Although species of birds and mammals have adapted to utilize orchard habitat, much of the literature regarding wildlife use of this habitat is limited to animals that are considered "agricultural pests" resulting in intensive methods to reduce crop losses through fencing, sound-guns, and other management techniques. Deer and rabbit are known to browse on trees, and birds and mammals, such as the northern flicker (*Colaptes auratus*), American crow (*Corvus brachyrhynchos*), plain titmouse (*Parus inornatus*), Brewer's blackbird (*Euphagus cyanocephalus*), gray squirrel (*Sciurus griseus*), and California ground squirrel (*Spermophilus beecheyi*) are known to commonly feed on almonds and walnuts.

Other orchard crops, such as apples, cherries, figs, pears and prunes are also eaten by these same species plus others such as band-tailed pigeon (*Columba fasciata*), yellow-billed magpie (*Pica nuttalli*), western bluebird (*Sialia mexicana*), American robin (*Turdus migratorius*), and coyote (*Canis latrans*). Orchards can be especially beneficial to wildlife during hot summer periods, as most orchards are irrigated.

Urban

The urban/disturbed habitat characterization includes disked fallow croplands, disturbed roadsides, commercial and residential developments, and associated infrastructure (i.e., roads). Urban developments can occur within or adjacent to most other habitat types in California, with the highest density at lower elevations. The majority of urban developments exceeding 10,000 in population were developed in grassland or scrub (coastal sagebrush or chaparral) vegetation. The original vegetation at such locations was normally modified by agriculture and today many of our cities are surrounded by agricultural and grazing lands rather than natural vegetation. Most units of the urban vegetation are relatively static in species composition due to maintenance, and are often dominated by non-native vegetation including weeds and/or cultivated ornamental plants (Mayer and Laudenslayer 1988). Developed areas with mature tree species can closely approximate a more natural environment and can therefore support more diverse wildlife species. Species composition in urban habitats varies with planting design and climate. Lawns are structurally the most uniform vegetative units of the California urban habitat. A variety of grass species are employed, which are maintained at a uniform height and continuous ground cover. Species commonly associated with the urban environment include scrub jay (*Aphelocoma coerulescens*), raccoon (*Procyon lotor*), European starling (*Sturnus vulgaris*), mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), striped skunk (*Mephitis mephitis*), opossum (*Didelphis virginiana*), and rock dove (*Columba livia*).

Fresh Emergent Wetland/Canals

Fresh emergent wetlands are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots growing up to 2 meters in height, and generally consists of cattail (*Typha latifolia*), tule (*Scirpus acutus*), river bulrush (*Schoenoplectus fluviatilis*) and/or arrowhead (*Sagittaria* spp.). The vegetation may vary in size from small clumps to vast areas covering several kilometers.

Irrigation canals and ditches used in the transportation of water to agricultural fields are also included as fresh emergent wetlands due to their dominance of similar fresh emergent vegetation as mentioned above. The acreage of fresh emergent wetland in California has decreased dramatically since the turn of the century due to drainage and conversion to other uses, primarily agriculture.

Fresh emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds, and numerous mammals, reptiles, and amphibians. Many species rely on fresh emergent wetlands for their entire life cycle. Special status species such as the giant garter snake (*Thamnophis gigas*) and tricolored blackbird (*Agelaius tricolor*) utilize these wetlands as primary habitat. The fresh emergent wetlands observed within the Planned Growth Area were generally smaller sized fragments occurring along roadside ditches, irrigation canals/ditches/sloughs, and adjacent to rice fields.

It is commonly thought that as depressions or shoreline areas that support fresh emergent wetland accumulate silt, marsh communities are replaced by upland communities. This process is slow unless erosion, either natural or

man caused, is accelerated. Fresh emergent wetlands are relatively stable successionally, but are transitory in a geological time frame. Fire, flooding, and draining, maintain shallow basins where fresh emergent wetlands prosper; but conversion to uplands, which may take from decades to centuries, is the climax. The time this process takes depends on wetland size, rate of sedimentation, frequency of flooding and drainage, and the rate of increase in organic matter.

Irrigated Grain Crops

Irrigated grain crop habitat varies according to the type of crop that is cultivated, generally consisting of annuals, such as corn, barley, and beans that are planted in rows, with canopy closure ranging from 100 percent to significant amounts of bare space between rows. All grain crops are annuals, and generally are planted in the spring, harvested in the summer or fall, and sometimes replanted with winter wheat or barley that can be harvested in spring. Other irrigated crops, such as alfalfa are rotated into cultivation with annual grain crops to maintain soil quality and interfere with crop pest lifecycles. Most irrigated grain crops in California are managed using 5–7 year rotation regimes that alternate annual grain crops with other perennial crops.

Many rodent and bird species have adapted to irrigated grain crop habitat, which in turn support a variety of raptors, owls, and other predators, such as coyotes that prey on these granivores. Waste grain that remains in fields following harvest can provide an important food resource for waterfowl and sandhill cranes. Fields flooded for weed control can support a variety of wetland wildlife such as shorebirds, wading birds and gulls. Irrigation water during dryer months benefits many wildlife species as a source of water.

Special-Status Species

Special-status species are those that fall into one or more of the following categories:

- Listed as threatened or endangered, or are proposed or candidates for listing under the California Endangered Species Act (CESA, 14 CCR 670.5);
- Listed as threatened or endangered, or are proposed or candidates for listing under the federal Endangered Species Act (ESA, 50 CFR 17.12);
- Listed as a Species of Special Concern by CDFG or protected under the California Fish and Game Code (CFGC, §3503.5);
- Fully Protected under state Fish and Game Code (§3511, §4700, §5050, §5515);
- Included on the California Native Plant Society (CNPS) List 1A, List 1B or List 2;
- Protected under the Migratory Bird Treaty Act (MBTA); or,
- Species that are otherwise protected under policies or ordinances at the local or regional level as required by the California Environmental Quality Act (CEQA, §15380).

Special-Status Plants

Due to the degree of agricultural and development disturbance in the Plan Area, few special-status plant species have potential to occur in the project vicinity. A target list of special-status plant species was developed in 2008, using data from the California Native Plant Society (CNPS) Inventory, California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service (USFWS). A list of special-status plant species, as acquired from the CNPS, CNDDB and USFWS 9-quad searches, and their potential for occurrence within the Plan Area is provided in Table 4.6-1.

Table 4.6-1 Special-Status Plants and their Potential to Occur in the Plan Area			
Common Name (*Scientific Name*)	Status Fed/State/CNPS	Associated Habitats	Potential for Occurrence*
Adobe Lily *(Fritillaria pluriflora)*	__/__/1B	Chaparral, cismontane woodland, valley/foothill grassland. (Feb–Apr)	Low. Not likely present due to amount of disturbance from agricultural activities.
Ahart's Dwarf Rush *(Juncus leiospermus* var. *ahartii)*	__/__/1B	Chaparral, cismontane woodland, meadows/ seeps, valley/foothill grassland, vernal pools/ vernal mesic, (Mar-May)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Ahart's Paronychia *(Paronychia ahartii)*	__/__/1B	Cismontane woodland, valley/foothill grassland, vernal pools. (Mar–Jun)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)	__/__/1B	Woodland, lower montane coniferous forest, meadows/ seeps, valley/foothill grassland, vernal pools, (Apr–Jul)	Low. Not likely present due to amount of disturbance from agricultural activities.
Brandegee's Clarkia *(Clarkia biloba* ssp. *brandegeeae)*	__/__/1B	Chaparral. Cismontane woodlands/often along roadcuts. (May–July)	Low. Sub-marginal habitat present.
Brazilian Watermeal *(Wolffia brasiliensis)*	__/__/2	Shallow freshwater marshes and swamps. (Apr-Dec)	High. Potential habitat present within drainages.
Brown Fox sedge *(Carex vulpinoidea)*	__/__/2	Marshes and swamps, riparian woodland. (May-Jun)	High. Potential habitat present within drainages.
Butte County Fritillaria *(Fritillaria eastwoodiae)*	__/__/3	Chaparral, cismontane woodland, lower montane openings, coniferous forest, rarely serpentinite. (Mar–Jun)	Low. Not likely present due to amount of disturbance from agricultural activities.
Butte County Golden Clover *(Trifolium jokerstii)*	__/__/1B	Valley and foothill grassland, vernal pools. (Mar–May)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Butte County Meadowfoam *(Limnanthes floccosa* ssp. *californica)*	FE/SE/1B	Valley and foothill grassland, vernal pools. (Mar–May)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Colusa Layia (*Layia septentrionalis)*	__/__/1B	Sandy/serpetinite soils in chaparral, cismontane woodland, valley/foothill grasslands. (Apr-May).	Low. Not likely present due to amount of disturbance from agricultural activities.
Ferris's Milk-vetch *(Astralagus tener* var. *ferrisaes)*	__/__/1B	Meadows and seeps, valley and foothill grassland. (Apr–May)	Low. Not likely present due to amount of disturbance from agricultural activities.
Greene's Tuctoria *(Tuctoria greenei)*	FE/__/1B	Vernal pools. (May–Jul/Sept)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Hartweg's Golden Sunburst *(Pseudobahia bahiifolia)*	FE/SE/1B	Cismontane woodlands. Valley and foothill grasslands in heavy clay soils. (Mar–Apr)	Low. Not likely present due to amount of disturbance from agricultural activities.

Table 4.6-1 Special-Status Plants and their Potential to Occur in the Plan Area			
Common Name (*Scientific Name*)	Status Fed/State/CNPS	Associated Habitats	Potential for Occurrence*
Heartscale (*Atriplex cordulata*)	__/__/1B	Chenopod scrub, meadows/seeps, valley/ foothill grassland (saline or alkaline). (Apr–Oct)	Moderate. Potential habitat where agricultural practices create alkaline conditions.
Lesser Saltscale (*Atriplex minuscula*)	__/__/1B	Chenopod scrub, playas, alkaline, sandy valley and foothill grassland. (May–Oct)	Moderate. Potential habitat where agricultural practices create alkaline conditions.
Pappose Tarplant (*Centromadia parryi* ssp. *parryi*)	__/__/1B	Chaparral, coast prairie, meadows/seeps, coastal salt marshes/swamps, alkaline vernally mesic, valley/foothill grasslands. (May–Nov)	None. No suitable habitat present.
Pink Creamsacs (*Castilleja rubicundula* ssp. *rubicundula*)	__/__/1B	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland (serpentine). (Apr–Jun)	Low. Not likely present due to amount of disturbance from agricultural activities.
Recurved Larkspur (*Delphinium recurvatum*)	__/__/1B	Chenopod scrub, cismontane woodland, valley and foothill grassland (alkaline). (Mar–Jun)	Low. Not likely present due to amount of disturbance from agricultural activities.
Red Bluff Dwarf Rush (*Juncus leiospermus* var. *leiospermus*)	__/__/1B	Chaparral, cismontane woodland, meadows/ seeps, valley/foothill grassland, vernal pools/ vernally mesic habitats. (Mar–May)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Round-leaved Filaree (*California macrophylla*)	__/__/1B	Cismontane woodland, valley/foothill grassland (clay). (Mar–May)	Low. Not likely present due to amount of disturbance from agricultural activities.
San Francisco Campion (*Silene verecunda* ssp. *verecunda*)	__/__/1B	Coastal bluff scrub, chaparral, coast prairie, coastal scrub, sandy soils in valley/foothill grasslands. (Mar–Jun).	None. No suitable habitat present.
Sanford's Arrowhead (*Sagittaria sanfordii*)	__/__/1B	Marshes/swamps, shallow freshwater. (May–Oct)	High. Potential habitat present within drainages.
Slender Orcutt Grass (*Orcuttia tenuis*)	FT/SE/1B	Drying beds of vernal pools and borrow pits. (May–Sep/Oct)	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Subtle Orache (*Atriplex subtilis*)	__/__/1B	Valley/foothill grassland. (June–Aug/Oct)	Moderate. Potential habitat where agricultural practices create alkaline conditions.
Veiny Monardella (*Monardella douglasii* ssp. *venosa*)	__/__/1B	Cismontane woodlands. Valley/foothill grasslands in heavy clay soils. (May–July)	Low. Not likely present due to amount of disturbance from agricultural activities.
Woolly Rose-mallow (*Hibiscus lasiocarpus*)	__/__/ CNPS 2	Marshes/swamps (freshwater). (Jun–Sep)	High. Potential habitat present within drainages.

Table 4.6-1
Special-Status Plants and their Potential to Occur in the Plan Area

Common Name (*Scientific Name*)	Status Fed/State/CNPS	Associated Habitats	Potential for Occurrence*

CODE DESIGNATIONS

FE = Federally-listed Endangered **FT** = Federally-listed Threatened **FC** = Federal Candidate Species **SE** = State-listed Endangered **ST** = State-listed Threatened	**CNPS 1A** = Plants presumed extinct in California **CNPS 1B** = Rare or Endangered in California or elsewhere **CNPS 2** = Rare or Endangered in California, more common elsewhere

***Potential for occurrence:** for plants it is considered the potential to occur during the survey period; for birds and bats it is considered the potential to breed, forage, roost, over-winter, or stop-over in the project area during migration. Any bird or bat species could fly over the project area, but this is not considered a potential for occurrence. The categories for the potential for occurrence include:

None:	The species or natural community is known not to occur, and has no potential to occur in the project area based on sufficient surveys, the lack of suitable habitat, and/or the project area is well outside of the known distribution of the species.
Low:	Potential habitat in the project area is marginal, but the species is known to occur in the vicinity of the project area; or suitable habitat is present, but the species is not known to occur in the vicinity of the project area.
Moderate:	Suitable habitat is present in the project area and the species is known to occur in the vicinity of the project area.
High:	Habitat in the project area is highly suitable for the species and there are reliable records close to the project area, but the species was not observed.
Known:	Species was detected in the project area or a recent reliable record exists for the project area.

The special-status plant species with a moderate to high potential of occurring within the Plan Area are briefly discussed below.

Brazilian Watermeal

Brazilian watermeal is a small, perennial, free-floating aquatic herb listed by the CNPS as a List 2.3 plant species. It is known from occurrences in Butte and Glenn Counties along the Sacramento River in California and is also found elsewhere in the U.S.

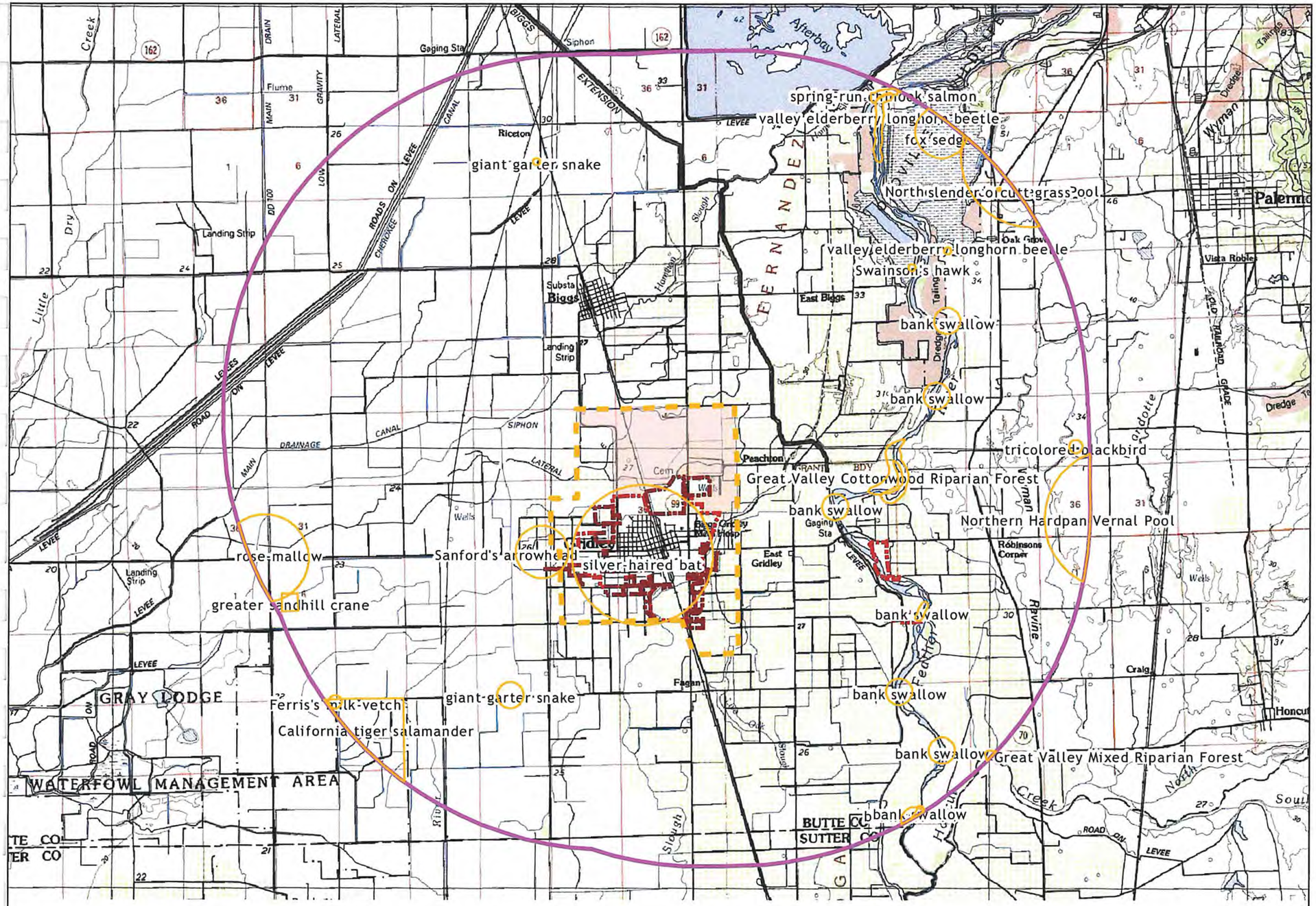
Brazilian watermeal grows in assorted shallow freshwater marshes and swamps at elevations ranging from 30 to 100 meters above sea level. It flowers from April through December, producing inconspicuous flowers in a cavity on the upper surface of the plant. Within the Plan Area, Brazilian watermeal has potential to occur within sluggish, slow moving water in irrigation ditches and canals.

