

CHAPTER FIVE



NATURAL RESOURCES AND OPEN SPACE

5. Natural Resources and Open Space

Sheridan's natural setting is characterized by range, orchards, cropland, wildlands, undulating topography, natural vegetation, and varied wildlife. The area is thinly populated and relatively isolated from the rapidly urbanizing areas of South Placer.

Conservation of natural resources is critical to the well-being and survival of our own and future generations. Without a healthy environment, social well-being, economic health, and sustainability of our community are not possible.



Figure 5.0.1: Grassland and wetland habitat in west Sheridan.

Looking after the natural environment, and mitigating the impact of the built environment, is an essential and shared responsibility between all levels of government, private interests, and the community.

The following sections of the Plan focus on how the integrity of the natural environment – its land, air, water, ecosystems, and biodiversity will be protected, restored, and maintained. It is intended to guide the community in the long-term conservation and preservation of open space lands and natural resources while protecting private property rights.

5.1 GOALS AND POLICIES

GOALS

1. Preserve and protect the natural features and resources of the Plan area, which is essential to maintaining the quality of life within the community.
2. Protect the quality of air and water resources consistent with adopted federal, state, and local standards.
3. Ensure that land use planning contributes to the protection, improvement, and restoration of water resources and that all new development has a minimum impact on the established natural environment.

4. Implement sound storm water management practices and sustainable management practices to help ensure protection from flooding and erosion to maintain, and where feasible, improve water quality.
5. Work closely with state and federal agencies, watershed groups, and adjacent communities on watershed plans and strategies to provide a comprehensive approach to environmental planning.
6. Encourage public and private stewardship and partnerships directed to restoring, enhancing, and preserving the natural environment.

POLICIES

1. The natural resources and features of a site proposed for development shall be one of the planning factors determining the scope and magnitude of development.
2. Attention shall be given to protection of the natural regiment in the planning, environmental review, and completion of all subdivisions, land development, or land alteration projects.
3. Identify and preserve any rare, significant, or endangered environmental features and conditions.
4. Encourage the use of ecologically innovative techniques in future development.
5. Encourage the continued use of the Williamson Act or other similar measures to preserve productive agricultural lands.
6. All stream influence areas, including floodplains and riparian vegetation areas, shall be retained in their natural condition, while allowing for limited stream crossings for public roads, trails, and utilities.
7. Site-specific surveys shall be required prior to development to delineate wetlands and vernal pools in the Sheridan Community Plan area.
8. The standards of the Placer County Grading Ordinance and this Resources section of the Sheridan Community Plan shall be implemented for all projects in the Plan area.
9. New construction shall not be permitted within 100 feet of the centerline of permanent streams and 50 feet of intermittent streams, or within the 100 year floodplain, whichever is greater.
10. In implementing Best Management Practices, the County shall promote consideration of the concepts of low impact development, and sustainable technology, and current standards of the County to address the quantity and quality of storm water run-off released to any watercourse.
11. Continue to maintain and improve the environmental quality of the storm water management system within the townsite to improve watershed function.

12. Outside of the townsite, retain an open-channel storm water drainage system comprising watercourses, ditches, wetlands and other water retention and detention opportunities, to enhance water quality and environmental features.
13. Protect sensitive habitats such as wetlands, riparian areas, and oak woodlands against any significant disruption or degradation of habitat values. Utilize the following design and use regulations on parcels containing or in close proximity to these resources, excluding existing agricultural operations:
 - Structures shall be placed as far from the habitat as feasible;
 - Limit removal of native vegetation to the minimum amount necessary for structures, landscaping/gardens, driveways, parking lots, and where applicable, septic systems.
14. Individual sites and properties can contribute to the health of the environment by incorporating measures such as:
 - Using renewable energy sources such as solar or geothermal energy;
 - Planting additional trees in appropriate locations;
 - Managing storm water runoff using storm water best management practices;
 - Naturalizing landscapes with native, non-invasive species; and,
 - Installing 'green roofs' or light-colored roofs.
15. The County's Tree Preservation Ordinance shall be implemented where applicable.

5.2 SUSTAINABLE ECOSYSTEMS

A healthy ecosystem is vital to the well-being of the region and planet, a healthy human community, and a vibrant economy. Native vegetation cleans the air, builds soils, and regulates temperature. Wetlands clean and hold water essential for life, and healthy soils support biodiversity. Healthy creeks and streams support fish and other aquatic life. In addition, quiet, natural places and opportunities for viewing and experiencing natural spaces contribute to the quality of life within Sheridan.

Placer County and its residents are considered to be leaders in the region in preserving and protecting the natural environment. The preservation and enhancement of our natural heritage was founded and depends on raising public awareness, gaining support, and encouraging citizens, businesses, and institutions to conserve natural resources and restore the natural environment for the well-being of future generations.

5.3 CONSERVATION PLANNING

Placer County has adopted an ecosystem approach to conservation planning, which recognizes the environment on a level with social and economic concerns and which promotes the principles of sustainable development. The ecosystem approach responds to the dynamic, interrelationship of all elements of a biophysical community, and the long-term management and related monitoring policies that address not only individual, but cumulative impacts to achieve a sustainable, healthy ecosystem.

The Natural Communities Conservation Plan (NCCP) Act of 1991 encourages local governments to plan broad-scale, multi-species conservation in association with watershed and wetlands protection. Placer County is pursuing both a NCCP and a Habitat Conservation Plan (HCP) under the Federal Endangered Species Act (FESA) for western Placer County including Sheridan. This plan, termed the Placer County Conservation Plan (PCCP), includes a program designed to ensure the continued conservation of threatened and endangered species in Placer County and to resolve potential conflicts between economic development activities and the conservation and recovery of sensitive species on non-Federal land. The goal of the PCCP is to integrate the land use needs of Placer County's growing human population with the natural systems and species that support life in the Sierra Nevada.

