6 OPEN SPACE AND CONSERVATION

The Open Space and Conservation Element establishes policies for the conservation of natural resources in Visalia. The Element addresses open space resources; land resources including farmland and minerals; water resources including groundwater and waterways; biological resources; and cultural and historic resources. Air quality and greenhouse gases are also important environmental issues for the Planning Area and are addressed in Chapter 7.

6.1 OPEN SPACE RESOURCES

The City of Visalia defines open space as any parcel of land or body of water that is essentially unimproved and undeveloped or is used for recreation. This includes agricultural land, recreation areas, areas with hazardous conditions, and conservation areas as well as open space to shape and limit urban form. Currently there are approximately 39,760 acres in agricultural use, accounting for 65 percent of all land in the Planning Area. In addition, there are about 400 acres of land in and along waterways or canals, and 1,167 acres of park land.

Classification of Open Space

State planning law (Government Code Section 65560) provides a structure for the preservation of open space by identifying open space categories. An additional category is proposed for this Plan to help define the urban development edge.

- *Open space for public health and safety* including, but not limited to, areas that require special management or regulation due to hazardous or special conditions. These might include earthquake fault zones, areas of unstable soil, floodplains, watersheds, areas presenting high fire risks, areas required for the protection of water quality, and reservoirs. In Visalia, this category includes land in the 100-year flood plain and land beneath the airport approach and departure zones.
- *Open space for the preservation of natural resources,* including, but not limited to, habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; and rivers, streams, and creeks and their banks. In Visalia, this category includes lands with Valley Oak riparian woodland or Valley Oak woodland habitat, wetlands, and vernal pools.
- *Open space used for the managed production of resources,* including, but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of ground water basins; marshes, rivers and streams that are important for the management of commercial fisheries; and areas containing major mineral deposits. In Visalia, this category includes prime farmland, farmland of statewide importance, and groundwater recharge areas.
- *Open space for outdoor recreation,* including, but not limited to, parks and recreation facilities;

Open space is protected for the preservation of agricultural lands, natural resources, and outdoor recreation, among other categories.

areas particularly suited for park and recreation purposes, such as land providing access to lakeshores, rivers and streams; and areas that serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors. In Visalia, this category includes areas such as land along the St. Johns River and other waterways, bike and pedestrian trails, plus existing and proposed parks.

- *Open space for the protection of Native American sites,* including, but not limited to, places, features and objects of historic, cultural, or sacred significance such as Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property (further defined in California Public Resources Code Sections 5097.9 and 5097.993). No sites for this type of open space have been identified in the Planning Area.
- *Open space to shape and limit urban form,* including, but not limited to, areas such as agricultural land buffers and open space corridors established to implement the General Plan's community design goals and objectives. In Visalia, this category includes the West Highway 198 corridor, the St. Johns River corridor, and land designated as Very Low Density Residential.

Planned Open Space Network

Identified open space resources are not intended to imply that the public interest would be best served by prohibiting development on all such lands. Rather, these open space resources likely signify one of three possible scenarios, depending upon the ecosystem fragility, location, hazard potential, regulatory constraints, and other pertinent factors.

The three possible scenarios are:

- All development should be prohibited;
- Development should be permitted on part of the land and the balance preserved as open space—a clustering concept; or
- Development should be permitted subject to site plan review and the imposition of specific conditions to protect against hazards, preserve the integrity of the land and the environment, and meet specific development and design standards.

Determination of how these open space resources are to be protected will be made on a case-by-case basis following standards and review procedures established in the Zoning and Subdivision ordinances consistent with General Plan policies.

Objectives

Open Space

OSC-O-1 Create and protect open space for the preservation of natural resources.

OSC-O-2 Work with the County and other organizations to protect prime farmland and farmland of Statewide importance outside the City's Urban Development Boundary for agricultural production, and to preserve areas for groundwater recharge.

OSC-O-3 Create and preserve open space for outdoor recreation.

OSC-O-4 Create and maintain open space for public health and safety in areas which require special management for regulation.

OSC-O-5 Create open space to shape Visalia's future urban form, including conservation corridors along the St. Johns River and along Highway 198.

Policies

OSC-P-1 Conduct an annual review of cancelled Williamson Act contracts and development proposals on agricultural land within the Planning Area Boundary to foresee opportunities for acquisition, dedication, easements or other techniques to preserve agricultural open space or for groundwater recharge.

OSC-P-2 Develop open space corridors along selected community waterways, power transmission line right-of-ways and abandoned railroad right-of-ways to serve as links between park and recreation facilities.

OSC-P-3 Maintain open space around the Visalia Municipal Airport to minimize incompatible land uses.

OSC-P-4 Maintain open space around the Visalia Regional Waste Water Treatment plant to minimize public health concerns and land use conflicts.

OSC-P-5 Support community gardens as a valuable open space resource.

Community gardens are a source of fresh produce and also learning opportunities for young and old alike. Ideally, access would be free for Visalia residents and, where there are costs, the City will try to provide relief for low-income residents. A Visalia Community Gardens program could help identify sites, secure insurance and provide water. Residents should be involved in the design and operation of these gardens. See also policy LU-P-17, pertaining to urban agriculture.

OSC-P-6 Continue cooperative efforts with the Kaweah Delta Water Conservation District, Integrated Regional Water Management Planning group, and others to partner on pursuing grant funding and development of water resource, recharge, and conservation projects and programs.

OSC-P-7 Maintain active contact with organizations, such as the Sequoia Riverlands Trust and other appropriate agencies, regarding additions to the Kaweah Oaks Preserve, programs at Mooney or Cutler parks and acquisition of new open space sites throughout the area.

The Trust for Public Land or Nature Conservancy may temporarily acquire property for subsequent re-purchase or transfer to the City.

Waterway stewardship should improve surface water quality, restore riparian habitat, and help reconnect the City with its creeks.

6.2 WATER RESOURCES

Water resources are important not only for residents and businesses but also for agriculture, oak woodlands and other aspects of the natural environment. Visalia's natural waterways also contribute to the character of the community. Careful stewardship is critical to conserve and protect surface and groundwater, ensure water quality, manage stormwater, and create a more livable city.

Water quality standards are established and enforced by the State and the Central Valley Regional Water Quality Control Board (RWQCB). Water supply, use, and conservation measures are addressed in the Parks, Schools, Community Facilities and Utilities Element and the Visalia Urban Water Management Plan. Flooding hazards are addressed in the Safety and Noise Element.

Surface Water

Hydrologic Features and Supply

The Planning Area is located in the heart of the Kaweah River's delta system, so many rivers and creeks flow through the city. Surface runoff generally flows from east to west and terminates in the Tulare Lake Basin. Major surface water resources in the area include St. Johns River, Mill Creek, Packwood Creek, Cameron Creek, Deep Creek, Evans Creek, Modoc Ditch, Mill Creek Ditch, Persian Ditch, Tulare Irrigation District (TID) Canal, and some other local ditches (See **Figure 6-1**). Except for the TID Canal, most watercourses are intermittent drainages that receive a significant portion of flow from storm water runoff during the rainy season. This intermittent flow is typically supplemented with water released from Terminous Dam, constructed in 1962 and operated by the U.S. Army Corps of Engineers.

The City maintains a municipal storm drainage system that consists of drainage channels, 23 detention and retention basins, 33 pump stations and 250 miles of pipe. Historically, runoff was disposed of by directing it to the natural creeks, rivers and irrigation ditches that flow through the city. With increased runoff due to urbanization, the City has created permanent retention basins. These basins also help replenish groundwater as water infiltrates into the aquifer. Future restoration of the natural drainages should be one of the City's priorities as urbanization concentrates and redirects flows to these drainages, causing potential excessive erosion.