Brown Fox Sedge

Brown fox sedge is a CNPS list 2.2 perennial herb. It is known from populations in Butte, Kern, Los Angeles, Shasta, Siskiyou, San Joaquin, Tehama and Trinity Counties in California and in other states, including Arizona and Oregon. It can be found in freshwater marshes and swamps and riparian woodlands at elevations ranging from 30 to 1200 meters above sea level. Brown fox sedge blooms from May to June and produces a dense spike of inconspicuous green flowers.

A CNDDB occurrence of brown fox sedge occurs within 5 miles of the Plan Area (Exhibit 4.6-2). Brown fox sedge has potential to occur along the banks and within the channel of irrigation ditches and canals and in fresh emergent wetlands within the Plan Area.

Exhibit 4.6-2
CNDDB Occurrences



0 4,000 8,000
FEET NORTH

Base Map: USGS Biggs and Gridley Quads

G 07110091.05 025

LEGEND

- Study Area
- City Limits
- Sphere of influence
- Planned Growth Area
- 5 Mile Study Area
- CNDDB Orccurances

Source: CNDDB 2008.

Heartscale

Heartscale is a California-endemic annual herb in the Chenopodiaceae family. It is listed by CNPS as a list 1B.2 plant species. It has been known to occur in Alameda, Butte, Fresno, Glenn, Kern, Madera, Merced, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo Counties. Heartscale grows in chenopod scrub, meadows and seeps, and saline or alkaline valley and foothill grassland habitats at elevations ranging from 1 to 375 meters above sea level. It blooms from April to October, producing inconspicuous flowers held above the leaf axis. Heartscale has potential to occur within moist agricultural land which holds a higher amount of alkalinity and/or salinity due to farming practices.

Lesser Saltscale

Lesser saltscale is a California-endemic annual herb in the Chenopodiaceae family. It is listed by the CNPS as a list 1B.1 plant species. It is known only from occurrences in Butte, Fresno, Kern, Madera, Merced, Stanislaus, and Tulare Counties. The lesser saltscale grows in chenopod scrub, playa, and alkaline, sandy valley and foothill grassland habitats at elevations ranging from 15 to 200 meters above sea level. It flowers from May through October, producing inconspicuous yellow flowers formed at the leaf axis.

Within the Plan Area, lesser saltscale has potential to occur in dry agricultural land which holds a higher level of alkalinity and/or salinity in the soil due to farming practices.

Sanford's Arrowhead

Sanford's arrowhead is a CNPS List 1B.2 species, meaning it is considered fairly endangered in California and is also rare, threatened, or endangered outside of California. This species is found in shallow, standing, fresh water and sluggish waterways including marshes, swamps, ponds, vernal pools, lakes, reservoirs, sloughs, ditches, canals, streams and rivers at elevations from 10 to 2,000 feet.

The CNDDB provided a record within 1 mile of the Study Area (Exhibit 4.6-2). Sanford's arrowhead has potential to occur within sluggish, slow moving water in irrigation ditches and canals within the Plan Area.

Subtle Orache

Subtle orache is a California-endemic annual herb in the Chenopodiaceae family. It is listed by the CNPS as a list 1B.2 plant species. It is known only from approximately 25 occurrences in Butte, Fresno, Kings, Kern, Madera, Merced, and Tulare Counties. The subtle orache grows in valley and foothill grassland habitats at elevations ranging from 40 to 100 meters above sea level. It blooms from June through August and rarely into October, producing inconspicuous white flowers within the leaf axis.

Within the Plan Area, subtle orache has potential to occur in sandy or dry agricultural land which holds a higher level of alkalinity and/or salinity in the soil due to farming practices.

Woolly Rose-mallow

Woolly rose-mallow is a CNPS List 2.2 species, meaning it is considered fairly endangered in California (i.e., 20–80 percent of known occurrences in California are threatened), but is more common outside of California. This species is found in freshwater marshes and swamps.

The CNDDB provided a record within 5 miles of the study area (Exhibit 4.6-2) and this species has a moderate potential to occur in the study area. Wooly rose mallow has potential to occur within fresh emergent wetlands and seasonally wet irrigation ditches and canals within the Plan Area.

Special-Status Wildlife

Due to the degree of human disturbance in the Plan Area, few special-status wildlife species have potential to occur in the project vicinity. A target list of special-status animal species was developed in 2008, using data from the USFWS and CNDDB. This list included Swainson's hawk (*Buteo swainsoni*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and giant garter snake (GGS). The complete target list of the wildlife species and their potential for occurrence within the Plan Area is presented in Table 4.6-2.

Table 4.6-2
Target List of Wildlife Species and their Potential to Occur within the Plan Area

Common Name (*Scientific Name*)	Status Fed/State/ CNPS	Associated Habitats	Potential for Occurrence*
INVERTEBRATES			
Valley Elderberry Longhorn Beetle *(Desmocerus californicus dimorphus)*	FT/__/__	Blue elderberry shrubs usually associated with riparian areas.	High. Potential habitat may occur adjacent to drainages.
Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*	FT/__/__	Vernal pools, swales, and ephemeral freshwater habitat.	Moderate. Potential habitat within seasonal wetlands.
Vernal Pool Tadpole Shrimp *(Lepidurus packardi)*	FE/__/__	Vernal pools, swales, and ephemeral freshwater habitat.	Moderate. Potential habitat within seasonal wetlands.
REPTILES AND AMPHIBIANS			
California tiger salamander *(Ambystoma californiense)*	FT/CSC/_	Vernal pools and seasonal ponds in grassland and oak savannah.	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Coast Horned Lizard *(Phrynosoma coronatum)*	_/ CSC /_	Openings in valley/ foothill hardwood, coniferous & riparian, pine/cypress, juniper, annual grasslands with sandy soils and ants.	Moderate. Potential habitat in sandy soils within the Plan Area.
Giant garter snake *(Thamnophis gigas)*	FT/ST/__	Agricultural wetlands, irrigation/drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, adjacent uplands.	High. Potential habitat in, and adjacent to, drainages and in rice fields.
Northwestern Pond Turtle *(Actinemys marmorata marmorata)*	__/CSC/__	Permanent ponds, lakes, streams, ditches, and permanent pools along intermittent streams.	Moderate. Potential pond habitat within some Plan Area drainages.
Western Spadefoot *(Spea hammondii)*	_/CSC/_	Grassland, woodland and vernal pools without aquatic brood predators.	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
FISH			
Central Valley Spring-Run Chinook Salmon *(Oncorhynchus tshawytscha)*	FT/ST/__	Sacramento River and tributaries.	None. No suitable drainages within the Plan Area.

Table 4.6-2 Target List of Wildlife Species and their Potential to Occur within the Plan Area			
Common Name (*Scientific Name*)	Status Fed/State/ CNPS	Associated Habitats	Potential for Occurrence*
Central Valley Steelhead *(Oncorhynchus mykiss)*	FT/__/__	Sacramento and San Joaquin Rivers and their tributaries.	None. No suitable drainages within the Plan Area.
Delta Smelt *(Hypomesus transpacificus)*	FT/ST/__	Sacramento-San Joaquin Estuary.	None. No suitable drainages within the Plan Area.
Green Sturgeon *(Acipenser medirostris)*	FT/CSC/_	Spawn in freshwater, recently-documented spawning locations are in Klamath, Sacramento, and Rogue rivers on the west coast of N. America.	None. No suitable drainages within the Plan Area.
MAMMALS			
American Badger *(Taxidae taxus)*	_/CSC/_	Grasslands, savannahs, and mountain meadows with friable soils.	Low. Not likely present due to amount of disturbance from agricultural activities.
Marysville California Kangaroo Rat *(Dipodomys californicus eximius)*	_/CSC/_	Sandy/silty soils in annual grassland, mixed chaparral, occasionally valley foothill hardwood and valley foothill hardwood-conifer.	Moderate. Moderately suitable habitat occurs within the Plan Area.
Pallid Bat *(Antrozous pallidus)*	__/CSC/_	Arid and semi-arid habitats; roosts in rock crevices, caves, and mine shafts.	Moderate. Moderate roosting habitat and high foraging habitat potential within the Plan Area.
BIRDS			
Bank Swallow *(Riparia riparia)*	__/ST/__	Nests in steep riverbank cliffs, gravel pits, and highway cuts.	Low. Marginal habitat present within some drainages.
Burrowing owl *(Athene cunicularia)*	__/CSC/__	Nests in burrows on the ground, often old ground squirrel or badger burrows, within open dry grasslands and deserts.	Moderate. Potential habitat in open agricultural fields.
Greater Sandhill Crane *(Grus canadensis tabida)*	_/ST/_	Wet meadows, shallow lacustrine, fresh emergent wetlands. Winters in San Joaquin/ Sacramento Valleys.	Moderate. Potential habitat within irrigated and flooded fields.
Loggerhead Shrike *(Lanius ludovicianus)*	MBTA / CSC /_	Open with sparse shrubs and trees, other suitable perches, bare ground, low or sparse herbaceous cover.	Low. Sub-marginal riparian habitat in the Plan Area.
Northern Harrier *(Circus cyaneus)*	_/CSC/_	Meadows, grasslands, open rangelands, desert sinks, fresh/saltwater emergent wetlands.	High. Suitable habitat within the Plan Area.

Table 4.6-2
Target List of Wildlife Species and their Potential to Occur within the Plan Area

Common Name (*Scientific Name*)	Status Fed/State/ CNPS	Associated Habitats	Potential for Occurrence*
Swainson's hawk *(Buteo swainsoni)*	MBTA/ST/__	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat including grasslands, grain/alfalfa fields, livestock pastures.	High. Suitable habitat within the Plan Area.
Tri-colored blackbird *(Agelaius tricolor)*	_/CSC/_	Nests in dense blackberry, cattail, tules, willow, wild rose in emergent wetlands in the Central Valley and surrounding foothills.	Moderate. Potential habitat within fresh emergent wetlands within the Plan Area.
Osprey *(Pandion haliaetus)*	MBTA/ CSC/__	Wetland, open water.	Low. Sub-marginal riparian habitat in the Plan Area.
Western Yellow-billed Cuckoo *(Coccyzus americanus occidentalis)*	FC/SE/__	Structured dense riparian forests, generally willows.	Low. Sub-marginal riparian habitat in the Plan Area.
Yellow Warbler *(Dendroica petechia)*	_/CSC/_	Very partial to riparian woodlands of lowlands and foothill canyons.	Low. Sub-marginal riparian habitat in the Plan Area.
Migratory Birds and Raptors	MBTA	Nests/forages in variety of habitats: hardwood woodlands, coniferous forests, meadows, grasslands and riparian.	High. Suitable foraging habitat present within the Plan Area.

CODE DESIGNATIONS

FE = Federally-listed Endangered **FT** = Federally-listed Threatened **FC** = Federal Candidate Species **SE** = State-listed Endangered **ST** = State-listed Threatened	**CSC** = CDFG Species of Special Concern **FP** = CDFG Fully Protected Species **MBTA** = protected by the federal Migratory Bird Treaty Act

***Potential for occurrence:** for plants it is considered the potential to occur during the survey period; for birds and bats it is considered the potential to breed, forage, roost, over-winter, or stop-over in the project area during migration. Any bird or bat species could fly over the project area, but this is not considered a potential for occurrence. The categories for the potential for occurrence include:

None:	The species or natural community is known not to occur, and has no potential to occur in the project area based on sufficient surveys, the lack of suitable habitat, and/or the project area is well outside of the known distribution of the species.
Low:	Potential habitat in the project area is marginal, but the species is known to occur in the vicinity of the project area; or suitable habitat is present, but the species is not known to occur in the vicinity of the project area.
Moderate:	Suitable habitat is present in the project area and the species is known to occur in the vicinity of the project area.
High:	Habitat in the project area is highly suitable for the species and there are reliable records close to the project area, but the species was not observed.
Known:	Species was detected in the project area or a recent reliable record exists for the project area.

The special-status wildlife species with a moderate to high potential of occurring within the Plan Area are briefly discussed below.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB), a federally threatened species, occurs in the Central Valley of California below 3,000 feet. It is distributed primarily within riparian habitats from Shasta City to Kern City. The beetle is dependent solely on blue elderberry shrubs (*Sambucus mexicana*) or red elderberry shrubs (*S. racemosa*) to complete its lifecycle. The adult beetles emerge from the elderberry stems from April to early June. The adults mate and the females lay eggs on the tips of twigs. The eggs hatch and the larva bore into twigs and feed on the pith. Before a larva pupates, it makes an exit hole in the elderberry stem. These holes serve as an indication of the occurrence of VELB in elderberry shrubs. Following pupation in the spring, the adult beetle emerges, creating a hole in the bark of the stem or branch. Adults feed on foliage and are present from March through early June. Besides exhibiting a preference for "stressed" elderberry (Kellner 1986), VELB prefer shrubs with stems of a certain size class. Exit holes have been found more frequently in trunks or branches that are 5 to 20 cm (2–8 in) in diameter, or at least 1.0 inch or greater at ground height (USFWS 1999) and less than one meter off the ground. Research also shows that exit holes more consistently occur in clumps or stands than in isolated shrubs (Collinge et al. 2001).

Blue elderberry shrubs have potential to occur in the Plan Area along irrigation ditches and canals and therefore potential habitat for VELB may be present.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp has known populations that extend from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. Four additional, disjunct populations exist: one near Soda Lake in San Luis Obispo County, one in the mountain grasslands of northern Santa Barbara County, one on the Santa Rosa Plateau in Riverside County, and one near Rancho California in Riverside County. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp have been collected from early December to early May.

Within the Plan Area, vernal pool fairy shrimp have a moderate potential to occur within seasonally wet features.

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp is a small crustacean in the Triopsidae family. Their diet consists of organic debris and living organisms, such as fairy shrimp and other invertebrates. They inhabit vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie. The vernal pool tadpole shrimp is known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, and from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County.

Within the Plan Area, vernal pool tadpole shrimp have a moderate potential to occur within seasonally wet features.

Coast Horned Lizard

The coast horned lizard occurs in the Sierra Nevada foothills from Butte to Kern Counties and throughout the central and southern California coast. They can be found in sandy soils in valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland habitats. They primarily occur at elevations below 600

meters, but have been observed as high as 1,200 meters in the Sierra Nevada foothills. The coast horned lizard forages in open areas between shrubs and often near ant nests. Their primary prey is ants but they also eats small beetles when in large quantities, wasps, grasshoppers, flies, and caterpillars. They rely on camouflage for protection and bask on the ground or elevated objects in the early morning. In extreme heat and during winter hibernation, the coast horned lizard burrows under objects, such as logs or rocks, or use mammal burrows or crevices. The reproductive season varies from year to year and geopraphically depending on local conditions. Clutch sizes can range from 6 to 16 eggs which typically hatch after 2 months.

The coast horned lizard has potential to occur within sandy soils in the Plan Area.

Giant Garter Snake

The GGS is a federal and state listed threatened species. The GGS is endemic to the Sacramento and San Joaquin valleys where it inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands (USFWS 1999). Because of the loss of natural habitat, the GGS relies heavily on rice fields in the Sacramento and San Joaquin Valley, but also uses managed marsh areas in federal national wildlife refuges and state wildlife areas. Giant garter snakes are typically absent from larger rivers because of lack of suitable habitat and emergent vegetative cover, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands typically do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations. However, some riparian woodlands adjacent to watercources and other potential GGS aquatic habitat do provide good cover habitat.