The PCCP, now in its draft stage, proposes to establish in perpetuity development boundaries (unlike an urban limit line) and is a method by which many smart growth objectives can be met. It is a tool that will allow Placer County to manage its growth by balancing habitat preservation with economic development and population growth. New development will be directed into appropriate areas and away from non-urban areas. It will assist the County's growth management efforts by clearly identifying which lands are intended for urban use and which are intended to remain agricultural or managed as habitat; promoting environmentally and fiscally sustainable infill development; and strengthening the consistency between the cities' and Placer County's land use plans and development policies.

Through the PCCP and a future updated General Plan that aligns land use, transportation, housing, and greenhouse gas reduction planning efforts, there will be better integration of sustainable urban planning and habitat conservation, using the impetus for habitat conservation to promote more efficient urban forms. Adoption of the PCCP and an updated General Plan will have implementation measures that will apply to Sheridan.

The PCCP is an important part of the County's **Placer Legacy Open Space and Agricultural Conservation Program** and will help achieve key program goals, such as preserving the diversity of natural plant and animal communities, and preserving agricultural land and open-space. Since its adoption in 2000, twelve properties totaling 8,551 acres have been conserved through acquisition or conservation easement through the Placer Legacy program. One property, the Kirk Ranch, is located within the Plan area. The 281-acre property is located on McCourtney Road

south of Camp Far West Reservoir and is used primarily for residential and grazing purposes. The easement preserves the ranching operation, the blue oak woodland savannah and the scenic qualities of the property in perpetuity. Placer County continues to work with partners to protect and preserve open space, farmland, and key habitat areas.

It is important to recognize that although sustainable development is an objective of conservation planning, it extends further than just environmental management. Other aspects of sustainable development are addressed within the Cultural Resources, Recreation, Transportation and Community Design sections of the Community Plan.

Williamson Act and Agricultural Preserve Contracts

The purpose of the Agricultural Preserve Program is the long term conservation of agricultural and open space lands. The program enrolls land in Williamson Act or Farmland Security Zone contracts whereby the land is restricted to agricultural, open space, or recreational uses in exchange for reduced property tax assessments. Participation in the program is voluntary.

The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Act creates an arrangement whereby private landowners voluntarily contract with counties and cities to restrict land to agricultural and open-space uses.

Agricultural contracts are a 10 year rolling term – and renew each year for another term unless they are non-renewed by either the landowner or the County. In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value.

Over 7,000 acres in the Plan area (34.2 percent) are currently enrolled in the Williamson Act (under contract or have filed for non-renewal).

**Table 5.3.1
Williamson Act Acreage in Plan Area**

Williamson Act Status	Acres
Non-Renewal	353.0
Under Contract	7,042.7
Total	7,395.7

5.4 FISH AND WILDLIFE

The County's General Plan policies recognize that the local fish and wildlife habitat within Placer County is linked to and form part of the larger regional and state natural habitat system. The County recognizes the need for both environmental impact reports and long-term monitoring to ensure that development can protect, maintain, enhance, and restore biodiversity to achieve a self-sustaining natural heritage system.

The flora and fauna found in Sheridan are largely a reflection of soils, climate, and land use. The area has a range of land uses, including residential, commercial, agricultural, and light industrial. Terrestrial habitats in the Plan area include buildings and other structures, agricultural fields, orchards, grasslands, and vernal pool and marsh complexes.

Wildlife tends to locate in those areas where they can find the essentials of survival and reproduction, including foraging, nesting, and breeding habitats. Fish and other aquatic organisms may be found in those areas that are suitable in terms of water quality, cover, and other factors, and both fish and wildlife require the capacity to move freely between the resources that they utilize and, in some cases, to migrate.

Sheridan's habitat types provide surface water, cover for small mammals and deer, trees for raptors that may nest there, tree hollows for bats and cavity-nesting birds, and foraging opportunities for the hawks and owls that hunt open lands and for egrets and herons that hunt for fish and amphibians. Habitats that are compromised by breaks in connectivity, such as roads, will inevitably produce fewer numbers and types of flora and fauna.

Structures and landscaped areas provide low-quality wildlife habitat, primarily exploited by those species adapted to human disturbances. Barns and other outbuildings may provide habitat for bats (big brown bat, Mexican free-tailed bat) and barn owls, while a variety of structures provide nesting sites for swallows.

Agricultural land provides habitat for small mammals and birds, including many of the species listed above. Once harvested, agricultural fields provide foraging opportunities for raptors, such as northern harrier, white-tailed kite and Swainson's hawk. Rice fields, which are extensive west of the Plan area, pond large areas of water and provide good quality waterfowl and wading bird habitat. Orchards may provide cover and foraging habitat for many bird species also commonly



Figure 5.4.1: Rice fields along Camp Far West Road.

found in woodlands and other habitats in the Plan area, however, mowing, plowing, spraying, and harvesting are activities which will deter normal cover and foraging by bird species.

Vertebrate species observed, or expected to occur, in aquatic habitats in and around Sheridan include beaver, river otter, muskrat, northern pond turtle, common garter snake, Pacific tree frog and bullfrog.

Aquatic habitats also support a resident warm water fishery including both introduced and native species. Yankee Slough, south and east of the Plan area, supports a primarily introduced fishery including mosquito fish, green sunfish, carp, and bigscale logperch.

Grasslands are important for burrowing rodents such as ground squirrels and gophers. Rodent burrows, in turn, provide habitat for a variety of other species, including burrowing owls. The diverse and abundant rodent community supports an assemblage of raptors that feed on them.

Wildlife use of non-native grasslands is similar to agricultural lands, providing habitat for a wide variety of small mammals, songbirds, raptors, and reptiles. Mixed oak woodland provides high-value wildlife habitat for a variety of bird species and some mammals.