Surface Water Quality

The water quality of the Kaweah River Delta system is considered to be excellent, with no known water quality impairments in the area. The City complies with the terms of its permits for storm water discharges from small municipal separate storm sewer systems. In November 2005, the City adopted a Storm Water Management Plan that includes a detailed analysis of plans to handle storm water runoff from increased amounts of impervious surface. These plans include retention/detention facilities, street sweeping, establishment of a water quality hotline, and an illicit discharge protection system which will allow the City to determine if there is a serious water quality problem from illegal discharges.

Additional development in watershed areas has the potential to cause some surface water quality degradation through storm water discharges. However, improved stormwater management should be

expected to prevent further degradation or even improve water quality. Chapter 4 provides relevant policies for stormwater management.

Waterway Restoration and a More Livable Visalia

Waterway restoration is a very important focus of this General Plan. Policies in this section outline City actions to improve surface water quality, restore riparian habitat, and help reconnect the City with its creeks through development of greenway trails and urban design that makes waterways a focus of new parks and neighborhoods.

Groundwater

Groundwater Resources

The Visalia area is within the Kaweah Groundwater Subbasin of the San Joaquin Valley Groundwater Basin. The Subbasin's 696 square miles generally comprises lands in the Kaweah Delta Water Conservation District (KDWCD), and include the Kaweah and St. Johns Rivers, with the former being the primary source of groundwater recharge. The alluvial fans of waterways provide highly permeable areas in which groundwater is readily replenished. Annual rainfall in Visalia usually ranges from eight to 12 inches; however, there is no estimate of what percentage of rainfall reaches the groundwater supply. Groundwater flow is generally southwestward. Based on groundwater elevation maps, horizontal groundwater barriers do not appear to exist in the subbasin.

According to the Department of Water Resources, groundwater levels in the subbasin have declined about 12 feet on average from 1970 to 2000, with periodic fluctuations. As population continues to grow, and farming practices continue at the current rate, groundwater levels may also decline unless recharge is increased. See Chapter 4 for further discussion.

Groundwater Quality

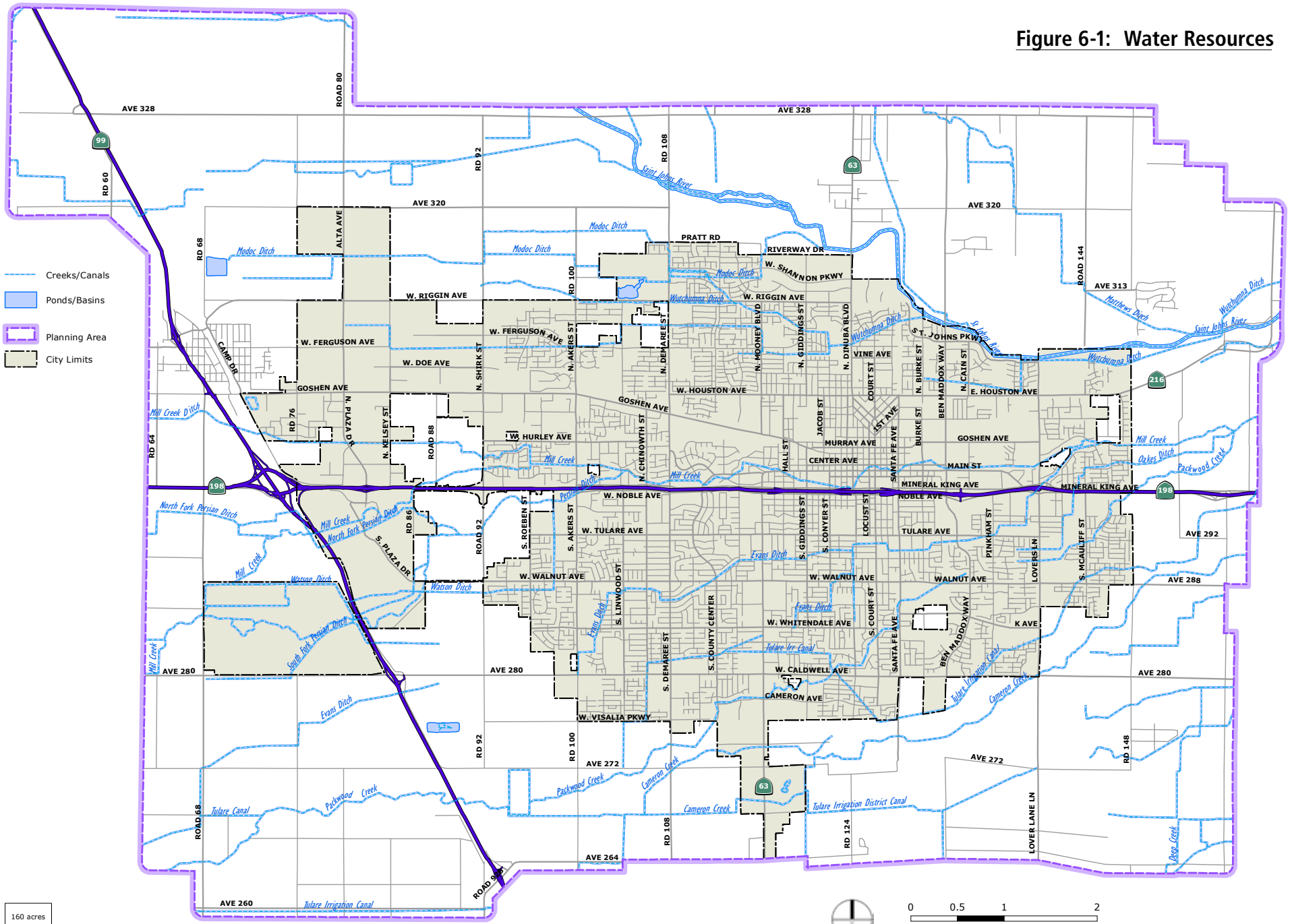
The quality of the groundwater that underlies the City is excellent for domestic and agricultural uses. This is due to the abundant snowmelt that originates in the Sierra Nevada. However, the 2005 Water Supply and Facilities Master Plan for the Visalia District documents several constituents of concern in groundwater in the area, including nitrate(fertilizer/private sewage disposal); volatile organic chemicals (VOCs); MTBE (gasoline oxygenate); DBCP (pesticide used until 1977); and pentachlorophenol (a wood preservative).

In general, water quality deteriorates west of Highway 99. In addition, groundwater has been contaminated in two areas by past industrial activities (See Chapter 8 for more detail on contaminated sites).

Groundwater Management

The City of Visalia and the Kaweah Delta Water Conservation District (KDWCD) have mutual interests in restoring and maintaining groundwater supplies and controlling flood water, and have worked on a number of projects in the past that benefit City and District interests. Visalia has implemented a Groundwater Overdraft Mitigation Ordinance, which imposes a groundwater mitigation fee on new development and a groundwater impact fee on water suppliers. The fees are used to construct and improve groundwater recharge facilities and to purchase water for groundwater recharge. Recharge efforts are coordinated by the City with KDWCD and local irrigation districts. Chapter 4 provides relevant policies for water conservation.

Figure 6-1: Water Resources



Source: FEMA, 2010; ICF, 2010; City of Visalia, 2010; Tulare County, 2010; Dyett & Bhatia, 2012.

Objectives

OSC-O-6 Protect water resources vital to the health of the community's residents and important to the Planning Area's ecological and economic stability.