Primary GGS habitat requirements consist of:

1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover;

2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season;

3) upland habitat, such as grassy banks and openings in waterside vegetation for basking; and,

4) higher elevation uplands for cover and refuge from floodwaters during the snake's dormant season (USFWS 1999).

When abundant cover is available, GGS may be able to persist with numerous predators that share the same habitats.

GGS has been documented within three miles of the Plan Area and suitable habitat is present in the agricultural ditches present throughout the Plan Area. Thus, this species has a high potential to occur within rice fields and irrigation ditches and canals in the Plan Area. The CNDDB identifies a giant garter snake occurrence within 5 miles of the Study Area (Exhibit 4.6-2).

Northwestern Pond Turtle

The northwestern pond turtle can be found throughout California and is the only abundant native turtle in California. They are associated with permanent or nearly permanent water in a wide variety of habitats at elevations ranging from near sea level to 1,430 meters. They require basking sites including partially submerged logs, rocks, mats of floating vegetation, or open mud banks. The northwestern pond turtle hibernates in colder areas underwater on muddy bottoms. Nesting sites are typically constructed along the banks of permanent water in soils at least 10 cm deep and must have high internal humidity for eggs to develop and hatch.

The northwestern pond turtle has potential to occur within ponds and very slow moving standing water within the Plan Area.

Marysville (California) Kangaroo Rat

The Marysville, or California, kangaroo rat occurs in California from the Oregon border south to San Francisco Bay and in the Sacramento Valley and Sierra Nevada foothills from El Dorado County north. It is found in open areas with friable soils, preferably annual grassland and mixed chaparral habitats, at elevations ranging from 400 to 1,300 meters above sea level. The kangaroo rat can also be found in valley foothill hardwood and valley foothill hardwood-conifer habitats. They require soils with sand or silts for dust bathing. They feed on the seeds of various grasses, forbs, and shrubs and their burrows are often found at the bases of shrubs or along the edges of rocks. They breed from February through September and often have only 2 to 4 young per a litter.

The Marysville kangaroo rat has potential to occur within open areas with silty or sandy soils in the Plan Area.

Pallid Bat

The pallid bat is a rather large, pale, yellowish-brown bat with long prominent ears, a blunt snout, and pinkish-brown or gray wing and tail membranes. Pallid bats tend to roost alone or in small groups and are known to use day and night roosts in crevices of rocky outcrops and cliffs, caves, mines, trees (bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various man-made structures such as bridges and buildings. The pallid bat primarily preys on a variety of arthropods, grasshoppers, crickets, beetles, moths, occasionally small reptiles and rodents, and has developed a mechanism to prey upon scorpions. This species of bat is very vulnerable to disturbance that many times results in mass displacement of the species.

If the species is detected, actions to coax the bat out of the area should be taken prior to the end of October when the bat seeks its winter hibernacula, isolation measures should be installed to prevent re-entry to the roost (Sherwin 1998).

The pallid bat has potential to occur within trees, under bridges, and within crevices of some buildings within the Plan Area.

Burrowing Owl

Burrowing owls inhabit dry, open grasslands. Nests are usually in small burrows that have been constructed and abandoned by small mammals, such as ground squirrels or badgers, however, they have also been known to use man-made structures, including cement culverts, cement, asphalt or wood piles, and openings under pavement. The breeding season for burrowing owls is from late March through May, and they often reuse burrows year after year. They perch on top of the burrows and other low structures to forage and watch for other predators. Their diet consists of insects, small reptiles or amphibians and small mammals.

Within the Plan Area, burrowing owls have the potential to occur within agricultural fields and vacant lots where friable soils or culverts are present for them to establish burrows.

Greater Sandhill Crane

The greater sandhill crane currently breeds only in Siskiyou, Modoc, and Lassen Counties and in Sierra Valley, Plumas and Sierra Counties. During the summer, the crane can be found in and near freshwater wet meadow, shallow lacustrine, and fresh emergent wetland habitats, and during winters the crane typically inhabits annual and perennial grassland, moist cropland, and open emergent wetland habitats in the Sacramento and San Joaquin valleys from Tehama County south to Kings County.

The greater sandhill crane prefers to forage over open short-grass plains, grain fields, and open wetlands where it feeds on grasses, forbs, various seeds, cereal crops, roots/tubers, earthworms, insects, and on occasion larger prey including mice, small birds, snakes, frogs, and crayfish. They roost at night in flocks standing in moist fields or

standing water and have also been known to roost in dry grasslands, islands, and wide sandbars. In moist areas, nests are large mounds made from wetland plants in shallow water, ideally screened by tules or cattails. On dry sites, nests are scooped out depressions lined with grasses.

Peak breeding occurs from May until July with their solitary nests typically completed by late August. The greater sandhill crane is monogamous, and have an average clutch size of 2. Once hatched, the young begin flying after 70 days, but remain with the adults for up to a year.

The CNDDB provided a record of the greater sandhill crane within 5 miles of the Plan Area (Exhibit 4.6-2). Sandhill cranes have potential to occur within flooded agricultural fields within the Plan Area.

Northern Harrier

Northern harriers are a raptor commonly found near wetlands and open grasslands perched on or flying close to the ground. The northern harrier is one of the few birds of prey that is frequently polygynous when ecological conditions permit. Nests are constructed on the ground, typically in dense, low vegetation that provides a visual barrier and cover. In drier habitats, the nest consists of a loose, thin layer of sticks. In wetter situations, nests are larger, more substantial structures. Nests are built by the female and typically consist of grass, reeds, and small sticks. Breeding activity begins in April, concluding in September, with a peak in activity from June to July. A single brood of four to six eggs are incubated by the female. Incubation begins with the last egg and lasts about 29–39 days. Females brood the young for about 4 weeks while males provision the female and young with prey items. Young begin to leave the nest, moving around into the surrounding vegetation, at about 2 weeks of age. The amount of time spent at the nest steadily decreases after this point until fledging. First flight generally occurs at 29–34 days of age. Young remain in the vicinity of the nest until dispersal. Northern harries have the potential to forage within moist agricultural fields and pastures within the Plan Area.

Swainson's Hawk

The Swainson's hawk is a state threatened species and a long-distance migrant with nesting grounds in western North America. The Swainson's hawk population that nests in the Central Valley winters primarily in Mexico, while the population that nests in the interior portions of North America winters primarily in Argentina. Swainson's hawks arrive in the Central Valley between March and early April to establish breeding territories, and breeding occurs from late March to late August, peaking in late May through July. In the Central Valley, Swainson's hawks nest in isolated trees, small groves, or large woodlands, next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. Nest locations are usually in close proximity to suitable foraging habitats, which include fallow fields, irrigated pastures, alfalfa and other hay crops, and low-growing row crops. Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September.

The CNDDB provided a record for the Swainson's hawk within 3 miles of the Study Area and this species has a moderate potential to occur in the Study Area. Potential foraging habitat includes agricultural fields and pastures and nesting habitat includes tall, mature trees adjacent to foraging habitat. Exhibit 4.6-2 illustrates CNDDB records within 5 miles of the Plan Area.

Tri-colored Blackbird

The tri-colored blackbird occurs throughout California's Central Valley and in coastal habitats from Sonoma County south. The tri-colored blackbird requires dense fresh emergent wetlands to nest and breed, and forages in grassland and cropland habitats. Its nests are made from mud and plant materials, forming colonies from 50 pair to as many as 30,000 pair. Tri-colored blackbirds require open, accessible water, protective nesting substrates (flooded, thorny, or spiny vegetation), and suitable foraging space within a few miles of the nesting colony. In response to loss of fresh emergent wetland habitat, tri-colored blackbirds have been increasingly observed to

utilize Himalayan blackberry (*Rubus discolor*), elderberry, poison oak (*Toxicodendron diversilobum*), and grain fields for colony establishment.

The CNDDB provided a record of the tri-colored blackbird within 5 miles of the Plan Area. Tri-colored blackbirds have the potential to occur within dense stands of cattails and/or tule in fresh emergent wetlands within the Plan Area.

Migratory Birds and Raptor Species

Migratory birds and raptors in the orders Falconiformes (hawks, eagles, and falcons) and Strigiforms (owls) are protected in varying degrees under California Fish and Game Code, Section 3503.5 and the Migratory Bird Treaty Act (MBTA). The many of the habitat types occurring within the Plan Area provide suitable nesting and/or foraging habitat for a variety of these species. Direct take of active nests, eggs, or birds is prohibited by CDFG and measures must be taken to minimize disturbance.

SENSITIVE NATURAL COMMUNITIES AND HABITAT TYPES

The CNDDB identifies Sensitive Natural Communities (SNC), which includes those communities that, if eliminated or substantially degraded, would sustain a significant adverse impact as defined under CEQA. Sensitive Natural Communities are important ecologically because their degradation and destruction could threaten populations of dependent plant and wildlife species and significantly reduce the regional distribution and viability of the community. If the number and extent of SNC continue to diminish, the status of rare, threatened, or endangered species could become more precarious, and populations of common species (i.e., non special-status species) could become less viable. Loss of SNC also can eliminate or reduce important ecosystem functions, such as water filtration by wetlands and bank stabilization by riparian woodlands.

The Office of Planning and Research define project effects that substantially diminish habitat for fish, wildlife or plants, or that disrupt or divide the physical arrangement of an established community as significant impacts under CEQA (Public Resources Code §21083 and CEQA Guidelines §15382). This definition applies to certain SNC because of their scarcity and ecological values and because the remaining occurrences are vulnerable to elimination.

A list of SNC identified during the CNDDB 9-quad search and their potential to occur within the Plan Area is presented in Table 4.6-3.

Great Valley Cottonwood Riparian Forest

Riparian forests are associated with alluvial fans in the floodplains and along the banks of streams and drainages throughout California's Central Valley and foothills. Soils in riparian forests are intermittently or seasonally flooded. Riparian habitats are critical for many species, even those that primarily use surrounding oak woodlands and annual grasslands. This habitat-type provides food, water, migration, dispersal corridors, and escape, nesting and thermal cover for a very high density of California's wildlife. The dominant or important tree species in this particular type of riparian forest is Fremont's cottonwood. Other vegetation in the canopy typically includes black willow, California sycamore, and valley oak. Sub-canopy tree species include Arroyo willow, box elder, and Oregon ash. Typical understory plants included wild grape, wild rose, California blackberry, blue elderberry, poison oak, and a variety of willow species. The herbaceous layer consists of a variety of sedges, rushes, and grasses.

Great Valley Mixed Riparian Forest

Riparian forests are associated with alluvial fans in the floodplains and along the banks of streams and drainages throughout California's Central Valley and foothills. Soils in riparian forests are intermittently or seasonally flooded. Riparian habitats are critical for many species, even those that primarily use surrounding oak woodlands

Table 4.6-3 List of Sensitive Natural Communities and their Potential to Occur in the Plan Area		
Sensitive Natural Community	Habitat Description	Potential for Occurrence
Great Valley Cottonwood Riparian Forest	Perennial creeks and rivers in the Central Valley.	Moderate. May occur along Plan Area drainages.
Great Valley Mixed Riparian Forest	Tall, dense, winter-deciduous, broadleafed forest. Tree canopy usually fairly well closed; moderately to densely stocked with several species including *Acer negundo*, *Juglans hindsii*, *Platanus racemosa*, *Populus fremontii*, *Salix* spp.	High. May occur along the drainages within the Plan Area.
Great Valley Valley Oak Riparian Forest	Deep alluvial soils of higher floodplain terraces associated with river systems. Can be found in other upland communities.	High. May occur along Plan Area drainages.
Great Valley Willow Scrub	Pioneer riparian community on depositional areas near the edge of intermittent and perennial creeks and rivers.	High. May occur along Plan Area drainages.
Northern Basalt Flow Vernal Pool	Low-mid elevation, seasonal flooded depressions on impermeable soils.	None. Not present within the Plan Area.
Northern Hardpan Vernal Pool	Seasonally flooded depressions on impermeable soils or rock.	Low. Not likely present due to past conversion of vernal pool habitat to agriculture.
Northern Volcanic Mud Flow Vernal Pool	Seasonally flooded depressions on impermeable soils or rock.	None. Not present within the Plan Area.

and annual grasslands. This habitat-type provides food, water, migration, dispersal corridors, and escape, nesting and thermal cover for a very high density of California's wildlife similar to those found in valley-foothill riparian habitat types. The tree species in this particular type of riparian forest is co-dominated by any combination of Fremont's cottonwood, black willow, California sycamore, and valley oak. Sub-canopy tree species include Arroyo willow, box elder, and Oregon ash. Typical understory plants include wild grape, wild rose, California blackberry, blue elderberry, poison oak, and a variety of willow species. The herbaceous layer consists of a variety of sedges, rushes, and grasses including pacific rush, Santa Barbara sedge, slender rush, Dallisgrass, barnyard grass, and iris-leaved rush.

Great Valley Valley Oak Riparian Forest

Riparian forests are associated with alluvial fans in the floodplains and along the banks of streams and drainages throughout California's Central Valley and foothills. Soils in riparian forests are intermittently or seasonally flooded. Riparian habitats are critical for many species, even those that primarily use surrounding oak woodlands and annual grasslands. This habitat-type provides food, water, migration, dispersal corridors, and escape, nesting and thermal cover for a very high density of California's wildlife. The dominant or important tree species in this particular type of riparian forest is valley oak. Other vegetation in the canopy typically includes black willow, California sycamore, and Fremont's cottonwood. Sub-canopy tree species include Arroyo willow, box elder, and Oregon ash. Typical understory plants include wild grape, wild rose, California blackberry, blue elderberry, poison oak, and a variety of willow species. The herbaceous layer consists of a variety of sedges, rushes, and grasses.

Great Valley Willow Scrub

Willow scrub riparian habitats are associated with alluvial fans in the floodplains and along the banks of streams and drainages throughout California's Central Valley and foothills, usually below 1,000 feet above sea level. Soils in willow scrub habitats are intermittently or seasonally flooded and are typically dominated by sandy and/or cobbly soils. This is a pioneer community, which colonizes the depositional areas of streams and drainages and is characterized by shrubby vegetation. The dominant plant species in this habitat includes various willows with sparse to absent understory vegetation. The willow stands may or may not be dominated by a single species. The understory, if present, typically consists of a variety of sedges, rushes, and grasses including Johnsongrass, Bermuda grass, nutsedge, and slender rush. This habitat-type provides food, water, migration, dispersal corridors, and escape, nesting and thermal cover for a very high density of California's wildlife including ducks, vireos, shorebirds, warblers, sparrows, red-winged blackbird, willow flycatcher, chipmunks, squirrels, western fence lizard, and gopher snake.

4.6.3 Environmental Impacts and Mitigation Measures

Analysis Methodology

The biological resources investigation involved the following:

- literature review;
- a reconnaissance-level field survey; and,
- an evaluation of potentially occurring special-status species, habitats and other sensitive biological resources.

The analysis of the effects of implementing the 2030 General Plan on biological resources was based largely on the information collected for the development of the Biological Issues, *Constraints and Opportunities Analysis* prepared for the General Plan Update, prepared by Gallaway Consulting, Inc., as well as additional information on the distribution of special-status species from the USFWS species lists, CNDDB and CNPS's *Inventory of Rare and Endangered Vascular Plants of California*. The effects of implementation of the 2030 General Plan were compared to environmental baseline conditions (i.e., existing conditions) to determine impacts.

Thresholds of Significance

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on the CEQA Guidelines. The proposed project would result in a potentially significant impact on biological resources if it would:

- substantially affect, either directly or through habitat modification, any candidate, sensitive, or special-status species (including rare, threatened, or endangered species) identified in local or regional plans, policies, or regulations, or by DFG or USFWS;

- result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by DFG or USFWS;

- result in a substantial adverse effect on federally protected waters of the United States, including wetlands, as defined by Section 404 of the CWA;

- interfere substantially with the movement of any resident or migratory fish or wildlife species or with native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- conflict with any local policies or ordinances protecting biological resources;

- conflict with an adopted habitat conservation plan, natural community conservation plan or other approved local, regional, or state habitat conservation plan; or,

- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

Although a Habitat Conservation Plan/Natural Community Conservation Plan process is underway for an area which includes the Plan Area, this conservation plan has not been adopted as of the writing of this EIR. Because the conservation plan is not adopted and is not finalized, there can be no consistency determination between the proposed project and the as-yet unfinished HCP/NCCP.

