities and overseeing the cleanup of hazardous waste sites in California. The Hazardous Waste Management Program (HWMP) regulates hazardous waste through its permitting, enforcement and Unified Program activities. HWMP maintains the EPA authorization to implement the RCRA program in California, and develops regulations, policies, guidance and technical assistance/training to assure the safe storage, treatment, transportation and disposal of hazardous wastes. The State Regulatory Programs Division of DTSC oversees the technical implementation of the state's Unified Program, which is a consolidation of six environmental programs at the local level, and conducts triennial reviews of Unified Program agencies to ensure their programs are consistent statewide and conform to standards.

California State Water Resources Control Board (SWRCB)

Acting through the Regional Water Quality Control Board (RWQCB), the SWRCB regulates surface and groundwater quality pursuant to the Porter-Cologne Water Quality Act, the federal Clean Water Act, and the Underground Tank Law. Under these laws, RWQCB is authorized to supervise the cleanup of hazardous waste sites referred to it by local agencies in those situations where water quality may be affected.

Depending on the nature of contamination, the lead agency responsible for the regulation of hazardous materials at the site can be the DTSC, RWQCB, or both. DTSC evaluates contaminated sites to ascertain risks to human health and the environment. Sites can be ranked by DTSC or referred for evaluation by the RWQCB. In general, contamination affecting soil and groundwater is handled by RWQCB and contamination of soils is handled by DTSC.

Environmental Setting

EPA, the California Department of Toxic Substances Control, and the State Water Resources Board have identified 38 contaminated sites in the Planning Area, comprising a mix of LUSTs and SLICs. Most of the sites are clustered downtown and in the commercial area just northwest of downtown, along Golden State Boulevard. Several others are in the agricultural and industrial area near the intersection of Main Street and Highway 99. Tables 7-6 and 7-7 list the sites identified by both agencies.

The only Superfund site in the Planning Area is at Valley Wood Preserving, Inc., a former wood preserving facility located along South Golden State Boulevard in the southeastern corner of the area. The wood preserving process, which

ended in 1979, resulted in contamination of soil and groundwater with hexavalent chromium and arsenic. Cleanup began in the early 1990s and continued intermittently through 2007. Currently, a shallow, localized plume of low-level groundwater contamination remains on the site, but it has been deemed safe for future commercial and industrial activities and poses no threat to drinking water sources.⁹ The location of the Superfund site and other identified hazardous sites are shown on Figure 7-9.

Planning Issues and Implications

Hazardous sites and materials are not a major constraint to future development in the Planning Area. There may be some instances in which development opportunity sites coincide with locations of hazardous materials; however, this does not render the sites unusable, it just requires time and funding for cleanup.

Table 7-6 Hazardous Sites Identified by the California Department of Toxic Substances Control

Site / Facility Name	Site / Facility Type	Cleanup Status	Status Date	Address Description
Banquet Foods	State Response	Certified	8/1/1984	107 S Kilroy Rd
Bombing Target No. 8, Crows Landing (J09CA7475)	State Response	Inactive - Action Required	6/30/2008	Linwood Avenue
Chemurgic Agricultural Chemicals Inc	State Response	Refer: RWQCB	12/22/1993	South Faith Home & West Harding Roads
So Cal Gas/Turlock MGP	Voluntary Cleanup	Active	6/26/1995	650 South Golden State Blvd
Turlock Sales Company	State Response	Certified	7/30/1990	4924 East Keyes Road
Valley Wood Preserving, Inc.	Federal Superfund - Listed	Active - Land Use Restrictions	1/1/1983	2237 South Golden State Blvd
Walnut Elementary 2-Acre Addition	School Cleanup	Certified	4/17/2006	4219 N. Walnut Road

Source: California Department of Toxic Substances Control: EnviroStor, 2008

⁹ US EPA. Region 9: Superfund. Available Online at: <http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/7508188dd3c99a2a8825742600743735/bf04af428c4405ac88257007005e93f7?OpenDocument>

Table 7-7 Hazardous Sites Identified by the State Water Resources Board

<i>Site Name</i>	<i>Cleanup Status</i>	<i>Address</i>
Circle J Store # 3620 Case # 2	Open - Verification Monitoring	1405 Golden State
Fernandes Speed Shop	Open - Verification Monitoring	214 Center
Darpetro Gasco / USA	Open - Verification Monitoring	1250 East
Arco #5489	Open - Verification Monitoring	2015 W. Main
Golden State Utility Company	Open - Site Assessment	2007 W. Tuolumne Road
Turlock Downtown Dry Cleaners	Open - Site Assessment	238 South Golden State Blvd
Town Service Case / Goodrich Oil Case #1&2	Open - Site Assessment	238 Golden State
Unocal Bulk Plant No. 0796 (Fmr)	Open - Site Assessment	1000 Front
Stop N Save # 4	Open - Site Assessment	825 Main
Pacific Pride / Cardlock Facility	Open - Site Assessment	309 S Tully
Reflections Car Wash	Open - Site Assessment	1400 Geer
Rodgers Mini Mart Case # 2	Open - Site Assessment	1570 East
Valley Wood Preserving, Inc.	Open - Remediation	2013, 2031 South Golden State Blvd
Arco #6161	Open - Remediation	210 Golden State
Monfredini Property Aka Gaddys Shell	Open - Remediation	402 Main
Gomes And Sons Inc	Open - Remediation	725 Tully
Unocal / Weiss Oil	Open - Remediation	881 Golden State
Arco West Main	Open - Remediation	1030 Main
Maleks Golden State Gas Minimart	Open - Remediation	1060 Golden State
Beacon Station #54 Case # 02	Open - Remediation	216 Golden State
Foster Farms Poultry Farms- Morgan Ranch Complex	Open - Inactive	11312-11940 Ehrlich Road
Foster Farms Poultry Farms- August Ranch Complex	Open - Inactive	8424, 8425 August Road
Pizza Hut	Open - Inactive	201 W. Olive Ave.
Foster Farms Roger's Warehouse (Np# 1224)	Open - Inactive	475 C Street
Mid Cal Oil Company (Site Np15)	Open - Inactive	1124 North Front Street
Du-Rite Cleaners	Open - Inactive	141 North Center Street
Northern Tire Store	Open - Inactive	402 East Main Street
Turlock Cleaners	Open - Inactive	429 East Main Street
Turlock Mosquito Abatement District	Open - Inactive	4412 North Washington Road
Valley Grain Products Of Madera	Open - Inactive	475 7th Street

Figure 7-9: Hazardous Materials and Sites