OSC-O-7 Preserve and enhance Planning Area waterways and adjacent corridors as valuable community resources which serve as plant and wildlife habitats, as groundwater recharge facilities, as flood control and irrigation components, and as connections between open space areas.

OSC-O-8 Continue to participate in a waterway program involving the Tulare Irrigation District, irrigation companies, private water companies and state agencies.

Policies

See Chapter 4: Parks, Schools, Community Facilities, and Utilities for policies concerning stormwater management and water conservation. These policies address surface and groundwater quality and water supply.

OSC-P-8 Protect, restore and enhance a continuous corridor of native riparian vegetation along Planning Area waterways, including the St. Johns River; Mill, Packwood, and Cameron Creeks; and segments of other creeks and ditches where feasible, in conformance with the Parks and Open Space diagram of this General Plan.

Waterway corridors provide irrigation water for agriculture, recreational opportunities, habitat, and storm drainage. They will provide new links between neighborhoods, parks, and Downtown, and provide a new way of experiencing the City and understanding its natural setting. See also policies in the Parks Location and Design and Trails and Bikeways sections.

OSC-P-9 Protect and enhance plant and wildlife habitat at the designated Conservation/Open Space area around the confluence of Mill Creek and Evans Ditch, and promote use of this area as an interpretive center for education and research.

OSC-P-10 Ensure that building and vehicle service areas, loading docks, trash enclosures and storage areas are setback back from waterways and/or screened from view from the creek corridor to minimize environmental and visual impacts.

OSC-P-11 Create incentives for new development along waterways to include pocket parks, patios or plazas that front onto the creek corridor as an amenity to residential occupants or visitors to commercial developments.

OSC-P-12 Where new development is proposed adjacent to a waterway within an established urban area, require public access be provided to creekside and waterway trails, and that trails be dedicated, improved and maintained, consistent with an updated Waterways and Trails Master Plan.

Protect, restore and enhance a continuous corridor of native riparian vegetation along Planning Area waterways. (Top)

Place special emphasis on the protection and enhancement of the St. Johns River Corridor by establishing extensive open space land along both sides. (Bottom)

Provisions for hearings and granting requests for exemptions from these public access and dedication requirements also should be included in the implementing ordinances.

OSC-P-13 In new neighborhoods that include waterways, improvement of the waterway corridor, including preservation and/or enhancement of natural features and development of a continuous waterway trail on at least one side, shall be required.

Figures 6-2 and 6-3 show examples of typical future residential and neighborhood commercial development along waterways. Refined guidelines and cross-sections should ensure flexibility while achieving Plan policies.

OSC-P-14 Establish design and development standards for new development in waterway corridors to preserve and enhance irrigation capabilities, if provided, and the natural riparian environment along these corridors. In certain locations or where conditions require it, alternative designs such as terraced seating or a planted wall system may be appropriate.

As part of Plan implementation, examples of waterway bank treatments should be developed to facilitate adoption of these standards.

OSC-P-15 In new neighborhoods, create public access points to waterway trails spaced apart no further than 1,200 feet, wherever feasible.

OSC-P-16 In Downtown and East Downtown, the building setback may be 15 feet from the discernible top of bank for both sides of Mill Creek if the features described by Land Use Element's community design policies are incorporated into the development.

OSC-P-17 Require that new development along waterways maintain a visual orientation and active interface with waterways. Develop design guidelines to be used for review and approval of subdivision and development proposals to illustrate how this can be accomplished for different land uses in various geographic settings.

These guidelines will show where "back on" and "side-on" development adjacent to waterways may be acceptable and where it would not. They will also enhance views and public access to planning area waterways and other significant features such as Valley Oak groves consistent with flood protection, irrigation water conveyance, habitat preservation and recreation planning policies.

Additional policies are provided in the Section 6.4, Biological Resources.

OSC-P-18 Establish a liability agreement between the City, Tulare Irrigation District, water conservation districts and ditch companies related to public access and trail use and riparian corridor enhancement programs.

OSC-P-19 Establish easements or require dedication of land along waterways to protect natural habitat areas, allow maintenance operations and promote trails and bike paths.

Figure 6-2: Typical Residential Section along Waterway

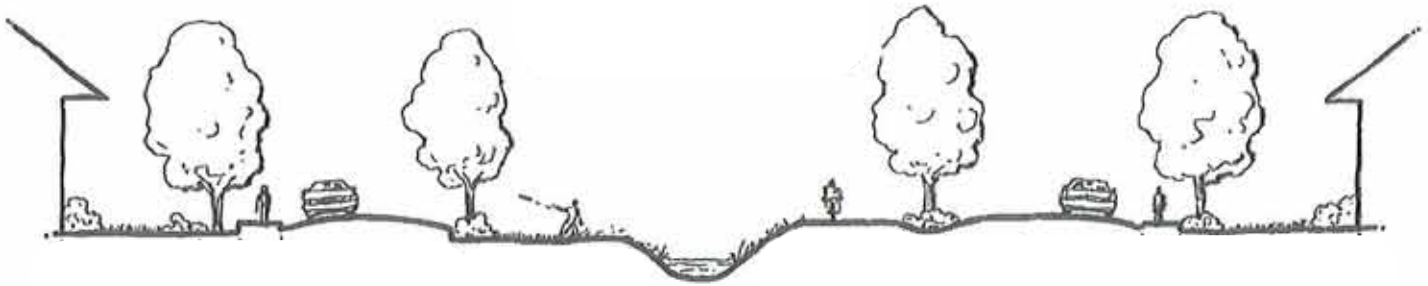
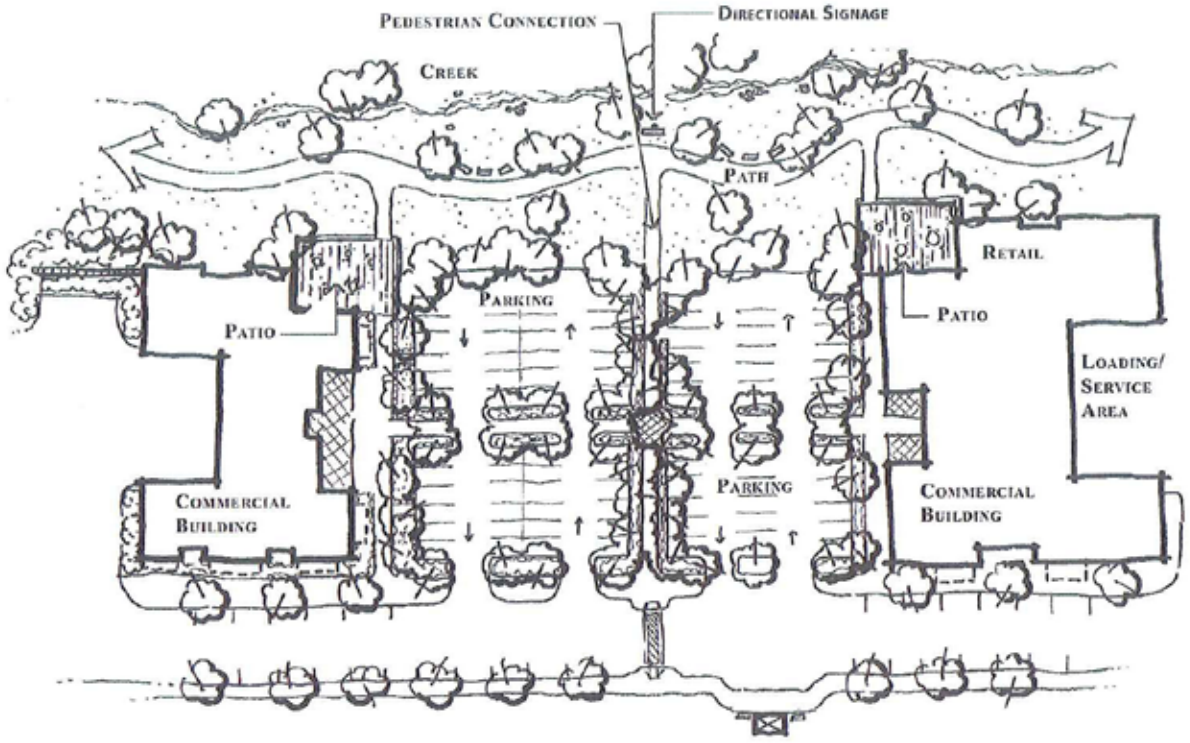


Figure 6-3: Neighborhood Commercial Sides onto the Creek



The above illustrations are from the Waterways and Trails Master Plan adopted in 2010. They provide examples of suggested development approaches that maximize the value of the waterway system to Visalia's residents.