IMPACT ANALYSIS

IMPACT 4.6-1 **Loss of Special-Status Plants.** *Four special-status plant species, Brazilian watermeal, brown fox sedge, woolly rose-mallow and Sanford's arrowhead have the potential to occur within the ditches, irrigation canals and waterways in the Plan Area, and three special-status plant species, heartscale, lesser saltscale, and subtle orache have the potential to occur in alkaline soils within the Plan Area. Buildout of the General Plan could result in loss or degradation of suitable habitat for these species. Conversion of suitable habitat would result in loss of special-status plants, if they are present. Therefore, this impact is* ***potentially significant.***

Buildout of the General Plan update could result in the direct removal of special-status plant species through development of suitable habitat. Implementation of the General Plan could also result in indirect impacts on special-status plant species including impacts caused by pollutants transported by urban runoff and other means, changes in vegetation as a result of changes in land use and management practices, altered hydrology from the construction of adjacent residential development and roadways, habitat fragmentation, and the introduction of invasive species or noxious weeds from surrounding development. However, the City has anticipated such impacts and crafted policies and implementation strategies to reduce potential impacts.

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.

- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.

- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.

- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.

- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Plan Area.

- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with

state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.

Conclusion

General Plan policies and implementation strategies would reduce potential impacts on special-status plants, but there is no guarantee that the retention of existing areas of natural vegetation would fully mitigate potential impacts to these species. This impact is **potentially significant**.

Mitigation Measure 4.6-1: Require special-status plant surveys and implementation of avoidance measures or compensatory mitigation.

The City shall implement the following measures to mitigate impacts of relevant future projects consistent with the 2030 General Plan:

1. Require all future projects that would remove or degrade potentially suitable habitat for special-status plant species, as a condition of approval, conduct special-status plant surveys according to established protocols. Surveys shall be completed as part of the project application.

2. If special-status plant populations are identified during protocol-level surveys, project design shall incorporate measures to avoid direct and indirect disturbances of special-status plant populations and their habitat.

3. If impacts on special-status plant populations cannot be avoided through project design, the City shall require the project applicant to develop and implement a mitigation and monitoring plan to compensate for the loss of special-status plants. The mitigation and monitoring plan shall be developed in coordination with the City, DFG, and CNPS and shall include criteria for success and corrective measures to be implemented if success criteria are not met. Compensatory mitigation may include transplantation of existing plants, seed collection and inoculation in other suitable habitat areas, and preservation in perpetuity of other existing populations of these species.

4. If the Butte County HCP/NCCP has been adopted prior to project commencement, participation in the plan may provide alternative mitigation options for special-status plant species covered by the plan.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-1 would reduce the potentially significant impacts on special-status plant species to a **less-than-significant** level by requiring proposed future projects to identify and avoid special-status plant populations or provide compensation for the loss of special-status plants through creation of off-site populations, conservation easements, or other appropriate measures.

IMPACT 4.6-2 **Disturbance of Raptor and/or Migratory Bird Nests.** *Trees and other vegetation in and adjacent to the Plan Area provide potential nest sites for raptors and migratory birds. Removal of trees or other vegetation during future development and buildout of the General Plan could destroy or disturb nests, resulting in loss of eggs or young. Therefore, this impact is* ***potentially significant.***

Trees and other vegetation in an adjacent to the Plan Area provide potential nest sites for raptors and migratory birds. Removal of trees or other vegetation during future development and buildout of the 2030 General Plan could disturb or destroy nests, potentially resulting in the loss of eggs or young.

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Design Policy 3.5:** The City will provide and/or preserve existing street trees and constructed shade structures in parks, civic plazas, and other outdoor publicly-owned gathering areas to provide shade from the afternoon summer sun.
- **Design Policy 7.4:** To the extent feasible, existing mature trees and shrubs should be preserved and incorporated into the landscaping scheme.
- **Design Policy 7.5:** The City encourages the planting of California native trees and plants that are appropriate for the Gridley climate. The planting of non-native plants and trees that could become invasive is strongly discouraged.
- **Design Policy 9.1:** Existing trees, including orchard trees, should be preserved along street rights of way.
- **Design Policy 9.2:** In the Planned Growth Area, tree preservation along future street rights-of-way will be combined with planting of new street trees to provide both a short- and long-term tree canopy.
- **Design Implementation Strategy 9.2:** Following adoption of the 2030 General Plan, the City will adopt a tree preservation ordinance. This ordinance can provide regulatory guidance on what types of trees can be removed and what permits are required in order to remove different types of trees. The ordinance will provide guidance on tree replacement requirements. Tree replacement requirements will be proportional to the number and/or size of trees removed. The ordinance can provide guidance on several General Plan policy topics, including but not limited to aesthetic benefits, biological benefits, and cultural/historic significance of trees.
- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.
- **Conservation Policy 5.3:** The City will have former agricultural drainage ditches improved or restored in a way that avoids or improves habitat value and maintains or improves wetland function.
- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.
- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.
- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.
- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.
- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with

state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.

- **Open Space Policy 1.5:** Within open space corridors, mature trees, including old orchard trees shall be preserved, wherever feasible, as new trees are planted to ensure an ongoing tree canopy.

- **Open Space Policy 1.6:** Existing vegetation in open space corridors should be preserved, where it could provide ongoing habitat benefits or stormwater filtering. Noxious weeds, invasive species, and unhealthy plants can be removed, as well as vegetation posing an issue for public health or safety.

- **Open Space Policy 2.3:** Through a combination of tree preservation and new landscaping, open space corridors along Highway 99 shall provide visual screening for new neighborhoods.

Conclusion

Although removal of mature trees would be avoided to the extent possible, the potential to remove some trees cannot be entirely dismissed. Removal of trees greater than 6 inches diameter at breast height (dbh) could result in loss or disturbance of nests for raptors and migratory birds. Indirect disturbance during construction and removal of other vegetation, such as shrubs, could also result in the loss of migratory bird nests. This impact is **potentially significant**.

Mitigation Measure 4.6-2: Require raptor and Migratory bird nest surveys and avoidance measures.

The City shall implement the following measures to mitigate impacts of relevant future projects consistent with the 2030 General Plan on raptor and migratory bird nests:

- A qualified biologist shall conduct surveys for raptor and migratory bird nests before pruning or removal of trees, ground-disturbing activities within 500 feet of potential nest sites, or construction activities to locate any active nests on or immediately adjacent to proposed project sites. The surveys shall be designed and of sufficient intensity to document raptor nesting activity within 500 feet of planned work activities. Preconstruction surveys shall be conducted 2 to 7 days before vegetation removal or ground disturbance and conducted at 21-day intervals unless construction activities have been initiated in an area. For projects that begin construction between February 1 and August 31 (nesting season), pre-construction surveys shall be conducted during the nesting season.

- Locations of active nests shall be described and protective measures implemented. Protective measures shall include establishment of avoidance areas around each nest site. Avoidance areas shall be clearly delineated (i.e., by orange construction fencing) and shall be a minimum of 300 feet from the dripline (outermost edge of foliage) of the nest tree or nest or nest for raptors and 100 feet for migratory birds. Buffer distances and dates may be modified with approval from DFG.

- The active nest sites within an exclusion zone shall be monitored on a weekly basis throughout the nesting season to identify any signs of disturbance. These protection measures shall remain in effect until the young have left the nest and are foraging independently or the nest no longer results of the preconstruction surveys. The report shall be submitted to DFG by November 30 of each year.

- If the Butte County HCP/NCCP has been adopted prior to project commencement, participation in the HCP may provide alternative mitigation options for raptor and migratory bird species covered by the plan. Project proponents may chose participation in the plan as an alternative to other mitigation measures, if available.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-2 would reduce the potentially significant impact on raptors and migratory birds to a **less-than-significant** level by requiring project proponents to identify and avoid active raptor and migratory bird nests.

IMPACT 4.6-3 **Loss of Swainson's Hawk Foraging Habitat and/or Disturbance of Nests.** *Based on known nest sites occurring in the vicinity of the Plan Area and suitable nesting and foraging habitat within the Plan Area, Swainson's hawks have the potential to occur. Removal of mature trees and conversion of irrigated grain crops and pasture would result in nest and foraging habitat impacts respectively. This impact is* ***potentially significant****.*

Swainson's hawks, which are state listed as threatened, may nest within or utilize the Plan Area for foraging requirements. Fallow fields, low-growing row or field crops, dry-land, irrigated pasture, rice land (when not flooded), cereal grain crops (including corn after harvest) are considered suitable foraging when there is an active nest within 10 miles. Due to the varied agricultural practices both in terms of crop rotation and temporal variability, potential impacts will need to be assessed on a case by case basis.

Conversion of land identified as suitable foraging habitat to non-suitable foraging habitat would be considered a potentially significant impact. Mature trees in the Plan Area, especially those in the northern Plan Area, may contain nest structures. Indirect disturbance or removal of a Swainson's hawk nest structure would have a significant effect on the species.

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Conservation Policy 1.1:** The City will encourage ongoing agricultural uses on properties within the Sphere of Influence until such properties are annexed to the City.

- **Conservation Policy 1.2:** The City will discourage detachment from irrigation and agricultural drainage districts until such time as nonagricultural use is imminent.

- **Conservation Policy 1.3:** New development within the Planned Growth Area shall mitigate for the conversion of agricultural land to urban use. Mitigation shall include in-lieu fees to acquire agricultural conservation easements or direct placement of agricultural conservation easements on a similar quality and amount of land.

- **Conservation Implementation Strategy 1.2:** The City will communicate with the County, nearby cities, the Department of Conservation, and other interested agencies to establish a regional agricultural land mitigation fee and conservation program. Such a program should support farmers and agriculture property owners alike in identifying areas of the County with rich soils and where long-term agricultural operations will be preserved. For development requiring annexation, the applicant should either directly preserve, through a conservation easement, or pay on a fair-share basis into a program to preserve permanently a similar amount and quality of farmland. The mitigation program should consider lower preservation ratios for agricultural land preservation within Butte County and higher ratios for preservation outside Butte County, in order to provide substantial incentives for local agricultural preservation. In addition, some portion of the impact fees

should support agricultural extension, research, value-added programs, direct marketing of local agricultural products, and other efforts that would support local agricultural productivity. Agricultural mitigation fees could be applied toward research and development of agriculture-related renewable and sustainable energy sources. The City will tie its agricultural land mitigation fee and conservation program to the regional approach, once developed. In-lieu fees for use in this agricultural mitigation program should be based on a City-approved Nexus Study. The City will consider formalizing the agricultural mitigation program in an ordinance, if appropriate.

- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.

- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.

- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.

- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.

- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.

- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.

Conclusion

The proposed 2030 General Plan policies and programs would reduce the overall impact of loss of foraging or nesting habitat on Swainson's hawks however, the retention of existing areas of natural vegetation would not fully mitigate the loss of foraging habitat because agricultural crops that provide suitable foraging habitat would be lost and there is no policy for compensatory mitigation. This impact is **potentially significant**.

Mitigation Measure 4.6-3: Protect Swainson's hawk nests and mitigate foraging habitat loss.

The City shall ensure implementation of the following measures to mitigate potential impacts of relevant future projects consistent with the 2030 General Plan:

1. Nesting Habitat: If construction occurs during the breeding season (March–September 15) within a 0.5-mile radius of suitable nesting habitat, project applicants shall hire a qualified biologist to conduct DFG-recommended protocol-level surveys prior to construction consistent with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (DFG 2000b), or an alternative approach identified through consultation with DFG. The area to be surveyed shall include suitable nesting habitat within a 0.5-mile radius area including and surrounding the project site. If active nests are

found, mitigation measures consistent with the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (DFG 1994) shall be incorporated in the following manner:

No intensive new disturbances (e.g., heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project-related activities that may cause nest abandonment or forced fledging, shall be initiated within 0.25 mile (buffer zone) of an active nest between March 1 and September 15. Nest trees shall not be removed unless there is no feasible way of avoiding it. If a nest tree must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from DFG with the tree removal period specified in the Management Authorization, generally between October 1 and February 1. If construction or other project-related activities that may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site (funded by the Project proponent) by a qualified biologist (to determine if the nest is abandoned) will be required. If the nest is abandoned and the nestlings are still alive, the project applicant shall fund the recovery and hacking (controlled release of captive reared young).

Routine disturbances, such as agricultural activities, commuter traffic, and routine maintenance activities within 0.25 mile of an active nest is not prohibited.

2. Foraging Habitat: Project applicants shall be responsible for mitigating the loss of any Swainson's hawk foraging habitat. The extent of any necessary mitigation shall be determined by the City in consultation with DFG.

   If an active nest is identified within 10 miles of the project site by DFG during consultation, the City shall mitigate potential impacts to Swainson's hawk foraging habitat in a manner that is consistent with the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley (DFG, 1999)*. Mitigation may include the provision of habitat management lands, habitat enhancement, or payment to an in-lieu fund, if available, as determined appropriate by DFG.

   Project sites which have less than 5 acres of foraging habitat and are surrounded by existing urban development, unless the project site is within ½ mile of an active nest tree, are not subject to foraging habitat mitigation.

3. If the Butte County HCP/NCCP has been finalized and approved before commencement of the mitigation measures listed above, impacts on Swainson's hawk nesting and foraging habitat may be mitigated through participation in the HCP/NCCP, if the adopted plan provides such mitigation.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-3 would reduce to a **less-than-significant** level impacts on Swainson's hawks by requiring preconstruction surveys to identify active Swainson's hawk nests and requiring measures to avoid disturbance of active nests, avoid removal of nest trees, or conditions to offset loss of nest trees and loss of abandoned nestlings. Mitigation would also require compensation for loss of Swainson's hawk foraging habitat through provision of habitat management lands, habitat enhancement, or payment to an in-lieu fund.

IMPACT 4.6-4 **Loss of Giant Garter Snake.** *Giant garter snake is a state and federally listed threatened species. Giant garter snake has the potential to exist in the ditches, irrigation canals and waterways in the Plan Area. Buildout of the General Plan could result direct mortality of giant garter snakes, if present, and loss and degradation of potential giant garter snake habitat. Therefore, this impact is* ***potentially significant****.*

Giant garter snake has the potential to exist in the ditches, irrigation canals and waterways that function as aquatic habitat within the Plan Area. The Plan Area contains minimal upland habitat, which could support giant garter snake, due to agricultural activities such as disking and planting of crops. Regardless, buildout of the General Plan

could result in temporary and/or permanent loss of aquatic garter snake habitat and subsequently, the giant garter snake. In addition, direct loss of giant garter snake could occur during construction activities associated with future buildout.

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Conservation Policy 3.3:** The City will require that waterways and floodplains are maintained in their natural condition, wherever possible.
- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.
- **Conservation Policy 5.2:** New development shall preserve open space corridors alongside agricultural drainage ditches.
- **Conservation Policy 5.3:** The City will have former agricultural drainage ditches improved or restored in a way that avoids or improves habitat value and maintains or improves wetland function.
- **Conservation Policy 5.4:** The City will condition new development, as necessary, to reduce erosion, siltation, and mitigate impacts to wetland, riverine, and riparian habitats.
- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.
- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.
- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.
- **Conservation Policy 5.8:** The City will explore opportunities to use mitigation fees from regional habitat preservation programs to restore agricultural ditches.
- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.
- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.

- **Conservation Implementation Strategy 5.2:** The City will communicate with BCAG and other participants in the HCP/NCCP process encourage use of regional mitigation fees for restoration of agricultural ditches in the Gridley area.

- **Conservation Implementation Strategy 5.3:** The City will update or adopt a new drainage master plan following adoption of the 2030 General Plan to implement drainage policies within the Planned Growth Area. In coordination with this effort, the City of Gridley will engage with the California Department of Fish and Game, the Regional Water Quality Control Board, the Army Corps of Engineers, and the US Fish and Wildlife Service to ensure that the appropriate biological and wetland related objectives are incorporated into the City's natural drainage approach. The City will consult with regional, state, and federal resource agencies to ensure ease of permitting for the City's natural drainage and low impact development approach for the Planned Growth Area. The City will consult with relevant agencies to develop a streamlined permit process that ensures the feasibility of the City's stormwater best management practices. See also Conservation Implementation Strategy 3.1.

- **Open Space Policy 1.2:** Open space corridors in the Planned Growth Area shall be designed to incorporate agricultural drainage ditches, which may need to be broadened into swales with gentler slope banks, in order to prevent erosion.

- **Open Space Implementation Strategy 1.1:** Following the adoption of the 2030 General Plan, the City will update the existing or prepare a new drainage master plan to address the Planned Growth Area. The drainage master plan will be designed to move away from individual site drainage requirements to an areawide approach for the Planned Growth Area, consistent with the General Plan. Although the focus for the natural drainage system is on the Planned Growth Area, the City will look for opportunities to expand these concepts into the existing developed City, also.

  The drainage master plan will be designed to handle specified storm events and deliver pre-development flows to the reclamation districts under post-development conditions. Construction of the Planned Growth Area stormwater management system will be phased in a way that provides adequate drainage as the area builds out. Temporary detention facilities may be necessary.