Two state-listed species, Red-Bluff dwarf rush and Ahart's dwarf rush, have limited potential to occur in seasonally moist sites in annual grasslands in western Placer County. Other special-status plants that may potentially occur in annual grasslands are depauperate milk-vetch, big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*), hispid bird's-beak (*Cordylanthus mollis* ssp. *hispidus*), stinkbells (*Fritillaria agrestis*), sylvan microseris (*Microseris Sylvatica*), and hoary navarretia (*Navarretia eriocephala*).

Special-status animals that may use annual grasslands for breeding or as visitors are western spadefoot, northwestern pond turtle (*Actinemys marmorata marmorata*), giant garter snake (*Thamnophis gigas*), northern harrier, Swainson's hawk, ferruginous hawk (*Buteo regalis*), American peregrine falcon, western burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), bank swallow (*Riparia riparia*), grasshopper sparrow (*Ammodramus savannarum*), and tricolored blackbird. California tiger salamander has the potential to occur in annual grasslands as visitors.

Vernal pools are important habitat for migratory birds, and in the spring, migrating waterfowl are often observed feeding and resting in Central Valley vernal pools. Five special-status plants—Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), legenere (*Legenere limosa*), dwarf downingia (*Downingia pusilla*), Ahart's dwarf rush (*Juncus leiospermus*), and Red Bluff dwarf rush (*Juncus leiospermus*)— are known to occur in vernal pools in western Placer County. Other special-status plants that may occur in vernal pools are depauperate milk-vetch (*Astragalus pauperculus*), pincushion navarretia (*Navarretia myersii*), and Henderson's bent grass (*Agrostis hendersonii*).



Figure 5.4.2: Rice fields along Camp Far West Road.

Vernal pool ecosystems provide breeding habitat for a variety of special-status animal species including Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), and western spadefoot (*Scaphiopus hammondii*). These shrimp species have evolved accelerated reproductive maturity and high reproductive rates in response to the extreme environmental conditions that occur in vernal pools. They can survive the desiccation phase in the form of cysts, which can withstand high temperatures during the summer and remain viable in the soil for more than 10 years.

Other birds, such as raptors (hawks, falcons, and kites) and a variety of songbirds, use vernal pool complexes for foraging and as water sources. Burrowing owls may use burrows in mima mounds in the surrounding annual grasslands. Many wildlife species use both the vernal pools and the surrounding annual grassland habitat of the vernal pool complex. For example, many of the typical vernal pool annual plants are pollinated by bee species that nest in the surrounding uplands and forage in annual grasslands when the pools dry out.

5.5 OPEN SPACE/NATURAL RESOURCE AREAS

These areas include lands for the preservation of plants and animals including habitat for fish and wildlife species. Lands within open space areas perform an essential ecological function. They sustain biodiversity by providing habitat for plants and animals and they clean the air and water. The connectivity of natural open space areas is important for maintaining native vegetation communities and providing corridors for wildlife. Preserving and enhancing these lands in their natural state is essential to the overall health and functioning of the natural environment.

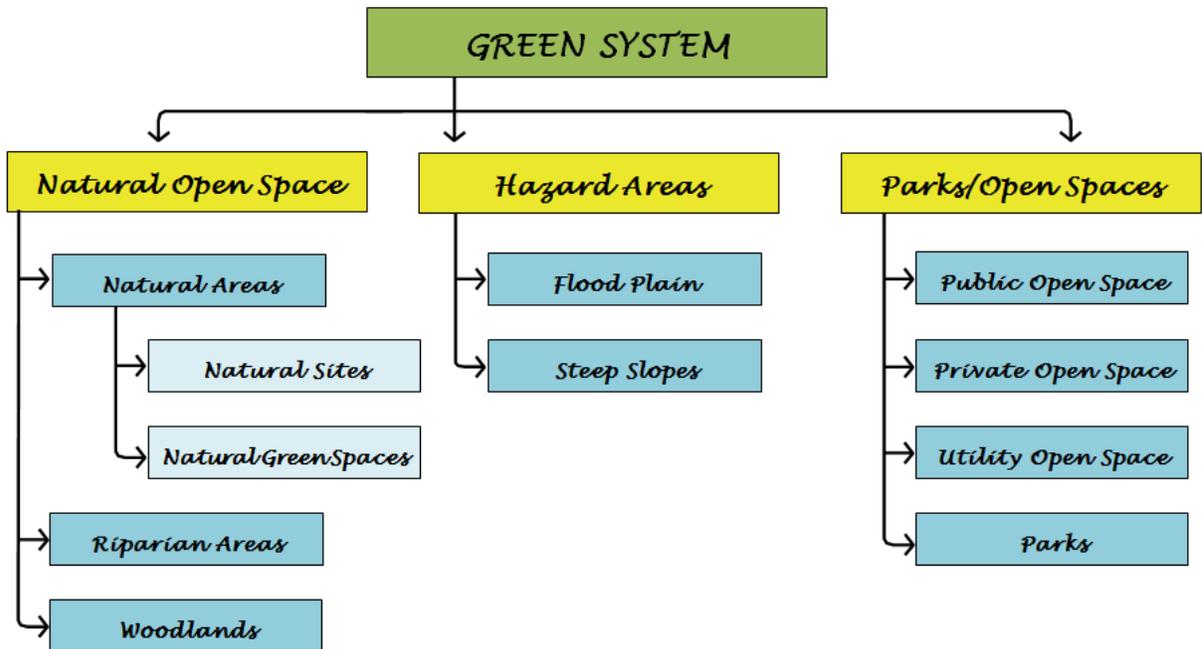


Figure 5.5.1: Open space areas.

Open space/natural resource areas include such uses as ponds and lakes, hunting clubs, conservation banks, private open space, and utility corridors. These open space lands, the “Green System,” have a variety of functions.

Conservation banks are permanently protected lands that contain natural resource values. These lands are conserved and permanently managed for species that are endangered, threatened, candidates for listing as endangered or threatened, or are otherwise species-at-risk. They function to offset adverse impacts to these species that occurred elsewhere, sometimes referred to as off-site mitigation.