OSC-P-20 Establish land use priorities for sites facing waterways for public rather than private uses to promote access to and security along waterway corridors.

OSC-P-21 Place special emphasis on the protection and enhancement of the St. Johns River Corridor by establishing extensive open space land along both sides.

OSC-P-22 Maintain a 100-foot riparian habitat development setback from the St. Johns River's south levee's landside outside-bottom tow provided that the following public facilities may be allowed as exceptions within the required setback:

- Public roadways to provide for development consistent with the Land Use and Circulation Elements;
- Public trails and bikeways consistent with this Element; and
- Public restrooms.

Provide an additional mininium 30 foot firebreak setback from the St. Johns River's development setback.

Additional open space is proposed to be created on both the south and north sides of the St. Johns River, as shown on the Open Space System diagram (to be included in the General Plan).

OSC-P-23 Where no urban development exists, maintain a minimum riparian habitat development setback from the discernible top of the bank—50 feet for both sides of the Mill, Packwood and Cameron Creek corridors and 25 feet for both sides of Modoc, Persian and Mill Creek Ditches—provided that where riparian trees are located within 100 feet of the discernible top of the banks of the Creek corridors and 50 from the banks for the ditches, the setback shall be wide enough to include five feet outside the drip line of such trees. Restore and enhance the area within the setback with native vegetation.

- Where existing development or land committed to development prohibits the 50 foot setback on Mill, Packwood and Cameron Creek corridors, provide the maximum amount of land available for a development setback
- Where existing development or land committed to development prohibits the 25 foot setback along Modoc, Persian, and Mill Creek Ditches, provide the maximum amount of land available for a development setback.

An exception to these setback requirements also may be allowed to permit piping of the ditch where necessary to meet City standards, and where no riparian trees will be lost.

6.3 LAND RESOURCES

This section concerns farmland, soils, and minerals. The General Plan assesses these land resources in the Planning Area. The Land Use Diagram is intended to conserve valuable land resources while supporting development, and policies of this section advance land conservation goals.

Farmland

Farm land is the most prominent land use in the Planning Area, and agriculture has been and continues to be an important contributor to Visalia's economy and character. The region contains rich soils, available water, good geography, and climatic conditions that allow farms to be highly productive. As of 2008, Tulare County was ranked second in the U.S. in terms of its total value of agricultural production, closely behind Fresno County.[1] The 2009 Tulare County Annual Crop and Livestock Report states the total value of agricultural products at just over $4 billion in 2009. Milk was the County's top agricultural product at $1.229 billion, more than twice that of the next highest product. Oranges, grapes, and cattle and calves each produced between $400 and $500 million.[2]

California State Law requires that a General Plan address agricultural resources from both an open space perspective, described in Section 6.1, and from the standpoint of soil conservation. Farmland across the state has been classified by the California Department of Conservation with respect to its potential for agricultural productivity based on soil type and other physical characteristics. The State applies seven farmland categories:

- *Prime Farmland.* Land with the best combination of physical and chemical features able to sustain long-term agricultural production.
- *Farmland of Statewide Importance.* Similar to Prime Farmland but with minor shortcomings, such as greater slopes or decreased ability to store soil moisture.
- *Unique Farmland.* Land with lesser quality soils used for the production of the state's leading agricultural crops.
- *Farmland of Local Importance.* Land of importance to the local agricultural economy as determined by each county's board of supervisors and local advisory committee.
- *Grazing Land.* Land on which the existing vegetation is suited to the grazing of livestock. This type is not present in the Planning Area.
- *Urban and Built-up Land.* Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel.
- *Other Land.* Low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres.

Farm land is the most prominent land use in the Planning Area and agriculture is an important contributor to Visalia's economy and character. As of 2009, milk and oranges were Tulare County's two highest-value crops.

1 US Census Bureau, 2007 Census of Agriculture.

2 Tulare County Agricultural Commissioner/Sealer, *Tulare County Annual Crop and Livestock Report*, 2009.

In 2010, farmland, as defined by the State soil categories, accounted for approximately 67 percent of the Planning Area. The remaining 33 percent of the Planning Area is designated as either urban and built-up, vacant or disturbed land, water resources, or other types of soils. As shown in **Figure 6-4**, the majority of land encircling the urbanized area of Visalia is categorized as Prime Farmland, which makes up three quarters of the Planning Area's farmland. To the far northwest there is a band of land classified as Farmland of Statewide Importance.

Williamson Act

The California Land Conservation Act, commonly referred to as the Williamson Act, was enacted in 1965 to preserve agricultural and open space land in danger of premature conversion to urban uses. Its success has been based on the dual incentives of lowered property taxes for individual landowners and payments of subventions to counties for some of the losses of property tax revenues. Under the Open Space Subvention Act of 1971, the State has provided annual subvention payments to counties for foregone property tax revenue due to Williamson Act contracts. State payments have been reduced in recent years.