  The drainage master plan will emphasize the use of drainage swales to convey runoff although piping may be used in combination with swales, as appropriate, in the Planned Growth Area. The drainage master plan will be coordinated with the location of future parks so that excess stormwater can be detained and infiltrated within open playfield areas. Linear open space corridors themselves may also be designed to detain and infiltrate stormwater runoff.

  Preservation and restoration of agricultural drainage ditches should consider habitat value, sensitive species, and water quality objectives (see the Conservation Element). The City will explore whether mitigation fees through regional habitat conservation planning or grants from other government agencies could be made available to fund restoration elements of the City's open space strategy.

  The drainage master plan will coordinated with a Nexus Fee Study to allow fair-share contribution to drainage improvements. The Nexus Fee Study should consider efficiencies created through co-location of linear parkland, trails, drainage, and buffering. Drainage fees should be structured to provide incentives for use of low impact development stormwater management best practices (see also the Conservation Element).

  The City will revise the Subdivision Ordinance, as necessary, to implement the drainage approach in the 2030 General Plan (and as reflected in the master drainage plan). Fenced-off, single-use detention basins will be prohibited.

Conclusion

The proposed policies and programs of the 2030 General Plan would reduce the overall impact to giant garter snake habitat, but there is no guarantee that the retention of existing areas of natural vegetation would fully mitigate the impacts to this species. This impact is **potentially significant**.

Mitigation Measure 4.6-4: Protect giant garter snake.

The City shall implement the following measures to avoid, minimize and mitigate impacts of relevant future projects on giant garter snake consistent with the 2030 General Plan:

1. The City shall require all future projects that would result in construction activities or ground disturbance within 200 feet of rice fields, emergent marsh habitat, and irrigation ditches and canals, as a condition of approval, to conduct a biological resources inventory and determine if potential GGS habitat is present.

2. If GGS has a potential to be present per the biological resources inventory and there are no disturbances proposed within 200 feet of aquatic GGS habitat; no further action is necessary.

3. If suitable GGS habitat is present per the biological resources inventory and there are disturbances proposed within 200 feet of aquatic GGS habitat, but no direct impacts to aquatic habitat; the City shall require the project proponent to request and obtain technical assistance from USFWS regarding GGS minimization and avoidance measures.

4. If suitable GGS habitat is present per the biological resources inventory and there are disturbances proposed to aquatic GGS habitat, the City shall require the project proponent to determine if there is a federal nexus by which the USFWS would consult with another federal agency (USACE, FWHA, etc.).

    a. If there is no federal nexus and GGS will be impacted through habitat modifications or direct impacts, the City shall require the project proponent to request technical assistance and develop, as determined by USFWS, a habitat conservation plan (HCP) to minimize project-related impacts to GGS and to provide information necessary for seeking an incidental take permit under Section 10(a) of the ESA. Alternatively, the project proponent may participate in the Butte County HCP/NCCP, if available.

    b. If there is a federal nexus and GGS habitat will be impacted through habitat modifications or direct impacts, the City shall require the project proponent to develop a Biological Assessment (BA) and submit the document to the appropriate federal agency to initiate Section 7 consultation. Avoidance, minimization and mitigation ratios will be described in the BA consistent with the *Programmatic Consultation with the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California (USFWS, 1997)* and approved through the issuance of a Biological Opinion (BO).

5. If the Butte County HCP/NCCP has been finalized and approved before commencement of the mitigation measures listed above, impacts on GGS may be mitigated through participation in the HCP/NCCP, if the adopted plan provides such mitigation.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-4 would reduce the potentially significant impact on giant garter snake to a **less-than-significant** level by requiring consultation with USFWS to obtain incidental take permits and develop avoidance and minimization measures to avoid take of giant garter snake. During consultation, an appropriate mitigation plan would be developed and approved by USFWS. Project applicants would be required to comply with all conditions set forth by USFWS in the BO or through development of a HCP.

IMPACT 4.6-5 **Loss and Degradation of Habitat for Valley Elderberry Longhorn Beetle.** *Valley elderberry longhorn beetle (VELB) is a federally listed threatened species. The beetle is dependent solely on blue elderberry and red elderberry shrubs to complete its lifecycle. Elderberry shrubs have the potential to exist adjacent to the ditches, irrigation canals and waterways in the Plan Area. Buildout of the General Plan could result in loss or disturbance of VELB habitat, if present. Therefore, this impact is considered* ***potentially significant****.*

Blue elderberry and red elderberry shrubs are the sole host plants for the VELB, and elderberry shrubs have the potential to exist adjacent to and within the ditches, irrigation canals and waterways, as well as upland areas in the Plan Area. The Plan Area contains minimal upland habitat, which could support the elderberry plants due to agricultural activities such as disking and planting of crops. Regardless, buildout of the General Plan could have significant indirect and direct impacts to elderberry plants and subsequently, VELB.

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.
- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.
- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.
- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.
- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.
- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.

Conclusion

The proposed policies and programs of the 2030 General Plan would reduce the overall impact to valley elderberry longhorn beetle, but there is no guarantee that the retention of existing areas of natural vegetation would fully mitigate the impacts on this species. This impact is **potentially significant**.

Mitigation Measure 4.6-5: Protect valley elderberry longhorn beetle habitat.

The following mitigation measures shall be implemented to avoid, minimize, and mitigate impacts to VELB:

1. The City shall require all future projects that would result in vegetation removal or ground-disturbing activities within 100 feet of vegetated lands, as a condition of approval, conduct a biological resources inventory to determine if elderberry shrubs are present.

2. If elderberry shrubs are present per the biological resources inventory and there are no disturbances proposed within 100 feet of an elderberry shrub; consultation with USFWS will not be required. However, avoidance and minimization measures such as the installation of orange barrier fencing shall be implemented to ensure that a 100-foot buffer is maintained between construction areas and elderberry shrubs.

3. If elderberry shrubs are present per the biological resources inventory and there are disturbances proposed within 100 feet of an elderberry shrub; determine if there is a federal nexus by which the USFWS would consult with another federal agency (USACE, FWHA, etc.):

    a. If there is no federal nexus and construction would occur within 100 feet of elderberry shrubs, but not directly impact shrubs, the City shall require the project proponent to request and obtain technical assistance from USFWS regarding VELB minimization and avoidance measures.

    b. If there is no federal nexus and elderberry shrubs would be directly affected, the City shall require the project proponent to request technical assistance and develop, as determined by USFWS, a HCP to minimize project-related impacts to VELB and to provide information necessary for seeking an incidental take permit under Section 10(a) of the ESA.

    c. If there is a federal nexus and elderberry shrubs will be either directly or indirectly affected by development related activities, the City shall require the project proponent to develop a BA and submit the document to the appropriate federal agency to initiate Section 7 consultation. Avoidance, minimization and mitigation ratios will be described in the BA and approved through the issuance of a BO consistent with the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999).

4. If the Butte County HCP/NCCP has been finalized and approved before commencement of the mitigation measures listed above, impacts on VELB may be mitigated through participation in the HCP/NCCP, if the adopted plan provides such mitigation.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-5 would reduce the potentially significant impact on VELB to a **less-than-significant** level by requiring applicants for future projects to identify and avoid VELB habitat, or consult with USFWS to obtain an incidental take permit. During consultation, an appropriate mitigation plan would be developed and approved by USFWS. Project applicants would be required to comply with all terms and conditions outlined in the BO or HCP.

IMPACT 4.6-6 **Loss and Degradation of Sensitive Natural Communities.** *Construction of infrastructure, roadways or developments as part of the buildout of the General Plan could result in modifications to drainages and associated vegetation identified by DFG as Sensitive Natural Communities. The waters associated these communities may also qualify as jurisdictional waters of the United States or waters of the state. Buildout of the General Plan would result in alteration or disturbance of streambeds and/or removal of associated vegetation. Therefore, this is a* ***potentially significant impact****.*

Construction of infrastructure, roadways, or developments included as a part of buildout of the General Plan could result in modifications to drainages and associated vegetation identified by DFG as Sensitive Natural Communities, including Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest and Great Valley Willow Scrub. The waters associated these communities may also qualify as jurisdictional waters of the United States or waters of the state (please see Impact 4.6-7 for additional discussion of jurisdictional waters). Associated vegetation communities include riparian vegetation and fresh emergent wetlands. These habitats are considered sensitive by DFG. Many of the drainages within the Plan Area are further regulated by DFG under the Streambed Alteration Program per §1602 of the California Fish and Game Code. Section 1602 mandates the notification of DFG of "*any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow.*"

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.
- **Conservation Policy 5.2:** New development shall preserve open space corridors alongside agricultural drainage ditches.
- **Conservation Policy 5.3:** The City will have former agricultural drainage ditches improved or restored in a way that avoids or improves habitat value and maintains or improves wetland function.
- **Conservation Policy 5.4:** The City will condition new development, as necessary, to reduce erosion, siltation, and mitigate impacts to wetland, riverine, and riparian habitats.
- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.
- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.
- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.
- **Conservation Policy 5.8:** The City will explore opportunities to use mitigation fees from regional habitat preservation programs to restore agricultural ditches.
- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.

- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.

- **Conservation Implementation Strategy 5.2:** The City will communicate with BCAG and other participants in the HCP/NCCP process encourage use of regional mitigation fees for restoration of agricultural ditches in the Gridley area.

- **Conservation Implementation Strategy 5.3:** The City will update or adopt a new drainage master plan following adoption of the 2030 General Plan to implement drainage policies within the Planned Growth Area. In coordination with this effort, the City of Gridley will engage with the California Department of Fish and Game, the Regional Water Quality Control Board, the Army Corps of Engineers, and the US Fish and Wildlife Service to ensure that the appropriate biological and wetland related objectives are incorporated into the City's natural drainage approach. The City will coordinate with regional, state, and federal resource agencies to ensure ease of permitting for the City's natural drainage and low impact development approach for the Planned Growth Area. The City will consult with relevant agencies to develop a streamlined permit process that ensures the feasibility of the City's stormwater best management practices. See also Conservation Implementation Strategy 3.1.

- **Open Space Policy 1.2:** Open space corridors in the Planned Growth Area shall be designed to incorporate agricultural drainage ditches, which may need to be broadened into swales with gentler slope banks, in order to prevent erosion.

- **Open Space Implementation Strategy 1.1:** Following the adoption of the 2030 General Plan, the City will update the existing or prepare a new drainage master plan to address the Planned Growth Area. The drainage master plan will be designed to move away from individual site drainage requirements to an areawide approach for the Planned Growth Area, consistent with the General Plan. Although the focus for the natural drainage system is on the Planned Growth Area, the City will look for opportunities to expand these concepts into the existing developed City, also.

  The drainage master plan will be designed to handle specified storm events and deliver pre-development flows to the reclamation districts under post-development conditions. Construction of the Planned Growth Area stormwater management system will be phased in a way that provides adequate drainage as the area builds out. Temporary detention facilities may be necessary.

  The drainage master plan will emphasize the use of drainage swales to convey runoff although piping may be used in combination with swales, as appropriate, in the Planned Growth Area. The drainage master plan will be coordinated with the location of future parks so that excess stormwater can be detained and infiltrated within open playfield areas. Linear open space corridors themselves may also be designed to detain and infiltrate stormwater runoff.

  Preservation and restoration of agricultural drainage ditches should consider habitat value, sensitive species, and water quality objectives (see the Conservation Element). The City will explore whether mitigation fees through regional habitat conservation planning or grants from other government agencies could be made available to fund restoration elements of the City's open space strategy.

The drainage master plan will coordinated with a Nexus Fee Study to allow fair-share contribution to drainage improvements. The Nexus Fee Study should consider efficiencies created through co-location of linear parkland, trails, drainage, and buffering. Drainage fees should be structured to provide incentives for use of low impact development stormwater management best practices (see also the Conservation Element).

The City will revise the Subdivision Ordinance, as necessary, to implement the drainage approach in the 2030 General Plan (and as reflected in the master drainage plan). Fenced-off, single-use detention basins will be prohibited.

Conclusion

Although the policies and programs of the 2030 General Plan would reduce and control alterations and disturbance of streambeds, buildout of the General Plan would still result in alteration or disturbance of streambeds and/or removal of associated vegetation. Therefore, this would be a **significant** impact.

Mitigation Measure 4.6-6: Require future project applicants to secure and implement a Streambed Alteration Agreement.

The following mitigation measures shall be implemented to avoid, minimize, and mitigate impacts on streambeds and associated Sensitive Natural Communities regulated under Section 1602:

1. The City shall require all future projects on sites supporting aquatic resources or natural habitats (i.e., not cultivated or developed), as a condition of project approval, to conduct a biological resources inventory to identify and map all sensitive natural communities on the project site. Such inventory shall be completed as part of a complete application for a project.

2. If it is determined that riparian and channel habitats would be affected as part of a project's development, the project applicant shall be required to obtain a Section 1602 streambed alteration agreement from DFG. As a condition of issuance of the streambed alteration agreement, the project applicant shall prepare a habitat mitigation and monitoring plan. The mitigation and monitoring plan shall include mitigation of impacts on riparian and channel habitats to the satisfaction of DFG, subject to limitations on its authority set forth in Fish and Game Code Section 1600 et seq. and the City.

3. The City shall develop minimum standards that address management and restoration requirements based on subdivision size, affected communities, presence of other valuable habitats and special-status species.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-6 would reduce the potentially significant impact on sensitive natural communities to a **less-than-significant** level because a mitigation and monitoring plan ensuring adequate compensation for the loss of riparian habitat would have to be developed and implemented as a condition of the streambed alteration agreement.

IMPACT 4.6-7 **Loss and Degradation of Federally Protected Wetlands and Other Waters of the United States and Waters of the State.** *Construction of infrastructure, roadways or developments as part of General Plan buildout could result in adverse effects on jurisdictional waters of the United States, including wetlands, or waters of the state. Therefore, this impact is* ***potentially significant****.*

Delineation of jurisdictional waters of the United States has not been conducted in the Plan Area. However, drainage channels and wetlands are known to occur, based on the reconnaissance surveys and aerial photograph interpretation. It is likely that at least some acreage of these habitats would be lost or degraded during development of the land uses specified in the General Plan. It is also likely that these habitats would qualify either

as jurisdictional waters of the United States under Section 404 of the CWA or waters of the state under the Porter Cologne Water Quality Control Act. Potential waters of the United States and waters of the state that could be affected by implementation of the General Plan include riverine habitats and fresh emergent wetlands.

Relevant Policies and Programs of the 2030 General Plan

Implementation of the following General Plan policies and implementation strategies would reduce potential impacts:

- **Conservation Policy 5.1:** New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.
- **Conservation Policy 5.2:** New development shall preserve open space corridors alongside agricultural drainage ditches.
- **Conservation Policy 5.3:** The City will have former agricultural drainage ditches improved or restored in a way that avoids or improves habitat value and maintains or improves wetland function.
- **Conservation Policy 5.4:** The City will condition new development, as necessary, to reduce erosion, siltation, and mitigate impacts to wetland, riverine, and riparian habitats.
- **Conservation Policy 5.5:** New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.
- **Conservation Policy 5.6:** The City will require compliance with state and federal laws concerning special status species.
- **Conservation Policy 5.7:** The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.
- **Conservation Policy 5.8:** The City will explore opportunities to use mitigation fees from regional habitat preservation programs to restore agricultural ditches.
- **Conservation Policy 5.9:** The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.
- **Conservation Implementation Strategy 5.1:** The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.
- **Conservation Implementation Strategy 5.2:** The City will communicate with BCAG and other participants in the HCP/NCCP process encourage use of regional mitigation fees for restoration of agricultural ditches in the Gridley area.

- **Conservation Implementation Strategy 5.3:** The City will update or adopt a new drainage master plan following adoption of the 2030 General Plan to implement drainage policies within the Planned Growth Area. In coordination with this effort, the City of Gridley will engage with the California Department of Fish and Game, the Regional Water Quality Control Board, the Army Corps of Engineers, and the US Fish and Wildlife Service to ensure that the appropriate biological and wetland related objectives are incorporated into the City's natural drainage approach. The City will coordinate with regional, state, and federal resource agencies to ensure ease of permitting for the City's natural drainage and low impact development approach for the Planned Growth Area. The City will consult with relevant agencies to develop a streamlined permit process that ensures the feasibility of the City's stormwater best management practices. See also Conservation Implementation Strategy 3.1.

- **Open Space Policy 1.2:** Open space corridors in the Planned Growth Area shall be designed to incorporate agricultural drainage ditches, which may need to be broadened into swales with gentler slope banks, in order to prevent erosion.