There are three privately-owned conservation banks within the Plan area.

**Table 5.5.1
Conservation Banks in Plan Area**

Reserve Name	Habitat	Public Access?	Ownership	Acreage
Sheridan East Northeast corner of Karchner and Riosa roads	Grassland, Vernal Pools Marsh, Wetlands, Oak Woodland	No	Private	342
Silvergate Between Wheatland and Riosa roads	Grassland, Vernal Pools Marsh, Wetlands, Oak Woodland	No	Private	623
Yankee Slough Nader Road east of Sheridan Lincoln Blvd.	Oak Savannah, Riparian Grassland	No	Private	732

A total of 932 acres to the south of the Plan area on the south side of Waltz Road and west of N. Dowd Road are protected by conservation easements. Easements on the parcels enable the area to remain in conservation use for floodwater conveyance, flood management, floodwater storage, and habitat and/or agricultural conservation. The properties provide resting, breeding and foraging habitat for a variety of wildlife including adequate nesting and perching sites for a variety of birds.

5.6 VEGETATION

Local plant communities are typically ruderal annual grasses and forbs in range lands and pastures, lawns, and scattered native or non-native trees in landscaped areas, vernal pools, and smaller areas of emergent or scrub shrub wetlands and creeks.

These habitat types provide surface water, cover for small mammals and deer, trees for raptors that may nest there, tree hollows for bats and cavity-nesting birds, and foraging opportunities for the hawks and owls that hunt open lands and for egrets and herons that hunt for fish and amphibians. Habitats that are compromised by breaks in connectivity, such as roads, or impaired by poor water quality will inevitably produce fewer numbers and types of flora and fauna.

Wildland fires are a potential threat to individuals and property in Sheridan. Although the community has full fire service capabilities through local fire departments, the amount of grassland habitat intermixed with residential land uses has the potential for significant fire events.

Due to large parcel sizes in the area, particularly along the Nevada County border northeast of Sheridan, oak woodlands are relatively intact and unfragmented, presumably facilitating wildlife movement and migration.

Little or no riparian vegetation is present on Yankee Slough or its tributaries. Yankee Slough is mostly channelized and serves as a drainage facility for agricultural runoff. Some of the largest perennial freshwater marshes in Placer County are along Yankee Slough east of Highway 65.

Grassland

Valley grassland occurs around Sheridan, with vernal pools forming on hardpan soils. Although this area has a long grazing history, most of its grassland terrain has not been severely disturbed by discing or other intensive soil manipulation.

Plant species characteristic of annual grassland include slender wild oat (*Avena fatua*), ripgut brome, soft chess, medusa-head (*Taeniatherum caput-medusae*), and foxtail barley (*Hordeum jubatum*). Red-stemmed filaree (*Erodium sp.*) is a dominant non-native forb that was introduced to California by Spanish missionaries in the sixteenth century. Other dominant non-native forbs include rose clover (*Trifolium hirtum*), bur clover (*Medicago polymorpha*), little hop clover (*Trifolium dubium*), storksbill (*Erodium botrys*), and dovefoot geranium (*Geranium molle*).

Despite the dominance of introduced species, dry annual grasslands are still home to many native plant species, particularly native bulbs and early- or late-season annual wildflowers, such as California poppy (*Eschscholzia californica*), popcornflower, rancher's fire, common brodiaea, Ithuriel's spear (*Triteleia laxa*), winecup clarkia (*Clarkia purpurea*), johnny-tucks (*Triphysaria eriantha*), common madia (*Madia elegans*), cream cups (*Platystemon californicus*), and gold nuggets (*Delosperma congestum*). On poor, rocky soils, both native foothill bunchgrasses and forbs are more abundant than in the long-grazed open grasslands of the County's lowest elevations. Characteristic grasses here include natives such as California melic (*Melica californica*), squirreltail (*Elymus elymoides*), one-sided bluegrass (*Poa secunda*), purple needlegrass (*Nassella pulchra*), and blue wildrye (*Elymus glaucus*), as well as non-natives such as soft chess, hedgehog dogtail (*Cynosurus echinatus*), and ripgut brome.

Vernal Pools

Vernal pools are unique and are among the most threatened wetland ecosystems in the state. One estimate places loss of vernal pool habitat in California at up to 90 percent (United States Environmental Protection Agency, 2012).

Vernal pools form in seasonally flooded depressions in annual grasslands under a combination of specific climatic, soil, hydrologic, and topographic conditions. These conditions include a Mediterranean climate, a restrictive subsurface layer impermeable to water infiltration on which a shallow water table is perched during the wet season, and a microtopographic pattern of

shallow depressions in a level landscape. This set of characteristics distinguishes vernal pools from other seasonal wetlands and perennial wetlands.

The strong seasonal rainfall, concentrated in the winter and spring months, fills the pools for a portion of winter and spring. The pools dry out in summer, and the prolonged dry period prevents the establishment of species typical of permanent wetlands and marshes. The mild winter and spring temperatures allow plants and animals to grow and reproduce when the pools are full.

Native plants typical of vernal pools include several species of downingias (*Downingia spp.*), goldfields (*Lasthenia spp.*), popcornflowers (*Plagiobothrys spp.*), and clovers (*Trifolium spp.*), as well as gratiola, coyote thistle (*Eryngium castrense*), spike-rush (*Eleocharis spp.*), woolly marbles (*Psilocarphus spp.*), buttercups (*Ranunculus spp.*), pogogyne (*Pogogyne sp.*), quillwort (*Isoetes spp.*), purslane speedwell (*Veronica sp.*), and white navarretia (*Navarretia sp.*).

Trees

The townsite has many tall Eucalyptus trees for shade, a distinctive feature compared to the surrounding area, which is generally treeless close to the townsite and in the southern and western portions of the Plan area. There are significant oak woodlands and orchards in the eastern and northwest portions of the Plan area respectively.