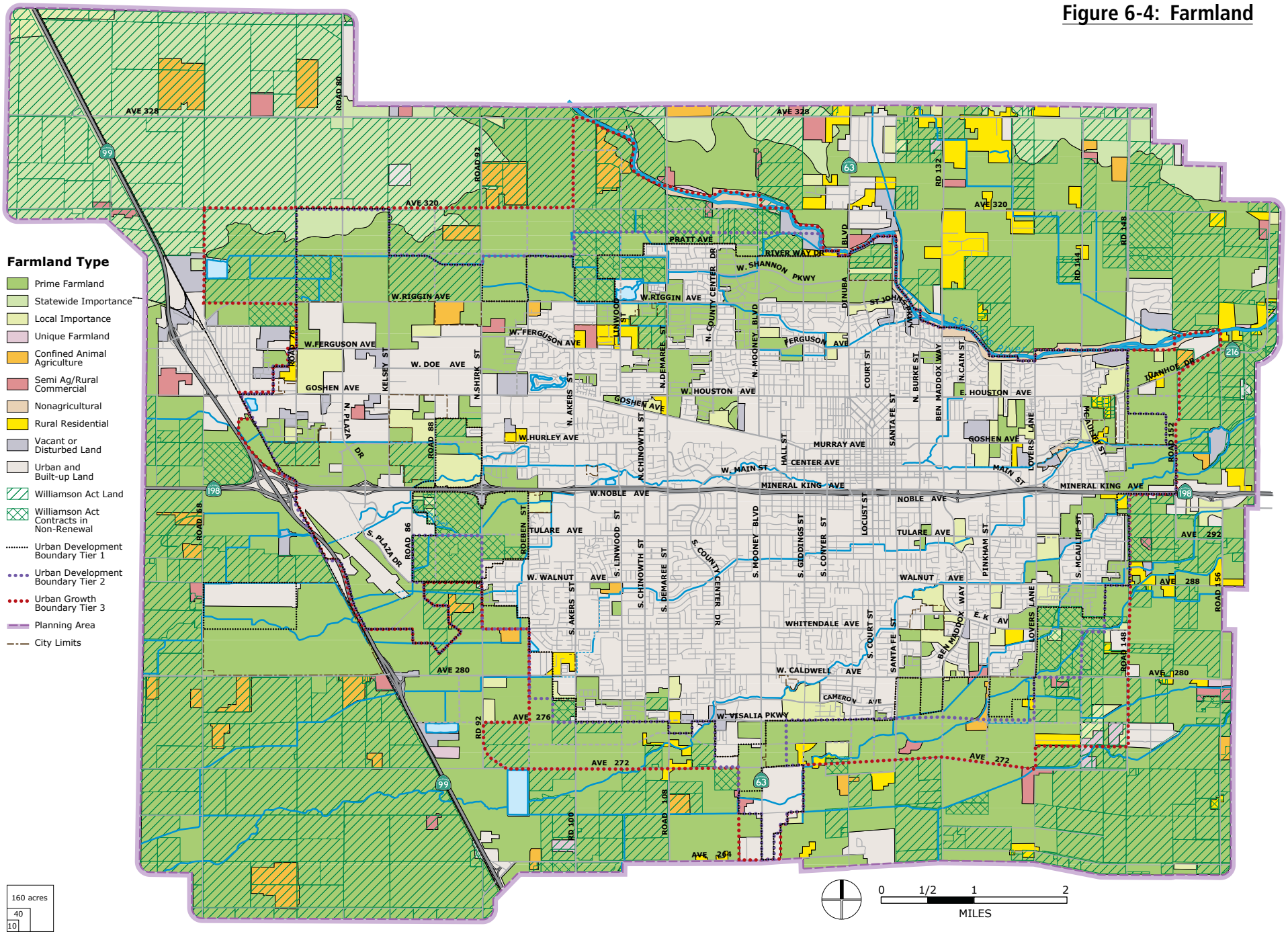
As of 2010, 58 percent of the total agricultural acreage in the Planning Area (25,724 acres) were under Williamson Act contracts. Of these, 2,417 acres are in non-renewal, meaning that at the end of their 10-year period, they will not renew their contracts. **Figure 6-4** indicates which parcels are under contract and which are not renewing.

Farmland Protection Issues

Significant agricultural land area within the Visalia Planning Area is likely to be converted to urban uses by 2030 in order to accommodate projected growth. At buildout, 55 percent of the Planning Area will be either urban, water resources or other soil types, compared with 33 percent in 2010, while 45 percent will be in agricultural use, down from 67 percent today. If the General Plan were developed to its full capacity, about 14,580 acres of agricultural land would be replaced by urban development. Land classified as "Prime Farmland" and "Farmland of Statewide Importance" account for 89 percent of this land, or 12,490 and 399 acres, respectively. Farmland soils now and at buildout are summarized in **Table 6-1.**

Continued conversion of agricultural lands to urban uses and rural residential uses could have an impact on the County's agricultural economic base. To protect farm land and open space, the Land Use Element establishes a fairly compact urban area, encouraging infill development and new growth adjacent to or near existing urban uses, thus minimizing sprawl and unnecessary conversion of agricultural lands. Much of the farmland that is expected to be urbanized over the next 20 years was designated for development under the previous General Plan. In fact, at 32,650 acres the total future urbanized area under the General Plan is slightly smaller than under the previous Plan while accommodating population growth to 2030.

Figure 6-4: Farmland



To protect farm land and open space, the Land Use Element establishes a fairly compact urban area. The total future urbanized area under the General Plan is slightly smaller than under the previous Plan while accommodating population growth to 2030.

Table 6-1: Farmland Classification in the Study Area

Type	*Existing Acres*	*Percent of Study Area*	*Acres at General Plan Buildout*	*Percent of Study Area*	*Change*
Prime Farmland	33,991	51%	21,501	32%	12,490
Farmland of Statewide Importance	7,353	11%	6,954	10%	399
Unique Farmland	181	0%	137	0%	44
Farmland of Local Importance	1,630	2%	298	0%	1,333
Confined Animal Agriculture	1,218	2%	908	1%	310
TOTAL FARMLAND	**44,374**	**67%**	**29,798**	**45%**	**14,576**
STUDY AREA	**66,644**	**100%**	**66,644**	**100%**	**0**

Sources: Department of Conservation, Division of Land Resource Protection, 2012; Dyett & Bhatia, 2012.

Soils

The Planning Area is in a basin bounded by the Sierra Nevada foothills and mountains to the east and the Coast Ranges to the west, and filled with deep layers of sediment from the Sierra Nevada. The St. Johns River flows through the northeastern portion of the planning area, along with smaller streams and canals; these form alluvial fans. The area is basically flat, lying at an elevation of 330 feet or so above sea level.

Surface soils exhibit various characteristics dependent on location, slope, parent rock, climate, and drainage. The most prevalent soils in the Planning Area are Nord fine sandy loam (19,200 acres); Grangeville sandy loam, drained (15,700 acres); Tagus loam (12,500 acres); and Akers-Akers, saline-sodic, complex (8,100 acres). These are generally very deep, well drained soils formed in alluvium derived from granitic rock sources, with slopes of 0 to 2 percent.

Conservation efforts are continually being made to prevent soil erosion and the chemical alteration of soils caused by overuse, salinization, acidification, or other chemical soil contamination. Maintaining soil quality is important to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation. While State and federal laws regulate soil quality, as indicated by the farmland classification system, local land use planning is important for limiting erosion potential.

Erosion Potential

Erosion is the process by which the soil and rock components of the earth's crust are worn away and removed from one place to another by natural forces such as weathering, solution, and transportation. Soil erosion can lead to sedimentation of watercourses, eventually having an adverse impact on water quality and aquatic life. Furthermore, once erosion occurs, it may be difficult for natural vegetation to reestablish itself. The loss of topsoil to erosion is detrimental to agriculture and other landscaping. The risk of erosion is greatly increased during grading and construction

activities, and agricultural practices, when soils are loosened and bare of vegetation.

Soil erodibility can be identified by a specific soil's "K-Factor."[3] Values of K range from 0.02 to 0.69, with the higher the value, the more susceptible the soil is to erosion. Soils with K factors above 0.40 are considered to be the most susceptible to erosion. However, this factor is only one of the measurements needed to determine overall soil erosion potential. It does not take the impacts of rainfall, slope above nine percent and groundcover on erosion potential into account.

The Planning Area does not contain soils with a K factor higher than 0.37, as determined by the US Natural Resource Conservation Service. However, soils with moderate or low to moderate erodibility are found throughout the Planning Area. In general, soil conservation is addressed by the City's site review and grading plan requirements. Soil erosion potential is mapped in **Figure 6-5**, and the acreage of land in each category is summarized in **Table 6-2**.

3 Natural Resources Conservation Service. *National Soil Survey Handbook.* http://soils.usda.gov/technical/handbook/contents/part618.html

Expansive Soils

Expansive soils create a shrink-swell hazard. Structural damage may result over a long period of time, usually from inadequate soils and foundation engineering or the placement of structures directly on expansive soils. Expansive soils are largely comprised of clays, which expand in volume when water is absorbed and shrink as the soil dries. Four of the Planning Area's soil types are considered to have a moderate "shrink-swell" potential. These soils underlie about 2,480 acres, and are located near the Highway 99/198 interchange, north of the St. Johns River, and in the northwest near the intersection of Road 80 and Avenue 328.