- **Open Space Implementation Strategy 1.1:** Following the adoption of the 2030 General Plan, the City will update the existing or prepare a new drainage master plan to address the Planned Growth Area. The drainage master plan will be designed to move away from individual site drainage requirements to an areawide approach for the Planned Growth Area, consistent with the General Plan. Although the focus for the natural drainage system is on the Planned Growth Area, the City will look for opportunities to expand these concepts into the existing developed City, also.

  The drainage master plan will be designed to handle specified storm events and deliver pre-development flows to the reclamation districts under post-development conditions. Construction of the Planned Growth Area stormwater management system will be phased in a way that provides adequate drainage as the area builds out. Temporary detention facilities may be necessary.

  The drainage master plan will emphasize the use of drainage swales to convey runoff although piping may be used in combination with swales, as appropriate, in the Planned Growth Area. The drainage master plan will be coordinated with the location of future parks so that excess stormwater can be detained and infiltrated within open playfield areas. Linear open space corridors themselves may also be designed to detain and infiltrate stormwater runoff.

  Preservation and restoration of agricultural drainage ditches should consider habitat value, sensitive species, and water quality objectives (see the Conservation Element). The City will explore whether mitigation fees through regional habitat conservation planning or grants from other government agencies could be made available to fund restoration elements of the City's open space strategy.

  The drainage master plan will be coordinated with a Nexus Fee Study to allow fair-share contribution to drainage improvements. The Nexus Fee Study should consider efficiencies created through co-location of linear parkland, trails, drainage, and buffering. Drainage fees should be structured to provide incentives for use of low impact development stormwater management best practices (see also the Conservation Element).

  The City will revise the Subdivision Ordinance, as necessary, to implement the drainage approach in the 2030 General Plan (and as reflected in the master drainage plan). Fenced-off, single-use detention basins will be prohibited.

Conclusion

Despite policies and implementation strategies designed to reduce potential impacts, this impact is considered **potentially significant**.

Mitigation Measure 4.6-7: Require project applicants to delineate potential jurisdictional waters of the United States and waters of the state and secure appropriate permits from USACE or RWQCB.

1. The City shall require all future projects that would result in ground-disturbing activities within 250 feet of aquatic features, as a condition of project approval, to conduct a delineation of waters of the United States according to methods established in the USACE wetlands delineation manual (Environmental Laboratories 1987) and Arid West Supplement (Environmental Laboratories 2006). The delineation shall map and quantify the acreage of all aquatic habitats on the project site and shall be submitted to USACE for verification. Such delineation shall be completed as part of an application for a project.

2. The City shall determine, based on the verified wetland delineation and the project site plan, the acreage of impacts on waters of the United States and waters of the state that would result from project implementation. Jurisdictional waters of the United States, including wetlands, also qualify as waters of the state, and waters determined to be non-jurisdictional by USACE may also qualify as waters of the state.

3. All project applicants shall be required to provide proof to the City Planning Department that they have obtained USACE Section 404 permit and RWQCB Section 401 certification or met waste discharge requirements before approval of grading and improvement plans and before any groundbreaking activity within 250 feet of a water of the United States or water of the state.

4. The City shall require project applicants to replace, restore, or enhance on a "no net loss" basis (in accordance with USACE and the Central Valley RWQCB) the acreage of all wetlands and other waters of the United States and waters of the state that would be removed, lost, and/or degraded with implementation of project plans. Wetland habitat shall be restored, enhanced, and/or replaced at an acreage and location and by methods agreeable to USACE, the Central Valley RWQCB, and the City, as appropriate depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes or the waste discharge requirements.

Significance after Mitigation

Implementation of Mitigation Measure 4.6-7 would reduce the potentially significant impact on waters of the United States and waters of the state to a **less-than-significant** level because it would require compensation ensuring no net loss of aquatic habitat acreage and functions consistent with policies of USACE and the Central Valley RWQCB.

4.7 GEOLOGY, SOILS, MINERAL RESOURCES, AND PALEONTOLOGICAL RESOURCES

This section contains an analysis of the impacts the 2030 General Plan geology, soils, mineral resources, and paleontological resources in the City of Gridley. The section provides a description of existing soil, geologic and seismic conditions, as well as a brief analysis of regulations and plans pertinent to the implementation of the 2030 General Plan.

4.7.1 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

The U. S. Department of Agriculture Natural Resources Conservation Service (NRCS) produces soil surveys that assist planners in determining which land uses are suitable for specific soil types and locations.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Geological Survey

The California Geological Survey (CGS) provides regulatory information pertaining to soils, geology, mineral resources, and geologic hazards.

CGS maintains and provides information about California's nonfuel mineral resources. California ranks second in the United States in nonfuel mineral production. In 2007, more than 30 nonfuel commodities were produced from 660 California mines (CGS 2008a). CGS also offers information about handling hazardous minerals and Surface Mining and Reclamation Act (SMARA) mineral land classifications. Information about CGS's role in the handling of hazardous minerals is provided in Section 4.13, Hazards and Hazardous Materials. Information about SMARA mineral land classifications is provided directly below.

Surface Mining and Reclamation Act of 1975

SMARA requires all jurisdictions to incorporate mapped mineral resources designations approved by the California Mining and Geology Board within their general plans. SMARA was enacted to limit new development in areas with significant mineral deposits. The California Department of Conservation's Office of Mine Reclamation and the California Mining and Geology Board are jointly charged with ensuring proper administration of the act's requirements. The California Mining and Geology Board promulgates regulations to clarify and interpret the act's provisions and also serves as a policy and appeals board. The Office of Mine Reclamation provides an ongoing technical assistance program for lead agencies and operators, maintains a database of mine locations and operational information statewide, and is responsible for compliance-related matters (OMR 2008).

Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard (CGS 2008e). The Alquist-Priolo Earthquake Fault Zoning Act only pertains to geologic hazards associated with surface fault rupture. This law does not pertain to any other geologic hazards.

The purpose of the act was to prevent construction of buildings used for human occupancy on the surface trace of active faults. As part of the law, the State Geologist must establish regulatory zones, called Earthquake Fault Zones, around surface traces of active faults. Earthquake Fault Zones vary in width, but average approximately one-quarter mile wide. Once the State Geologist establishes Earthquake Fault Zones, appropriate maps are issued and distributed to all cities, counties, and state agencies that might be affected by Earthquake Fault Zones. These maps assist local agencies in planning and controlling new or renewed construction.

In accordance with the Alquist-Priolo Earthquake Fault Zoning Act, before permitting a proposed project, local agencies must require a geologic investigation that demonstrates that structures for human occupancy will not be constructed across active faults. If an active fault is found during the geologic investigation, all structures designated for human occupancy must be set back from the fault.

California Seismic Hazards Mapping Act of 1990

The Seismic Hazards Mapping Act of 1990 directs CGS to identify and map areas prone to earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the act is to reduce threats to public safety and to minimize loss of life and property by identifying and mitigating these seismic hazards. The Seismic Hazards Mapping Act was passed by the California Legislature after the 1989 Loma Prieta earthquake.

Seismic Hazard Mapping Program geologists compile information about the locations of areas prone to liquefaction and earthquake-induced landslides. These areas are designated Zones of Required Investigation. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be performed to identify seismic hazards and to formulate mitigation measures before permitting of developments designed for human occupancy within the Zones of Required Investigation.

Site investigations determine whether structural design or modification of a project site is necessary to ensure safer development. A copy of each approved geotechnical report, including the mitigation measures, is required to be submitted to the program within 30 days of approval of the report. A certified engineering geologist or registered civil engineer with competence in the field of seismic hazard evaluation is required to prepare, review, and approve each geotechnical report. The Seismic Hazards Mapping Act requires peer review by either local agency staff or a retained consultant. It must be noted that the California Department of Conservation does not have authority to approve or disapprove the geotechnical report. Rather, the data are utilized for future updates as well as to monitor the effectiveness of the act. In addition, cities and counties are to incorporate the seismic hazard zone maps into their general plan Safety Elements. Both the Seismic Hazards Mapping Act and the natural hazard disclosure statement also require sellers of real property to disclose to buyers if property is in a seismic hazard Zone of Required Investigation.

California Building Standards Code

The California Building Standards Commission (BSC) is responsible for coordinating, managing, adopting, and approving building codes in California. In July 2007, the BSC adopted and published the 2006 International Building Code as the 2007 California Building Standards Code (CBC). This new code became effective on January 1, 2008, and updated all the subsequent codes under the California Code of Regulations Title 24. The State of California provides minimum standards for building design through the 2007 CBC (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 of the 2007 CBC regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The 2007 CBC replaces the previous "seismic zones" (assigned a number from 1 to 4, where 4 required the most earthquake-resistant design) with new Seismic Design Categories A through F (where F requires the most earthquake-resistant design) for structures designed for a project site. With the shift from seismic zones to seismic design, the CBC philosophy has shifted from "life safety design" to "collapse prevention," meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires addressing mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the 2007 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

Regional and Local Plans, Policies, Regulations, and Laws

The City of Gridley is responsible for implementation of state and federally mandated laws and regulations related to geology and soils before permitting projects. In addition, several portions of the City Code relate to geology, soils, and other geologic hazards.

Title 15, Gridley City Code—Building and Grading Standards

Chapter 15.04 of the City Code provides regulations for building, including adoption of the Uniform Building Code. Chapter 15.10 through 15.20 includes regulations governing grading and erosion control.

4.7.2 Environmental Setting

This section presents the geologic and seismic hazards as well as the soil and mineral resources in the City of Gridley. The topics in this section overlap with Section 4.1, "Land Use," and Section 4.8, "Agricultural Resources," of this EIR.

Topography and Regional Geology

The City of Gridley is located in the Sacramento Valley, which forms the northern portion of the Great Valley geomorphic province of California. The Great Valley is an alluvial plain approximately 50 miles wide and 400 miles long that lies between the mountains and foothills of the Sierra Nevada to the east and the Coast Ranges to

the west. It was once an arm of the ocean that became isolated by mountain ranges as they formed and eventually rose above sea level. As a result, the valley is underlain by an asymmetrical depression (formed by intersecting, downward sloping folds of bedrock) in which marine sediments from the receding ocean were followed more recently by river deposits (alluvial deposits) washing down from the Sierra Nevada and the Klamath, Cascade, and Coast Ranges.

The Great Valley covers more than 6,500 square miles and fills a northwest-trending structural depression bounded on the west by the Great Valley fault zone and the Coast Ranges and on the east by the Sierra Nevada and the Foothills fault zone. Relatively few faults in the Great Valley have been active during the last 10,000 years. Most of the surface of the Great Valley is covered with Holocene and Pleistocene-age alluvium, composed primarily of sediments from the Sierra Nevada and the Coast Ranges that were carried by water and deposited on the valley floor. Siltstone, claystone, and sandstone are the primary types of sedimentary deposits. Older Tertiary deposits underlie the Quaternary alluvium (Hackel 1966, Cherven and Graham 1983).

Holocene Alluvium (Holocene: Recent–10,000 years old)

These Late Holocene alluvial deposits overlie older Pleistocene alluvium and/or the upper Tertiary bedrock formations. This alluvium consists of sand, silt, and gravel deposited in natural levee, channel, and basin environments. This unit is typically in smooth, flat valley bottoms, in medium-sized drainages, and other areas where terrain allows a thin veneer of this alluvium to deposit, generally in shallowly sloping or flat environments (Graymer et al. 2002).

Modesto Formation (Pleistocene: 9,000–73,000 years old)

In the Sacramento Valley, the Modesto Formation represents the lowest alluvial deposits that occur topographically just above the Holocene deposits along streams and valleys. It is composed of unconsolidated gravel, sand, silt and clay. In the City of Gridley, the Modesto Formation consists of ancient alluvial fans of the Feather River and can be divided into upper and lower members. The Modesto Formation is Pleistocene in age; estimates place the age of this formation at approximately 12,000 to 42,000 years Before Present (BP) by Marchand and Allwardt (1981), and from 9,000 to 73,000 years BP by Atwater (1982).

Volcanic Activity

The City of Gridley is within the Northern Coast Range region of the Pacific Mountain System. The Pacific Mountain System region is one of the most geologically young and tectonically active in North America (USGS 2006). The generally rugged, mountainous landscape of this province provides evidence of ongoing mountain building. The Pacific Mountain System straddles the boundaries between several of Earth's moving plates—the source of the monumental forces required to build the sweeping arc of mountains that extends from Alaska to the southern reaches of South America. This province includes the active and sometimes deadly volcanoes of the Cascade Range and the young, steep mountains of the Pacific Border and the Sierra Nevada.

Nearby volcanoes and volcanic areas include Mount Lassen (potentially active, approximately 75 miles north-northeast of Gridley), the Sutter Buttes (not active, approximately 7 miles southwest of Gridley), and the Clear Lake volcanic field (potentially active, located approximately 50 miles west of Gridley) (Jennings 1994, USGS 2003). The Sutter Buttes, although formed by volcanic activity, are not considered active or potentially active. The most recent known eruptive activity at the Sutter Buttes took place approximately 1.4 million years ago (Jennings 1994). The most recent eruptive activity reported in the Clear Lake field occurred approximately 10,000 years ago (Wood and Kienle 1990). Volcanism in the Clear Lake volcanic field is considered to be largely nonexplosive. One major airfall tuff and no ash flows have occurred in this field. Eruptive activity at Mount Lassen has occurred more recently (as recently as 1917).

Gridley is not located within any of the identified volcanic fields, nor is Gridley located within an Area Subject to Potential Hazards from Future Eruptions (Miller 1989). There are no known risks associated with volcanic activity in the City.

SEISMICITY

Seismic activity may result in geologic and seismic hazards: seismically induced fault displacement and rupture, ground shaking, liquefaction, lateral spreading, landslides and avalanches, and structural hazards. Exhibit 4.7-1 shows the location of earthquake epicenters, known faults, and areas most likely to experience significant damage from earthquake-related ground shaking.

Earthquakes are measured based on either energy released (Richter Magnitude scale) or the intensity of ground shaking at a particular location (Modified Mercalli scale). The Richter Magnitude scale measures the magnitude of an earthquake based on the logarithm of the amplitude of waves recorded by seismographs, with adjustments made for the variation in the distance between the various seismographs and the epicenter of the earthquake. The Richter scale starts with 1.0 and has no maximum limit. The scale is logarithmic—an earthquake with a magnitude of 2.0 is 10 times the magnitude (30 times the energy) of an earthquake with a magnitude of 1.0. The Modified Mercalli scale is an arbitrary measure of earthquake intensity; it does not have a mathematical basis. This scale is composed of 12 increasing levels of intensity that range from imperceptible shaking (Scale I) to catastrophic destruction (Scale XII). Table 4.7-1 provides a description of the Modified Mercalli Intensity scale.

Faults

Gridley is located within an area of California with relatively low seismic activity and is not located within a highly active fault zone. Seismic activity may result in geologic and seismic hazards including seismically induced fault displacement and rupture, ground shaking, liquefaction, lateral spreading, landslides and avalanches, and structural hazards. Nearby fault systems and associated seismic hazards are described below.

No Alquist-Priolo Earthquake Fault Zones are located in Gridley (CGS 2007a). Faults in the vicinity of Gridley include primarily inactive faults of the Foothills Fault System, running south-southeastward along the base of the Sierra Nevada, most of which show no evidence of displacement in the last 1.6 million years. Faults include the Prairie Creek Fault Zone, the Spenceville Fault, and the Swain Ravine Fault. Known fault traces in the vicinity of the City are shown on Exhibit 4.7-1.

According to the Probabilistic Seismic Hazard Assessment for the State of California (CDMG 1996, p. 22), Gridley is not believed to have experienced earthquake-induced ground shaking of MMI VII or greater (the range of damage to buildings) between 1800 and 1996. This information is more recent than the Gridley Seismic Safety Element (Gridley 1974) which identifies intensity MMI VIII as the recommended design level for critical structures or uses.