In 1991 the Placer County Board of Supervisors adopted the Placer County Tree Preservation Ordinance (Chapter 12, Article 12.16 Placer County Code). The ordinance applies to all projects in Sheridan where discretionary permit approvals are required by the County. Protected trees include all oaks and native trees greater than 6" in circumference (measured 4.5" above ground), riparian trees, and trees of any species with a landmark tree designation.

New development should preserve as much native vegetation on a parcel as possible. Great care must also be exercised when work is conducted upon or around trees to be preserved. Preventing disturbance within a tree's Critical Root Zone (CRZ) is not difficult or expensive. The Critical Root Zone is the area around a tree in which the roots necessary for the tree's survival are located. It includes large woody roots that transport nutrients and support the tree as well as the smaller roots of varying sizes that absorb nutrients. These roots play an important role in the tree's health and survival. See Placer County's Landscape Design Guidelines (2013) for further information.

5.7 SOILS

Soils within the Community Plan area are predominantly Redding and Corning types. The soils in this association occur on gently sloping terraces and strongly sloping sideslopes. They are mostly well drained and developed in granitic alluvium and outwash from the Sierra Nevada Mountains. They are mostly shallow, meeting with claypans or hardpans, and have medium runoff and moderate erosion hazard. Permeability is very slow resulting in a severe limitation on the use of leach lines as a method of sanitary sewage disposal. These soils are primarily used for annual rangeland with some areas improved to irrigated pasture. Natural fertility is low and marginally suited for cultivation.

Soils to the west of Highway 65 are of the San Joaquin series. This series consists of well drained to moderately drained soils underlain by hardened, dominantly granitic, alluvium. Permeability is very slow and the soils are used for small grains, irrigated pasture, rice, and rangeland.

Two soils types do occur in the Community Plan area that are more receptive to agricultural uses. These are the loamy alluvial lands which occur in an area at the northwest portion of the Plan area. These soils are moderately well drained alluviums that occur adjacent to stream channels. The soils are acceptable to irrigated crops and orchards, small grains, irrigated pasture and rice. While hardpan may underlie the soil, it is at a depth which does not severely deter agricultural uses.

Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The following Department of Conservation (DOC)-defined categories of farmland exist within the Plan area:

Prime Farmland: Farmland with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

Unique Farmland: Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Farmland of Local Importance: Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

The Placer County Natural Resources Conservation District also completed a survey of productive soils for Placer County, and identified areas within the Plan area having prime soils. Major prime soil areas exist in the northwest portion of the Plan area, north of Camp Far West Road, and

along Yankee Slough west of N. Dowd Road. The remainder is either Farmland of Local Importance or “Other” (primarily developed parcels).

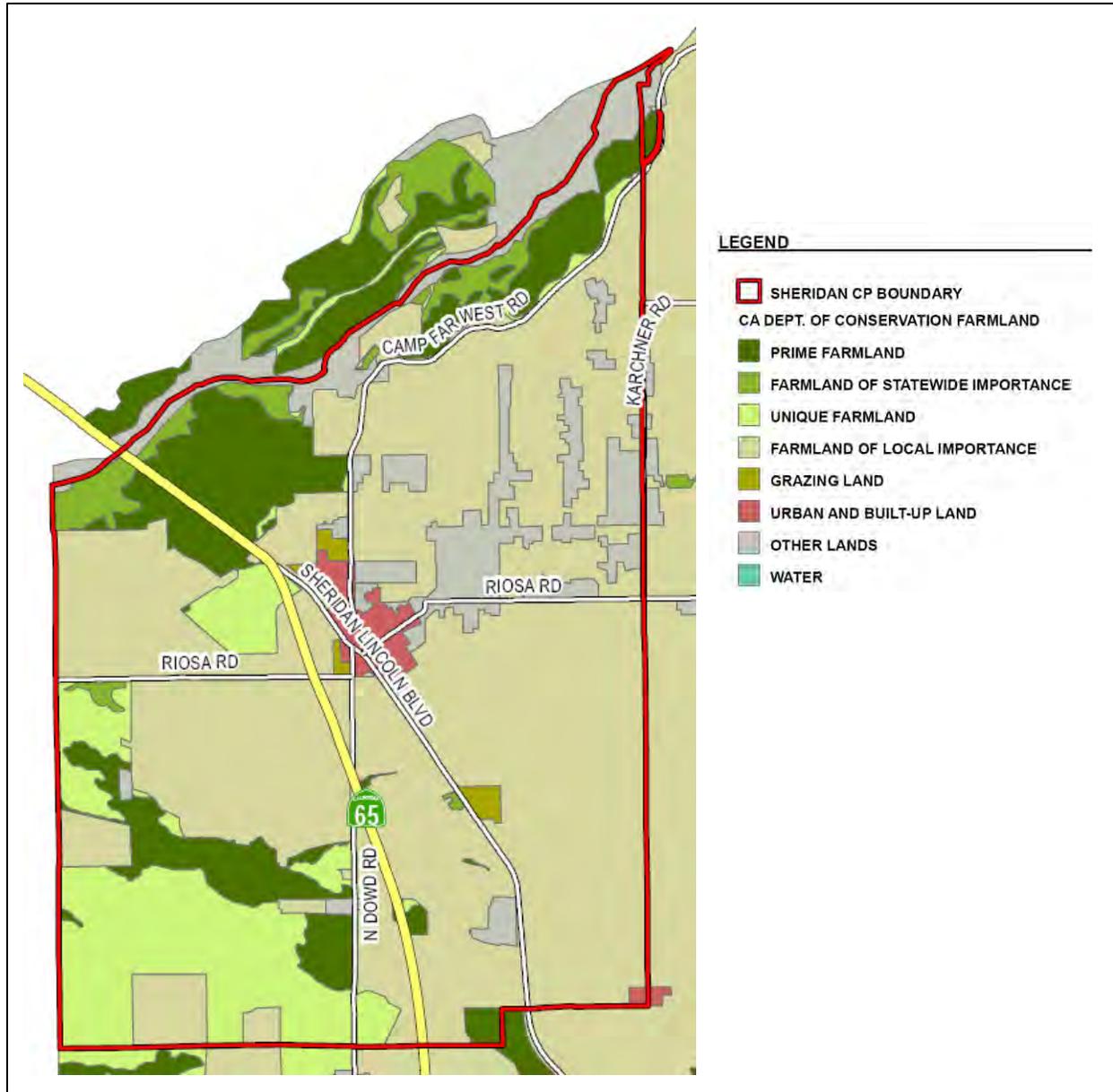


Figure 5.7.1: California Department of Conservation Farmland Classifications.