Table 6-2: Soil Erosion Susceptibility[1]

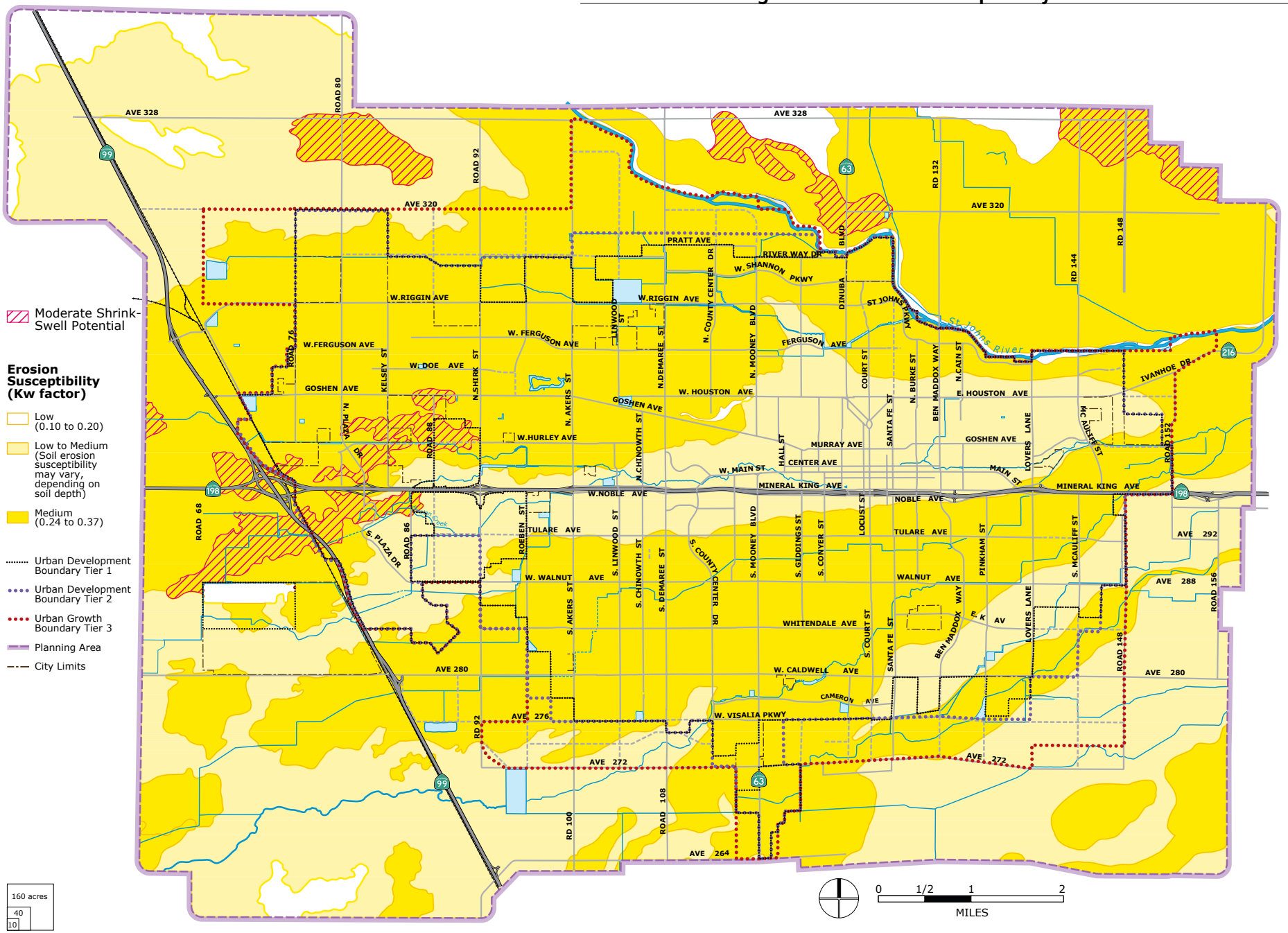
Category	*Total Acres*	*Percentage of Total*
Low (0.17 – 0.20)	23	< 0.5%
Low to Moderate (0.10 to 0.37)	24,821	39%
Moderate (0.20- 0.37)	39,220	61%
High (0.37 and higher)	0	0%
Not Classified[2]	379	1%
TOTAL	**64,443**	**100%**

1. The evaluation does not account for slope above 9 percent grade, amount of groundcover, or amount of rainfall which impact erosion.

2. Unclassified could mean the area is currently under study, about to be studied or does not meet basic classification criteria (such as rivers, lakes, etc.).

Sources: USDA Soil Survey Geographic Database, 2012; Dyett & Bhatia, 2012.

Figure 6-5: Erosion Susceptibility and Shrink-Swell Potential



Mineral Resources

The most economically significant mineral resources in Tulare County are sand, gravel, and crushed stone, used as sources for aggregate (road materials and other construction). The two major sources of aggregate are alluvial deposits (river beds, and floodplains), and hard rock quarries. Consequently, most Tulare County mines are located along rivers at the base of the Sierra foothills.

Surface mining in California is regulated through the Surface Mining and Reclamation Act (SMARA), a State law adopted in 1975 to address the dual goals of protecting the state's need for a continuing supply of mineral resources, while protecting public and environmental health. SMARA mandates that land be reclaimed after mining has ceased. Reclamation plans often restore land for agricultural uses or as wildlife habitat.

SMARA requires that all cities incorporate into their general plans mapped mineral resource designations approved by the State Mining and Geology Board. The Visalia Planning Area contains three former sand and gravel mines, but no currently operating mines and no designated Mineral Resource Zones.

Objectives

OSC-O-9 Protect agricultural land from premature urban development.

Policies

Note: Policies in Section 2.6 of the Land Use Element (Rural Buffer and Edge Conditions) also address preservation of agricultural land and the interface between urban development and farmland.

OSC-P-24 To allow efficient cultivation, pest control and harvesting methods, require buffers and transition areas between urban development and adjoining or nearby agricultural land.

OSC-P-25 Require new development to implement measures, as appropriate, to minimize soil erosion related to grading, site preparation, landscaping and construction.

Riparian forest habitat provides food, water, and migration and dispersal corridors, as well as escape, nesting, and thermal cover for wildlife, including special-status species.

6.4 BIOLOGICAL RESOURCES

The Visalia Planning Area is located in the center of the Central Valley in the western part of Tulare County. Agricultural lands form a perimeter around the City, which is mostly urbanized. Scattered Valley oaks exist in and around the City and along watercourses creating riparian corridors, along with areas of pristine Valley oak woodland and Valley oak riparian woodland. Various special status species occur in the Planning Area. These species are designated by federal or state agencies as needing protection due to rarity or threats to their existence. Land cover types and special status species are shown on **Figure 6-6**.

Flora

The San Joaquin Valley eco-region includes large agricultural areas, croplands, orchards, and vineyard habitat types, typical in much of the Planning Area. While the quality of habitat for wildlife is greatly diminished when the land is converted to agricultural uses, crops and fields can provide habitat for wildlife, particularly for foraging. The urbanized portion of the Planning Area also provides limited support for native plant species, as horticultural plants and disturbed annual grassland areas are most common.