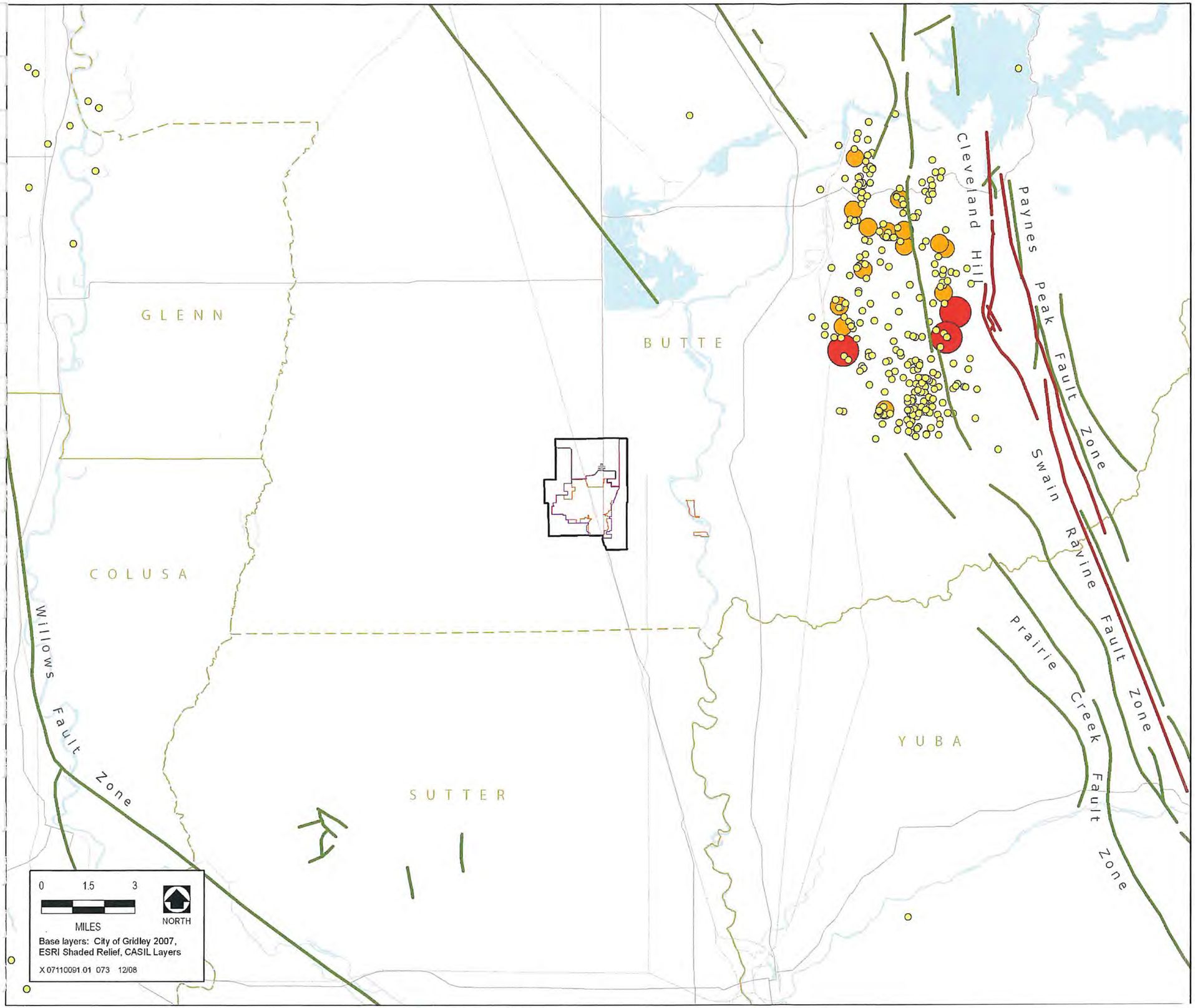
Several faults that have experienced displacement within the past 10,000 years are located within approximately 60 miles of the City (Jennings 1994). Displacement has occurred on one fault during recorded time—the Cleveland Hill Fault near Oroville Dam in 1975. The 1975 Oroville earthquake occurred on the Prairie Creek/Swain Ravine lineament of the Cleveland Hill Fault. This earthquake was likely induced by stresses caused by the Oroville Reservoir, which was filled in 1968. The earthquake followed a large seasonal fluctuation in lake level (Toppozada and Morrison 1982). Other faults with evidence of movement during the Holocene (less than 10,000 years ago) include the Dunnigan Hills Fault between Dunnigan and Zamora, the Hunting Creek Fault (north of Lake Berryessa), faults on the south end of Clear Lake, and the Indian Valley Fault southeast of Lake Almanor.

Table 4.7-1
Modified Mercalli Index

Intensity	Effect
I	Not felt. Marginal and long period effects of large earthquakes.
II	Felt by persons at rest, on upper floors, or favorably placed.
III	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV	Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV, wooden walls and frame creak.
V	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.
VI	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle).
VII	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters.
X	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI	Rails bent greatly. Underground pipelines completely out of service.
XII	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

Notes:
Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.
Masonry B: Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.
Masonry C: Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.
Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.
Source: ABAG 2003

Exhibit 4.7-1
Earthquake Epicenters and Known Fault Traces



LEGEND

- Study Area
- Planned Growth Area
- Sphere of Influence
- City Boundary
- Major Roads
- Railroads

Fault Traces

- Quaternary
- Prequaternary

Recorded Earthquake Epicenter* (magnitude)

- 3
- 4
- 5

* Data from USGS Northern California Seismic Network.
Earthquakes shown occured after 1967.

Ground Shaking

The Gridley vicinity is not believed to have experienced ground shaking at a MMI level of VII or above, the level at which damage to unreinforced masonry buildings would be expected, during the period of 1800 through 1996 (CDMG 1996).

Liquefaction

Soil liquefaction results from loss of strength during earthquake shaking. The most susceptible soils are loosely consolidated, water-saturated soils. Under certain conditions, loosely consolidated soils may tend to amplify shaking and increase structural damage. Water-saturated soils compound the problem because of their susceptibility to liquefaction and corresponding loss of shear strength.

The liquefaction of soils can cause them to move laterally outward from under buildings, roads, pipelines, transmission towers, railroad tracks, and other structures such as bridges. Damage is usually greatest to large or heavy structures on shallow foundations, and takes the form of cracking, tilting, and differential settlement. Where gentle slopes exist, such as on stream or slough banks, liquefaction may also cause lateral-spreading and landslides. Whole buildings can be moved downslope by this type of ground failure. Where the condition is known to exist, proper structural and foundation design can usually minimize or eliminate liquefaction hazards to new construction. The liquefaction potential of soils in the Gridley area is generally moderate (Butte County 2005, p.16.41).

Tsunamis and Seiches

Tsunamis are long-period waves commonly caused by vertical faulting of the ocean floor. Such earthquake-associated waves (often erroneously called tidal waves) can cause considerable damage when they reach shallow coastal areas. A seiche is a stationary wave produced in reservoirs, lakes, and other closed or restricted bodies of water by ground shaking. The phenomenon is similar to the oscillations which result when a bowl of water is shaken. When they occur in large reservoirs, such waves can cause overtopping of dams, posing a serious threat to adjacent areas. Gridley is not at risk of tsunami or seiche based on its inland location and lack of large water bodies.

Slope Stability and Landsliding

Landslide susceptibility is a function of various combinations of factors including rainfall, rock and soil types, slope, aspect, vegetation, seismic conditions, and human construction. Generally, landslides are expected to occur most often on slopes steeper than 15%, in areas with a history of landslides, and in areas underlain by certain geologic units. Based on these criteria, Gridley is not generally at risk for landsliding. Locally steep slopes (such as along water courses) may be susceptible to slope failure.

Soils

The NRCS of the U.S. Department of Agriculture (USDA) provides soils surveys and reports for Butte County, including the City of Gridley. Exhibit 4.7-2 shows the soil associations in the Study Area.

Soil properties influence the development of building sites, including the site selection, structure design, construction, performance after construction, and site and structure maintenance. The NRCS soil database for Gridley indicates the limitations of soils within the county with respect to dwellings, dwellings with basements, and small commercial buildings.

Soils limitations are rated numerically. The rating system indicates the extent to which the soils are limited by all of the soil features that affect building site development. The ratings are given by NRCS as decimal fractions

ranging from 0.01 to 1.00, least limiting to most limiting. Areas defined as water or areas related to mining activities such as borrow pits, miscellaneous water features, quarries, salt ponds, and water were not rated within the NRCS soil database because construction of any dwelling or commercial buildings is considered inappropriate within such areas. Soils designated as having "No Limitations" possess features that are favorable for the specified use. Two soils within Gridley have no limitations with respect to dwellings without basements and small commercial buildings: the Live Oak sandy loam, and the Live Oak sandy clay loam. All of the soil types on a project site have limitations for dwellings with basements.

As defined by NRCS, dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper.

Soil limitation ratings listed in the NRCS database for Gridley are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification).[1] The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

All of the soil types with limitations in Gridley include limitations related to ponding, saturation, and/or flooding. These limitations can affect the load-supporting capacity of a soil.

Three soils, the Boga-Loemstone Complex, the Gridley Taxadjunct loam, and the Neerdobe clay loam are limited based on their shrink-swell potential. Shrink-swell potential is the relative change in volume to be expected with changes in moisture content, that is, the extent to which the soil shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils causes damage to building foundations, roads, and other structures. A high shrink/swell potential indicates a hazard to maintenance of structures built in, on, or with material having this rating.

Agricultural Soils

NRCS provides soils surveys and reports for the Plan Area. Exhibit 4.7-2 shows the soil associations in the city. All of the soil associations in Gridley are suitable for agriculture. As described in Section 4.8, "Agricultural Resources," of this EIR, high-yield soils are located throughout the city, with soils being considered either Prime Farmland or Farmland of Statewide Importance by the Farmland Mapping and Monitoring Program of the California Department of Conservation, Division of Land Resource Protection (see Section 4.8.1, "Regulatory Setting," in Section 4.8, "Agricultural Resources.").

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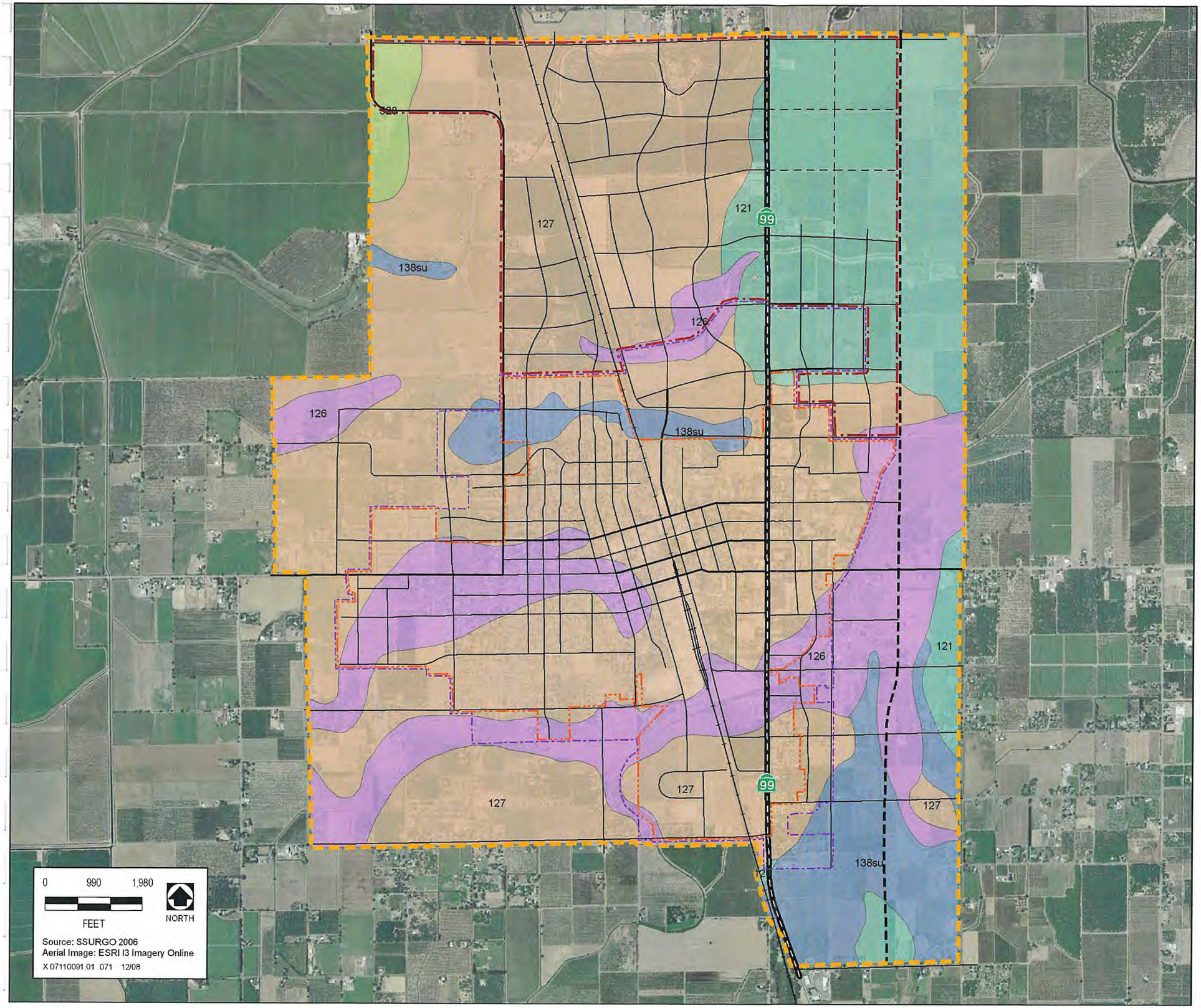
[1] The Unified Classification System is used to classify soils for engineering purposes. This specifically refers to the American Society for Testing and Materials (ASTM) Standard: D2487-06 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System). All soil surveys related to soil engineering properties must be conducted in accordance with the ASTM Standard. NRCS references the Unified Classification System and ASTM Standards in all soil survey manuals and survey documents related to soils. Soil compressibility is defined as the resistance against volume decrease when soil is subjected to a mechanical load. Soil compression behavior can be influence by organic matter in soil, soil moisture content, and bulk density. The Unified Classification System provides a standardized means to determining the soil properties that contribute to compressibility.

Exhibit 4.7-2
Soil Types



LEGEND

- Study Area
- Planned Growth Area
- Sphere of Influence
- City Boundary
- Railroad

Soil Type

- 121 - Boga-Loemstone complex, 0 to 1 percent slopes
- 126 - Liveoak sandy loam, 0 to 2 percent slopes
- 127 - Gridley taxadjunct loam, 0 to 2 percent slopes
- 138su - Liveoak sandy clay loam, 0 to 2 percent slopes
- 528 - Neerdobe clay loam, 0 to 1 percent slopes

Additional information related to agricultural soils and agricultural resources is provided in Section 4.8, "Agricultural Resources."

Soil Hazards

Shrink-Swell Potential

Most of the Study Area's land is underlain by soil having a moderate (soil classifications 121, 127 as illustrated on Exhibit 4.7-2) or very high shrink-swell potential (soil classification 528 as illustrated on Exhibit 4.7-2) Expansive or shrink-swell soils contain substantial amounts of clay minerals that swell when wet and shrink when dry. These clays tend to swell despite the heavy loads imposed by large structures. Damage (such as cracking of foundations) results from differential movement and from the repetition of the shrink-swell cycle. In some cases, this problem may be avoided by removing the top soil layer before placing a foundation. Although these soils can be an expensive nuisance, awareness of their existence before construction often means that the problem can be eliminated through foundation design.

Erosion

The soils present in Gridley are generally considered to have low potential for erosion based on the low topographic relief in the Plan Area. However, erosion hazards can still be present locally, especially in disturbed or uncovered soil areas, which are at risk of sheet or rill erosion. Highly erosive soils can damage roads, bridges, buildings, and other structures and result in damage to sensitive ecosystems such as riparian areas and waterbodies. NRCS soil erosivity is based on slope and on soil erodibility factors. Erosion hazards of disturbed soil are described as slight, moderate, severe, or very severe:

- Slight: Erosion is unlikely under ordinary climatic conditions.
- Moderate: Some erosion is likely and erosion control measures may be needed.
- Severe: Erosion is very likely and erosion control measures such as revegetation of bare areas may be needed.
- Very Severe: Significant erosion is expected, loss of soil productivity and off-site damage are likely and erosion control measures are costly and generally impractical.

Mineral Resources

No mineral resources are currently being mined or produced in the Plan Area. Butte County has not been evaluated for California Surface Mining and Reclamation Act (SMARA) Mineral Land Classification. SMARA classification projects assist the board in adopting and designating lands needed for their mineral content.

The classification system is intended to ensure consideration of statewide or regionally significant mineral deposits in planning and development administration. These mineral designations are intended to prevent incompatible land use development on areas determined to have significant mineral resource deposits. Permitted uses within a mineral resource zone include mining, uses that support mining such as smelting and storage of materials, or uses that will not hinder future mining such as grazing, agriculture, large-lot rural development, recreation, and open space.

The most important zone with respect to the presence of resources is MRZ-2, which is defined as "areas where adequate information indicates that significant mineral (aggregate) deposits are present or where it is judged that there is a high likelihood for their presence." This zone is applied to known mineral deposits or where well-developed lines of reasoning, based on economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high. MRZ-3 zones suggest the potential for aggregate

deposits. This zone is less definitive than MRZ-2 and is defined as "areas containing mineral deposits the significance of which cannot be evaluated from available data."

Mineral Resource Zones have not been defined for the Plan Area.