5.8 TOPOGRAPHY, GEOLOGY AND SEISMICITY

The Plan area is situated at the edge of the western foothills of the Sierra Nevada, at the eastern end of the Sacramento Valley. The Sacramento Valley is a broad lowland, approximately 50 miles wide. The Plan area is characterized by gently rolling hills, ranging in elevation from 70 feet to 525 feet above sea level.



Figure 5.8.1: Grasslands along Ranch House Road.

This portion of the valley is underlain by unconsolidated older alluvium of Pleistocene and Holocene age. Pliocene to

Pleistocene deposits of continentally derived sand, silt, clays and poorly-sorted gravel underlie older alluvial deposits. Marine sedimentary rocks yielding saline waters may underlie continental derived sedimentary rocks at depth. The geologic basement of the region is composed of meta-sedimentary and meta-volcanic rocks. Structurally, the consolidated sediments have been folded into a west-dipping homocline formed by the westward tilting of the Sierra Nevada structural block.

Stream erosion during the episodic uplifts of the Sierra Nevada, combined with varied volcanic activity, has produced the variety of sedimentary rock units present in the Plan area. During the last million years, weathering and sedimentation have led to the formation of alluvial deposits.

Mineral Resources

Mineral deposits are widespread throughout Placer County; known mineral resources in the county include sand, gravel, clay, gold, quartz, decomposed granite, and crushed quarry rock. Clay, stone, gold, and sand and gravel for construction aggregate are currently extracted.

No active quarries or mining sites have been identified in the Plan area. Cemex Construction is expanding the existing Patterson Sand and Gravel Mine operation along the Bear River in both Placer and Yuba counties northeast of Sheridan. Mining will be conducted in six phases over a 38-year span.

Teichert Materials has approvals for a surface mining and relocation project on a 3,455 acre site approximately four miles south of Sheridan along Coon Creek east of Highway 65. Over the proposed 40 year mining duration, 37 million tons of sand and gravel and 34 million tons of granite resources are expected to be removed. Mining has not started.

Seismicity

The area is considered relatively seismically inactive and no active faults are known to exist within the Plan area. There is potential for significant ground shaking as a result of seismicity associated with potentially active, regional earthquake faults.

The Coast Ranges to the west contain numerous active faults that are associated with the northwest-trending San Andreas Fault system, including the Hayward and Calaveras faults. The Coast Ranges-Sierran Block boundary zone, which follows the physiographic boundary between the Coast Ranges and the Great Valley, contains potentially active “blind” thrust faults, such as the Midland Fault. Based on the size of historical events and on the inferred segmentation of the boundary zone, these “blind” thrust faults are capable of producing moderate to large earthquakes. There are active faults located to the east of the project area, including the Cleveland Hills and Carson Valley Faults, in addition to older faults (i.e., pre-Holocene in age, or greater than 11,000 years before present) associated with the Foothill Fault System in the Sierra Nevada foothills, such as the Bear Mountain and Melones fault zones. Additionally, the eastern range of the Sierra Nevada is bordered by a series of active faults associated with the Sierra Nevada Frontal Fault System.

5.9 HYDROLOGY

Sheridan is located within the Bear River watershed. The Bear River rises on the west side of the Sierra just below Lake Spaulding at the 5,500 foot elevation and flows southwest 65 miles to its confluence with the Feather River, draining portions of Nevada, Placer, Sutter and Yuba counties. The 292 square mile watershed is 20 miles across at its greatest width.



Figure 5.9.1: Bear River at Highway 65.

The upper Bear reaches eight miles from the headwaters to the Drum afterbay. Flowing out of the Drum Afterbay is the Middle Bear, which enters Dutch Flat Reservoir where the waters of the Boardman Canal enter after running through Alta Powerhouse. The Bear River continues to roughly parallel I-80. Just before the Bear River flows into Rollins Reservoir, it merges with Steephollow Creek, the largest tributary in the upper watershed. The Bear River discharges from Rollins Reservoir and flows southwest into Lake Combie near Meadow Vista. The Bear River turns west and is fed by Wolf Creek and

then enters into Camp Far West Reservoir, the largest water body in the Bear River watershed located northeast of Sheridan. The Bear joins the Feather River south of Yuba City/ Marysville.

One mile downstream of Camp Far West Dam, at River Mile 15, is a diversion dam operated by the South Sutter Water District. The diversion dam moves Bear River water into the Sutter Water District Aqueduct on the south side of the river. The aqueduct runs north to south on the western boundary of the Plan area.

In the highest rainfall years, winter flows average 3,400 to 5,600 cfs (cubic feet per second). In normal years, winter flows are 600–800 cfs. In the driest years, flows average only 20–65 cfs in winter months, down to 0 cfs in all other months. Bear River flow patterns are typical of foothill streams with high winter and spring flows and very low summer and fall flows and are regulated almost entirely by several storage reservoirs and numerous diversions.

The Bear River once supported substantial salmon and steelhead runs, but because of low flows in the lower river below the South Sutter Irrigation District Diversion Dam, no self-sustaining salmon runs presently exist, and the status of steelhead is unknown. However, the river does support a popular fishery for rainbow and brown trout.