Valley Oak trees occur in the Planning Area at various locations, most notably at Mooney Grove Park. Oak woodlands are important habitats because of their high value to wildlife in the form of nesting sites, cover, and food. The City has made efforts to restore oak woodland by creating an urban forestry program that has planted over 5,000 trees. In addition, Visalia's Valley Oak Ordinance regulates pruning and removal of Valley oak trees within the city limits.

Valley oak riparian woodland occurs along the St. Johns River, Mill Creek, Packwood Creek, Cameron Creek, and some smaller ditches. Riparian forest habitat provides food, water, and migration and dispersal corridors, as well as escape, nesting, and thermal cover for wildlife, including several special-status species. Valley oak riparian habitats are considered sensitive natural communities by the Department of Fish and Game (DFG) because they provide several important ecological functions, including water quality maintenance and habitat for wildlife. The waterways themselves also provide habitat for a variety of wildlife. Some of Visalia's waterways are waters of the United States and are regulated by the U.S. Army Corps of Engineers, the DFG, and the U.S. Fish and Wildlife Service.

The Planning Area contains several areas considered wetlands. For the most part these are detention or retention basins or agricultural ponds, with smaller areas of freshwater marsh along some drainages. Wetlands are considered sensitive natural communities by several resource agencies and are given special consideration. The Planning Area features one known vernal pool, northwest of Goshen Avenue and Road 80 (Plaza Drive). Vernal pools are depressions in the landscape that pond water intermittently during the rainy season and are completely dry during late spring and summer. Because of their unique hydrologic regime, they support a highly specialized flora adapted to prolonged inundation and subsequent dry periods. Vernal pools also provide habitat for many aquatic invertebrates and others, as described under "Fauna" below.

Special Status Plant Species

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

As illustrated in **Figure 6-6**, some special status plant species are known to occur or have moderate potential habitat in the Planning Area. These include California satintail *(Imperata brevifolia)*, heartscale *(Atriplex cordulata)*, and lesser saltscale *(Atriplex minuscule)*.

Fauna

The Planning Area provides appropriate habitats for a variety of wildlife species including but not limited to mule deer, coyotes, grey fox, cottontails, kangaroo rats, scrub jays, herons, falcons, finches, and sparrows.

Special Status Animal Species

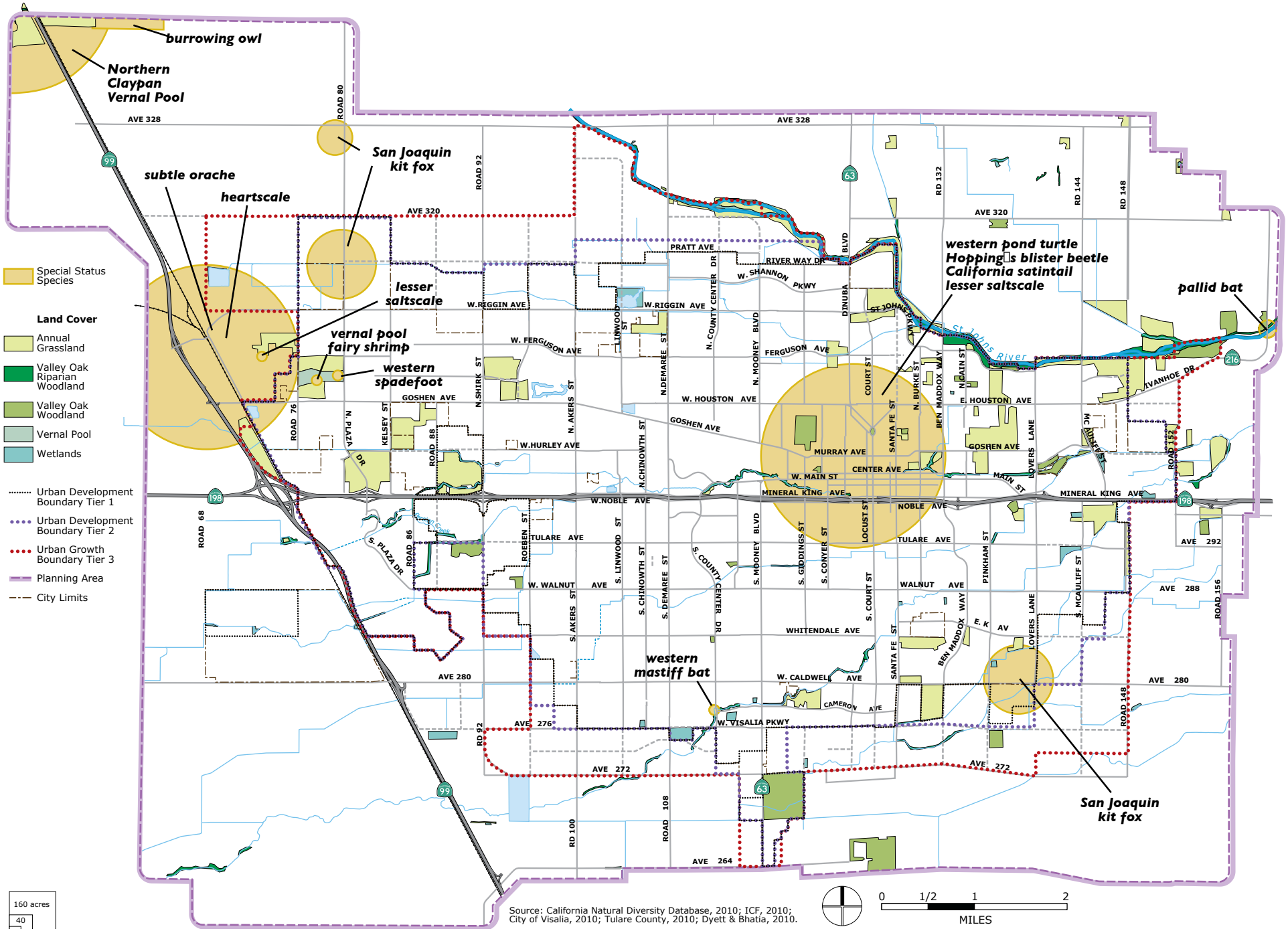
According to the California Natural Diversity Database (CNDDB) and a list obtained from the USFWS, six special-status animal species have been known to occur within the Planning Area, as shown on **Figure 6-6.** These species are the San Joaquin kit fox (*Vulpes macrotis mutica*); Vernal pool fairy shrimp (*Branchinecta lynchi*); Western spadefoot (*Spea hammondii*); Western pond turtle (*Actinemys marmorata*); Western burrowing owl (*Athene cunicularia*); and Hopping's blister beetle (*Lytta hoppingi*).

San Joaquin kit fox is a federally-listed Endangered species and is listed as Threatened in the State of California. It principally occurs in the San Joaquin Valley and adjacent open foothills to the west, in annual grassland or grassy open stages with shrubby vegetation. There have been known occurrences in the Planning Area, and there is potential for the species to occur in grassland habitats in the Planning Area. Vernal pool fairy shrimp is an invertebrate found in vernal pools in the Central Valley, central and south Coast Ranges, and is federally-listed as Threatened. The species has known occurrence at the vernal pool in the northwestern portion of the Planning Area. Western spadefoot, Western pond turtle, and Western burrowing owl, are not State- or federally-listed but are identified by the DFG as Species of Special Concern. Hopping's blister beetle is a California species of Special Concern.Other special status species may occur but are not known to occur within the Planning Area. A full list of special status species with potential to occur in the Planning Area is included in the EIR accompanying the General Plan Update.

Development Affecting Biological Resources

Under General Plan policies, any new development would have to ensure minimal disruption/loss of habitat that could support special status animal species. Natural Communities Conservation Plans (NCCP) will be required for development that would potentially affect sensitive habitat. The Natural Communities Conservation Planning Act allows a process for developing NCCPs under DFG direction. NCCPs provide regional protection of wildlife diversity, while allowing compatible development.

Figure 6-6: Biological Resources



Objectives

OSC-O-10 Protect and enhance natural vegetation throughout the Planning Area, especially types that are considered sensitive natural communities by the Department of Fish and Game.

Policies

OSC-P-26 Establish Best Management Practices (BMPs) for control of invasive plant species where such plants could adversely impact wildlife habitat.

Invasive plants displace native plants and wildlife, increase wildfire and flood danger, consume valuable water, degrade recreational opportunities, and destroy productive range and timber lands. The California Invasive Plant Council has information the City can use to develop appropriate guidance about BMPs that work.

OSC-P-27 Establish a "no net loss" standard for sensitive habitat acreage, including wetlands and vernal pools potentially affected by development.

OSC-P-28 Protect significant stands of Valley Oak woodlands from further development by designating them for Conservation, creating habitat management plans, where needed, and undertaking restoration activities as appropriate.

OSC-P-29 Update the Zoning Ordinance to implement the Conservation land use designation on the Land Use Diagram.

This designation is intended to preserve areas with high value as natural areas, including riparian woodlands and wetlands, and provide adequate buffer area between habitat and other high-value resources and development. It is applied to riparian woodlands along waterways; Valley Oak woodlands at Mill Creek and Evans Ditch, south of Cameron Creek, and elsewhere.

OSC-P-30 Require assessments of biological resources prior to approval of any discretionary development projects involving riparian habitat, wetlands, or special status species habitat. Early in the development review process, consult with California Department of Fish and Game, U.S. Fish and Wildlife Service, and other agencies.

A list of known natural communities and special status species in the Planning Area will be included in the General Plan.

OSC-P-31 Protect and enhance habitat for special status species, designated under state and federal law. Require protection of sensitive habitat areas and special status species in new development in the following order: (1) avoidance; (2) onsite mitigation, and (3) offsite mitigation.

These priorities are consistent with the California Department of Fish and Game guidelines and represent "best practices."

Develop riparian planting and maintenance standards, and incorporate these standards into conservation area management plans. (Top)

Use native trees in street and public landscaping designs, where appropriate, to preserve Visalia's character. (Bottom)

OSC-P-32 Develop riparian planting and maintenance standards, and incorporate these standards into conservation area management plans.

OSC-P-33 Develop a list of recommended native plants and landscaping guidelines. Make this list and guidance accessible through the Community Development Department, the public library, and the City website.

OSC-P-34 Enhance views and public access to Planning Area waterways and other significant features such as Valley Oak groves consistent with flood protection, irrigation water conveyance, habitat preservation and recreation planning policies.

OSC-P-35 Use native trees in street and public landscaping designs, where appropriate, to preserve Visalia's character.

OSC-P-36 Prepare a comprehensive habitat management plan for areas designated as Conservation in order to take advantage of opportunities for habitat enhancement, restoration, and urban forest development and resource conservation.

Conservation areas are along the St. Johns River and other community waterways.

OSC-P-37 Design selected storm water ponds and retention basins to serve a dual role as wildlife habitat by planting species appropriate for food and cover needs. Work with a trained professional in design, selection, and management of each site.

OSC-P-38 Revise the City's Valley Oak Ordinance to include cottonwood groves and other mature native trees, and update the map of landmark trees and distinctive biotic areas.

Coordinate with Tulare County, U.S. Fish and Wildlife Service, California Department of Fish and Game, and other state agencies to acquire and manage land preserves that protect valuable habitat.

6.5 CULTURAL RESOURCES

One of the General Plan initiatives is to protect community assets, including sites with historic, archeological or paleontological significance. Archeological evidence of pre-historic cultures has been documented. A large inventory of historic homes and buildings provide a visual history of the development of the City from its first modern settlement to today. The existence of both archaeologically sensitive areas and historic buildings in Visalia underscores the need for policies that preserve such aspects of the City's heritage.

Several State laws, most notably the California Environmental Quality Act (CEQA), protect archaeological and historical resources. To preserve historic resources, the State has formed the State Historical Resources Committee that conducts the State Historic Resource Inventory and maintains the California Register of Historic Resources, which identifies historic landmarks and points of interest. The Committee also provides recommendations for the National Register of Historic Places. Meanwhile, Government Code Sections 65351 and 65352 establish 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 process.

Archaeological Resources

A records search by the Southern San Joaquin Valley Information Center at California State University, Bakersfield found that 152 archaeological investigations had been performed in the Planning Area as of July 2010. The Information Center does not provide maps showing specific locations in order to protect sites from looting. Potential unrecorded archaeological sites may exist in the Planning Area, particularly along undisturbed portions of creeks. Any resources discovered must be evaluated, following CEQA requirements. There are no archaeological sites currently listed on the National Register of Historic Places in the Planning Area.

In February 2010, a letter to the Native American Heritage Commission requested a review of the sacred lands file and a list of Native American contacts within the region. The sacred lands file did not contain any known cultural resources information for the Planning Area.

Paleontological Resources

Paleontological resources are the mineralized (fossilized) remains of prehistoric plant and animal life exclusive of human remains or artifacts. Fossil remains such as bones, teeth, shells, and leaves are found in geologic deposits (rock formations) where they were originally buried. 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.

The University of California Museum of Paleontology lists 25 localities where fossils have been found in Tulare County. However, due to the sensitive nature of these sites, they are not mapped.[4] Identified fossil types in the County include prehistoric mammals, other vertebrates, invertebrates and plants.

Historic Resources

Many of the historic resources in Visalia which date back to the days of its founding in the late 1800s and the early 1900s, are located near Downtown. The City's historic buildings reflect its changing role through time as a center of agriculture and commercial activities.

The City maintains a Local Register of Historic Structures, which features approximately 340 buildings, including residential, commercial, civic, and religious structures. These are classified in three categories: exceptional, focus, and background structures. *Exceptional* structures or sites are those having preeminent historical, cultural, architectural, archaeological, or aesthetic significance, considered candidates for nomination to the National Register of Historic Places. Currently, four of these buildings have national and State historic designation: the Bank of Italy Building on East Main Street; the U.S. Post Office on West Acequia Avenue; Hyde House on South Court Street; and the Pioneer statue in Mooney Grove Park. Visalia's historic sites are shown in **Figure 3-1**, and discussed in more detail in Chapter 3, Historic Preservation.

4 University of California Museum of Paleontology, http://ucmpdb.berkeley.edu/loc.html. April 17, 2012.

Many of the historic resources in Visalia date back to the days of its founding in the late 1800s and the early 1900s, are reflect its changing role through time. Historic preservation are covered more fully in Chapter 3.

Objectives

OSC-O-11 Preserve and protect historic features and archaeological resources of the Visalia planning area including its agricultural surrounding for aesthetic, scientific, educational and cultural values.

Policies

Chapter 3: Historic Preservation provides policies for the preservation of historic sites, structures, and areas.

OSC-P-39 Establish requirements to avoid potential impacts to sites suspected of being archeologically, paleontologically, or historically significant or of concern, by:

- Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
- Determining the potential effects of development and construction on archaeological or paleontological resources (as required by CEQA);
- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historical and archaeological sensitivity; and
- Implementing appropriate measures to avoid the identified impacts, as conditions of project approval.

In the event that previously unidentified historical, archaeological, or paleontological resources are discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that will be used as guidelines.

See the Historic Preservation Element for objectives and policies focused specifically on historic districts and landmarks and their preservation.