Main stem **Yankee Slough** is south of the townsite. Yankee Slough roughly parallels the Bear River, originating in the rolling hills east of Sheridan. It flows into the Bear River and then to the Sacramento River. The slough does not have trees along its banks. A portion of the water flowing in Yankee Slough comes from the Camp Far West canal, affecting seasonal flows. Due to the seasonal nature of precipitation, flow fluctuates significantly from the high flow periods (October through May) to the dry summer months.

5.10 FLOODPLAINS

Flooding occurs when the conveyance capacity of a channel is exceeded. This phenomenon usually occurs from above-average runoff caused by precipitation or snowmelt, but may also be the result of manmade causes. Regional areas within Placer County subject to 100-year (1 percent chance) and 500-year (0.2 percent chance) flooding are generally confined to the areas adjacent to the county's local rivers and streams. Map Nine shows the FEMA-designated 100-year floodplain in the Sheridan area. There are other local drainages in the Sheridan area that also have 100-year floodplains that have not been defined by FEMA. The 100-year floodplain is protected from development by existing County regulations and policies within the Sheridan Community Plan.

In much of the Plan area, floodplains are narrow or insignificant. In areas of the Plan with flatter topography, floodplains may have a more significant width with a shallow depth. As tributaries converge, flooding becomes a more serious issue. Floodplains exist along drainages north and

south of Riosa Road at Andressen Road. Other floodplains are south of Dalby Road and at the Dalby Road/Placer Road intersection. Additional information on flooding in the Plan area appears in the Health and Safety chapter.

5.11 GROUNDWATER

Available information indicates that groundwater elevation surrounding Sheridan is declining. According to the Auburn Ravine/Coon Creek Ecosystem Restoration Plan (2002), average depth to groundwater has increased from only 22.9 feet in 1929 to more than 59 feet in 1967 due to over drafting for agricultural irrigation purposes. Data indicates that groundwater levels have continued to drop at a rate of approximately one foot per year since 1967, or about 29.5 feet.

5.12 WETLANDS

There are several wetlands complexes in the Plan area including between Camp Far West Road and old Highway 65 north of the townsite and north and south of Riosa Road west of Highway 65 (see Map Nine). Wetlands are a very important component of the natural resource system with respect to both land and water related ecosystems including water quality and quantity, flood management, habitat for



Figure 5.12.1: Wetland area off of Dalby Road.

terrestrial and aquatic plants, fish and wildlife, food chain support, and social and economic benefits. Under state and federal law, it must be demonstrated that there will be no negative impacts to wetlands features and/or functions from development and/or site alteration of lands.

5.13 STORM WATER MANAGEMENT

Storm water management continues to evolve from a philosophy of providing drainage and protection from flooding, to recognizing and attempting to mitigate the impacts of development on water quality and waterway erosion, to a more current recognition of storm water as a resource and the importance of implementing preventative approaches to storm water management by minimizing runoff through Best Management Practices (BMPs).

The Placer County Flood Control and Water Conservation District does not have a comprehensive drainage plan for the Sheridan area to address storm drainage. Drainage plans are evaluated on

a project by project basis. Therefore, new development within the Community Plan area will address storm drainage during the permit process. The District's Storm Water Management Manual does provide general hydrologic and hydraulic guidelines for all of Placer County.

To ensure the health of the watersheds surrounding Sheridan and in downstream communities, storm water management is required for all new development projects to control both the quality and quantity of storm water runoff. There are significant benefits in implementing effective storm water management techniques, such as reducing erosion of watercourses, avoiding downstream flash flooding, reducing siltation and sediment loading, promoting watershed process protection, and ensuring that there is no destruction of aquatic, plant and animal populations.

The County encourages the use of BMPs to achieve a "best fit" of design and technology to promote environmentally sustainable development. To this end and the extent practicable, the County will encourage the use of naturalized at-source measures such as bioswales to mitigate the effects of storm water quantity and quality impacts on both surface and groundwater resources.

All construction sites are required to utilize the most up-to-date practices to minimize the introduction of silt and debris into natural watercourses including siltation fences and traps, sediment ponds, and the application of fast growing grass or related seed to earth mounds or bare-earth areas. For more information, see the principles contained in the Community Design section and the Flood Hazards section in the Health and Safety chapter.

5.14 CLIMATE

Sheridan lies within the Sacramento Valley Air Basin. The basin is bounded by the North Coast Ranges on the west and the Northern Sierra Nevada Mountains on the east. The Mediterranean climate of the Sacramento Valley has a hot, dry season during April through October; and a wet, mild season from November through March. Mean monthly temperatures range from about 33.3 degrees Fahrenheit (January minimum) to 97.2 degrees Fahrenheit F (July maximum). Annual precipitation is approximately 20 to 25 inches per year, with peak rainfalls occurring in December through February. Prevailing winds are moderate and vary from moist clean breezes from the south to drier winds from the north.

It is important to monitor the potential impacts of global climate change on Placer County. Climate change is a global, national, regional, and local challenge. Changing climate conditions, for example, with the potential to increase carbon dioxide concentrations that may lead to global warming, could significantly change regional hydrology. Climate models estimate that the higher temperatures resulting from increased carbon dioxide may warm the Sierra mountain ranges resulting in reduced snow pack and higher winter surface water flow (more flooding potential),

lower spring/summer flow (less snow pack storage), and higher overall precipitation. These effects would greatly impact water storage and conveyance systems, water needs and use, and regional biological resources that have adapted to a different hydrology.

Local governments need to be prepared for and adapt to these changes, and work to mitigate and eliminate local and regional emissions that contribute to climate change.

5.15 AIR QUALITY

Air quality is an important resource in the Sheridan area. Clean air is not only healthier for residents, it also has economic benefits by making the plan area a more attractive place to live and work. On April 15, 2004, the U.S. Environmental Protection Agency issued designations on attainment and non-attainment of the 8-hour ozone standard.

Poor air quality in the region is attributed to emissions from human activities and natural sources, as well as geography, local weather, and climate. Specific causes of poor air quality include those caused by natural processes, as well as human activities that change the earth's atmospheric composition (through burning fossil fuels, etc.). Federal, state and regional agencies, such as the Placer County Air Pollution Control District (PCAPCD), regulate air pollutants and contaminants that harm human health.

Regulations can include local rules, ordinances and policies, ambient monitoring, developing permitting programs, enforcement activities, and establishing economic incentives to reduce air pollution. One of the most effective ways of improving air quality in the plan area is by applying the most recent standards and trends in air quality improvement to land use projects. By consistently applying these standards, as well as the following goals and policies to projects proposed within the plan area, the county will be making its own contribution towards improving air quality within the Sheridan Community Plan area.

5.15.1 AIR QUALITY GOAL AND POLICIES

The regulations found in this section apply to new development in Sheridan. Good land use planning should be employed to insure that air quality in the community does not deteriorate, and whenever practical, be improved. Appropriate air quality measures may be required as a condition of approval for discretionary projects.

GOALS

1. Integrate land use planning, transportation planning, and air quality planning to make the most efficient use of public resources and to create a healthier and more livable environment for the Plan area.
2. Reduce emission impacts to "sensitive receptors" (children, the elderly, persons afflicted with health issues) living in the Plan area.

3. Reduce the impacts of greenhouse gases and climate change through the review of land use projects within the Plan area.

POLICIES

1. Ensure that project air quality impacts are quantified using analysis methods and significance thresholds as recommended by the PCAPCD.
2. Ensure that projects which may have potential air quality impacts mitigate any of its anticipated emissions which exceed allowable emissions as established by the PCAPCD.
3. Ensure all air quality mitigation measures are feasible, implementable, and effective for individual projects and on a community-wide basis.
4. Encourage innovative mitigation measures and approaches to reduce air quality impacts by coordinating with the PCAPCD, project applicants, and other interested parties.
5. Work with the PCAPCD to reduce particulate emissions from project construction, grading, excavation, demolition, and other sources.
6. Encourage the use of pollution control measures such as landscaping, vegetation, and other materials which trap particulate matter or control pollution.

State Air Quality Regulations

In 2006, the California Legislature passed and Governor Schwarzenegger signed AB 32, the Global Warming Solutions Act of 2006, which set 2020 greenhouse gas emissions reduction into law. It directed the California Resources Board (ARB) to begin developing discrete early actions to reduce greenhouse gases while also preparing a scoping plan to identify how best to reduce greenhouse gas emissions in the state to 1990 levels by 2020. In 2004, the state produced almost 500 million metric tons of carbon dioxide. Reducing California's greenhouse gas footprint to meet AB 32 goals will require an approximately 29 percent cut in emissions below the levels the state is currently projected to produce in 2020. ARB is currently determining how the AB 32 goals will be reached. A variety of strategies, including sector-specific regulations, market mechanisms, voluntary measures, fees, incentives, and other policies and programs are likely.

AB 32 marks a significant change in California's energy policies. The reduction measures to meet the 2020 target are to be adopted in 2011 are expected to have wide-reaching impacts. California must ensure that energy supplies keep pace with the growth while simultaneously reducing its greenhouse gas footprint. Senate Bill 1078 introduced a Renewables Portfolio Standard (RPS) with the goal of increasing the portion of electricity derived from renewable sources and sold to retail customers to 20 percent by 2017. Initially designed to address California's growing dependence on natural gas for electricity generation, the RPS is also an important means for meeting the state's AB 32 greenhouse gas emission reduction goals.

Decisions affecting land use directly affect energy use and the consequent production of greenhouse gases, primarily because of the strong relationship between where we live and work and transportation needs. Significant efforts are necessary to reduce vehicle miles traveled to meet the state’s emission reduction goals.

Housing, transportation planning, and local greenhouse gas reductions require local and regional approaches. At the time of this writing, California’s metropolitan planning organizations, including SACOG, are involved with long-range planning efforts to develop regional transportation plans that incorporate improved land use decisions.

Transportation is the single largest contributor to California’s greenhouse gas emissions, producing 39 percent of the state’s total emissions in 2004. California has long been regulating the criteria pollutants from automobiles. On the local level, PCAPCD requires air pollution sources to comply with applicable district rules and control measures. Projects will be required to mitigate air quality emission impacts that exceed district-established standards.

Buildings consume more electricity than any other sector in California. About five billion square feet of commercial building space accounts for 38 percent of the state's power use and more than 25 percent of the state's natural gas consumption. (Source: The California Public Utilities Commission (CPUC), September 2010). During the development of California’s AB 32 implementation process, building efficiency was identified as a sizable source of GHG reductions. State laws and standards are changing as a result.

Every two years, the California Energy Commission (CEC) releases an Integrated Energy Policy Report in which it makes recommendations for energy policy in the state, including changes to Title 24, the energy efficiency portion of the building codes. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. In its 2007 report, CEC recommended adjusting Title 24 to require net-zero-energy performance in residential buildings by 2020 and in commercial buildings by 2030. The initiative to require net-zero-energy buildings (ZNE) applies only to new construction.

What is Zero Net Energy?

Properties which, on an annual basis, use no more energy from the utility grid than is provided by on-site renewable energy sources. These buildings use 50-70% less energy than comparable traditional buildings, and the remaining energy use comes from renewable sources, like solar panels or wind turbines incorporated into the facility itself.

Source: American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

The Energy Commission adopted the 2008 Standards on April 23, 2008. The 2008 Residential Compliance Manual was adopted by the Building Standards Commission on December 17, 2008, and the 2008 Non-Residential Compliance Manual was adopted January 14, 2009. Both went into effect on January 1, 2010. Innovative technologies and enhanced building design and operation practices is expected to dramatically grow in use in the coming years.