Asbestos

Ultramafic rock complexes which would be expected to contain asbestos are not exposed in the Plan Area (Jennings 1994).

PALEONTOLOGICAL RESOURCES

Paleontological Resource Inventory Methods

A stratigraphic inventory was completed to develop a baseline paleontological resource inventory of the Plan Area and surrounding area by rock unit, and to assess the potential paleontological productivity of each rock unit. Research methods included a review of published and unpublished literature and a search for recorded fossil sites at the University of California Berkeley Museum of Paleontology. These tasks complied with Society of Vertebrate Paleontology (1995) guidelines.

Stratigraphic Inventory

Geologic maps and reports covering the geology of the Plan Area and surrounding area were reviewed to determine the exposed rock units and to delineate their respective aerial distributions in the Plan Area.

Paleontological Resource Inventory

Published and unpublished geological and paleontological literature were reviewed to document the number and locations and previously recorded fossil sites from rock units exposed in and near the Plan Area and vicinity, as well as the types of fossil remains each rock unit has produced. The literature review was supplemented by an archival search of the University of California Berkeley Museum of Paleontology in Berkeley, California, reported on July 18, 2008.

Paleontological Resource Assessment Criteria

The potential paleontological importance of a site can be assessed by identifying the paleontological importance of exposed rock units within the site. Because the aerial distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of the site that are of higher and lower sensitivity for paleontological resources and to delineating parts of the site that may require monitoring during construction.

A paleontologically important rock unit is one that: 1) has a high potential paleontological productivity rating, and 2) is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at a site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the site. Exposures of a specific rock unit at the site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the site.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);

- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

For example, identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare. The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions such as part of a research project. Marine invertebrates are generally common, well developed, and well documented. They would generally not be considered a unique paleontological resource.

The following tasks were completed to establish the paleontological importance of each rock unit exposed within or near the Plan Area:

- The potential paleontological productivity of each rock unit was assessed, based on the density of fossil remains previously documented within the rock unit.
- The potential for a rock unit exposed within the Plan Area to contain a unique paleontological resource was considered.

Paleontologic Resource Inventory Results

Stratigraphic Inventory

Regional and local surficial geologic mapping and correlation of the various geologic units in the vicinity of the Plan Area has been provided at a scale of 1:250,000 by Saucedo and Wagner. (1992). Exhibit 4.7-3 illustrates the geologic units in the Plan Area and surrounding areas.

Paleontological Resource Inventory and Assessment by Rock Unit

Holocene Alluvium

By definition, to be considered a fossil, an object must be more than 11,000 years old. Therefore, Holocene alluvium at the Plan Area would not contain paleontological resources.

Modesto Formation

Surveys of late Cenozoic land mammal fossils in northern California have been provided by Hay (1927), Lundelius et al. (1983), Jefferson (1991a, 1991b), Savage (1951), and Stirton (1939). On the basis of his survey of vertebrate fauna from the non-marine late Cenozoic deposits of the San Francisco Bay region, Savage (1951) concluded that two major divisions of Pleistocene-age fossils could be recognized: the Irvingtonian (older Pleistocene fauna) and the Rancholabrean (younger Pleistocene and Holocene fauna). These two divisions of Quaternary Cenozoic vertebrate fossils are widely recognized today in the field of paleontology. The age of the later Pleistocene, Rancholabrean fauna was based on the presence of bison and on the presence of many mammalian species that are inhabitants of the same area today. In addition to bison, larger land mammals identified as part of the Rancholabrean fauna include mammoths, mastodons, camels, horses, and ground sloths.

Remains of land mammals have been found in the project region at various localities in alluvial deposits referable to the Modesto Formation. Jefferson (1991a, 1991b) compiled a database of California late Pleistocene vertebrate fossils from published records, technical reports, unpublished manuscripts, information from colleagues, and inspection of museum paleontological collections at more than 40 public and private institutions. He listed two sites in Sutter County that have yielded Rancholabrean vertebrate fossils near Yuba City (approximately 17 miles south of the Plan Area). These localities yielded a Pleistocene-age bison in sediments referable to the Modesto Formation and a Pleistocene-age horse in sediments referable to the Riverbank Formation.

A records search of the University of California Berkeley Museum of Paleontology (UCMP) Paleontology Collections database yielded information regarding a number of vertebrate fossil localities referable to either the Modesto or Riverbank Formations. UCMP Localities V-91247, V-91204, and V-3402 west of Woodland yielded Rancholabrean-age horse and mammoth specimens from mixed sediments containing both the Modesto and Riverbank Formations. UCMP Localities V-5430, V-6911, and V-76199 west of Davis yielded Rancholabrean-age Harlan's ground sloth and saber-toothed cat specimens also from mixed sediments containing both the Modesto and Riverbank Formations. UCMP Locality V-96015 north of Davis yielded 8 specimens of Rancholabrean-age rodents and reptiles from sediments of the Modesto Formation.

Fossil specimens from the Modesto Formation have been reported by Marchand and Allwardt (1981) near the type locality in the City of Modesto. Fossil specimens from sediments referable to the Modesto Formation have been reported at numerous other locations throughout the San Joaquin Valley (UCMP 2008), including Lathrop, Modesto, Stockton, Tracy (along the Delta-Mendota Canal), Manteca, and Merced. The Tranquility site in Fresno County (UCMP V-4401) has yielded more than 130 Rancholabrean-age fossils of fish, turtles, snakes, birds, moles, gophers, mice, wood rats, voles, jack rabbits, coyote, red fox, grey fox, badger, horse, camel, pronghorn antelope, elk, deer, and bison from sediments referable to the Modesto Formation.

Results of a paleontological records search at the UCMP indicated no fossil remains within the Plan Area. However, the occurrence of Pleistocene vertebrate fossil remains in sediments referable to the Modesto and Riverbank Formations from Yuba City, Davis, and Woodland, as well as their widespread occurrence throughout the Sacramento and San Joaquin Valleys, suggests there is a potential for uncovering additional similar fossil remains during construction-related earth-moving activities within the Plan Area and off-site improvement areas. Exhibit 4.7-3 illustrates the extent of the Modesto and Riverbank formations (Qm and Qr) in the northern Sacramento Valley.

4.7.3 Environmental Impacts and Mitigation Measures

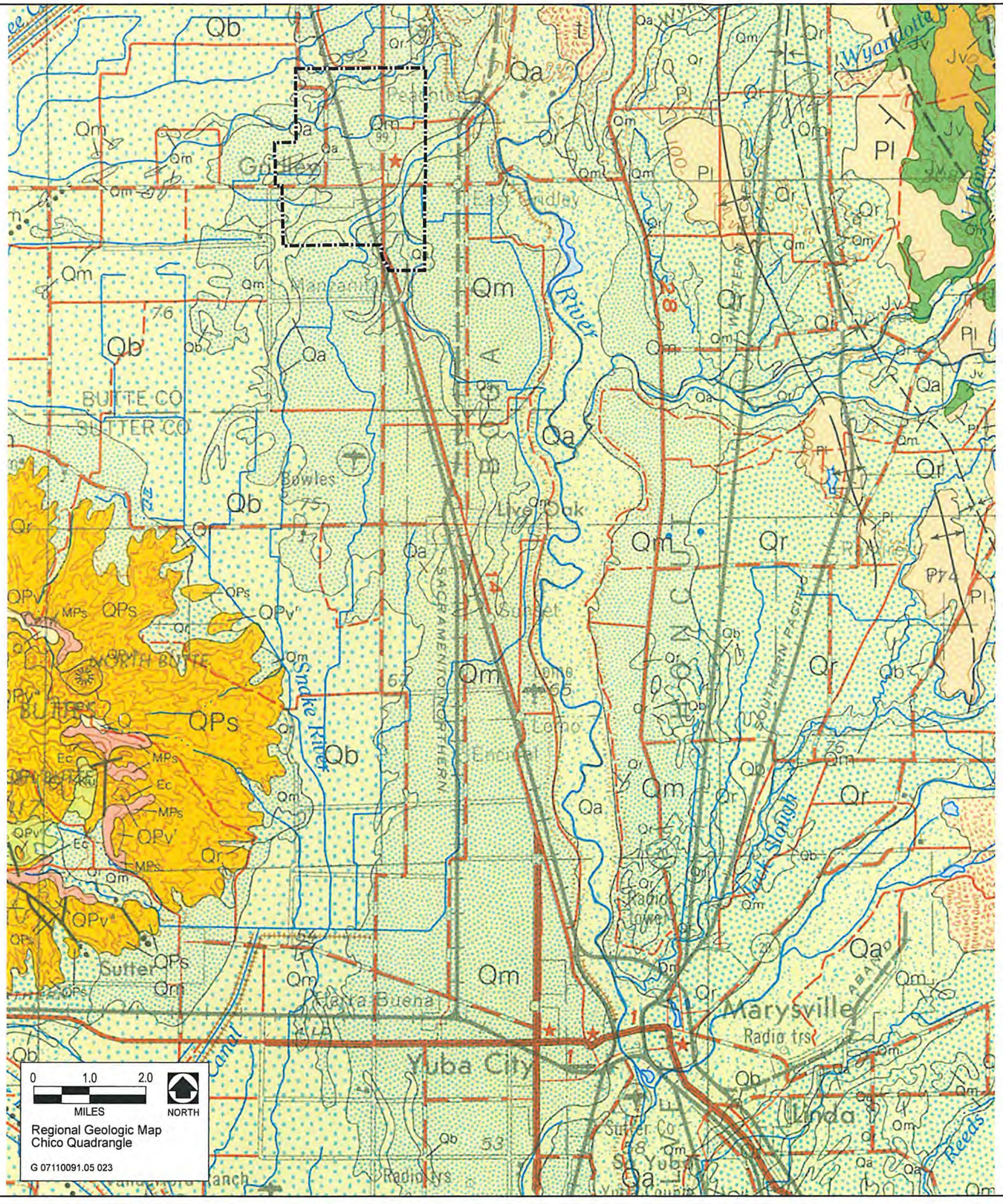
Thresholds of Significance

Geology and Soils

Based on Appendix G of the State CEQA Guidelines, an impact on geologic resources is considered significant if the proposed project would:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
    - strong seismic ground shaking;

Exhibit 4.7-3
Geologic Map



LEGEND

- Qa Natural levee and channel deposits
- Qb Basin Deposits *(alluvium)*
- Qm Modesto Formation *(alluvium)*
- Qr Riverbank formation *(alluvium)*
- Study Area

Note:
Only those units present in the Gridley Study Area appear on the legend. Other units are defined on the Regional Geologic Map Series, Chico Quadrangle – Map No. 7A (Geology) Sheet 1 of 5

Source: Saucedo and Wagner, 1992

- seismic-related ground failure, including liquefaction; or
- landslides;

- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state; or
- result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

There are no identified active or potentially faults within the Study Area. Therefore, no impact due to exposure of people or structures to rupture of a known earthquake fault would result from the project. This topic is not evaluated further in this EIR.

No known mineral resources of value to the region and residents of the state have been identified in the Study Area. No locally important mineral resources are identified in local land use plans. Therefore, no impact from loss of such resource would result from the project, and this topic is not evaluated further in this EIR.

Based on the flat topography of the Study Area, CDMG estimates no risk of landslide in the City of Gridley (1973). Therefore, no impact due to exposure of people or structures to landsliding would result from the project. This topic is not evaluated further in this EIR.

Paleontological Resources

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on the State CEQA Guidelines, which state that a paleontological resources impact is considered significant if implementation of the proposed project would directly or indirectly destroy a unique paleontological resource or site. For the purposes of this EIR, a unique resource or site is one that is considered significant under the following professional paleontological standards.

A paleontologically important rock unit is one that: 1) has a high potential paleontological productivity rating, and 2) is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at a project site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near a project site. Exposures of a specific rock unit at a project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near a project site.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates are generally common; the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society for Vertebrate Paleontology SVP (1995) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity. In keeping with the significance criteria of the SVP (1995), all vertebrate fossils are generally categorized as being of potentially significant scientific value.

Impact Analysis

IMPACT 4.7-1 **Potential for Exposure to Seismic Ground Shaking.** *Buildout of the 2030 General Plan would not result in development of areas prone to strong seismic ground shaking. Implementation of policies and implementation strategies in the 2030 General Plan and existing regulations would implement best practices to reduce the potential for substantial adverse effects due to exposure to seismic ground shaking. This impact would be* ***less than significant.***

Different types of structures are subject to different levels of ground shaking damage from seismic activity. Conventional one- and two-story wood-frame residential structures generally have performed very well during strong seismic ground shaking. Collapse or total destruction of wood-frame homes is rare, even during strong earthquakes, except in cases where these structures are affected by ground rupturing or landsliding, or are affected by extremely high ground acceleration. Unreinforced masonry buildings and other buildings constructed before 1930 that have not been seismically retrofitted would be most likely to suffer structural failure or collapse as a result of seismic ground shaking.

Gridley is located in an area of low seismic activity that has not experienced an earthquake with intensity of MMI VII or greater (the intensity at which damage to buildings would be expected) between 1800 and 1996 (CGS 1996, p. 22). The nearest active fault, the Cleveland Hills Fault, is located approximately 15 miles northeast of the Plan Area. The 1975 Oroville earthquake occurred on the Prairie Creek/Swain Ravine lineament of the Cleveland

Hill Fault. This earthquake was likely induced by stresses caused by the Oroville Reservoir, which was filled in 1968. The earthquake followed a large seasonal fluctuation in lake level (Toppozada and Morrison, 1982).

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes several policies and programs related to risk from seismic ground shaking:

- **Safety Policy 1.1**: New development shall implement state and local building code requirements, including those related to structural requirements and seismic safety criteria in order to reduce risks associated with seismic events and unstable and expansive soils.
- **Safety Policy 1.2**: New developments that could be adversely affected by geological and/or soil conditions shall include project features that minimize these risks.
- **Safety Implementation Strategy 1.1:** The City will continue to enforce the most recent statewide building code requirements.
- **Safety Implementation Strategy 1.2:** The City will require geotechnical evaluation and recommendations before development or construction of buildings meant for public occupancy in geologic hazard areas may proceed. Such evaluations will be required to focus on potential hazards related to liquefaction, erosion, subsidence, seismic activity, and other relevant geologic hazards and soil conditions for development. New development would be required to incorporate project features that avoid or minimize the identified hazards to the satisfaction of the City.

Conclusion

Although potential damage to people or structures from seismic ground shaking could be a concern, the 2030 General Plan's proposed goals, policies, and programs, combined with compliance with the CBC regulations described in the regulatory setting of this chapter, would require the site's seismic-design response spectrum to be established and incorporated into the design of all new residences and buildings. Roadways, utilities, and structures would be designed to withstand seismic forces based on CBC requirements for the appropriate site-specific Seismic Design Category. Therefore, potential damage to structures from seismic activity and related geologic hazards would be **less than significant**.

Mitigation Measure

No mitigation beyond compliance with existing regulations and 2030 General Plan policies and programs is required.

IMPACT 4.7-2 **Potential for Seismic Ground Failure.** *Buildout of the 2030 General Plan would result in development of areas with moderate potential for seismic-related ground failure, including liquefaction. Implementation of policies and programs in the 2030 General Plan and existing regulations would implement best practices to reduce the potential for substantial adverse effects due to exposure to seismic ground failure. This impact would be* ***less than significant****.*

Seismic ground failure refers to conditions such as soil liquefaction, associated lateral spreading, landslides, and collapse resulting from loss of strength during earthquake shaking. The liquefaction of soils can cause them to move laterally outward from under buildings, roads, pipelines, transmission towers, railroad tracks, and other structures such as bridges. Damage is usually greatest to large or heavy structures on shallow foundations and takes the form of cracking, tilting, and differential settlement. Where gentle slopes exist, such as on stream or slough banks, liquefaction may cause lateral-spreading landslides. Whole buildings can be moved downslope by

this type of ground failure. Where the condition is known to exist, structural and foundation design can usually minimize or eliminate liquefaction hazard to new construction.

The City of Gridley and the Study Area are located in an area with a generally moderate risk of liquefaction (Butte County 2007).

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes several policies and programs related to risk from seismic ground failure:

- **Safety Policy 1.1**: New development shall implement state and local building code requirements, including those related to structural requirements and seismic safety criteria in order to reduce risks associated with seismic events and unstable and expansive soils.
- **Safety Policy 1.2**: New developments that could be adversely affected by geological and/or soil conditions shall include project features that minimize these risks.
- **Safety Implementation Strategy 1.1:** The City will continue to enforce the most recent statewide building code requirements.
- **Safety Implementation Strategy 1.2:** The City will require geotechnical evaluation and recommendations before development or construction of buildings meant for public occupancy in geologic hazard areas may proceed. Such evaluations will be required to focus on potential hazards related to liquefaction, erosion, subsidence, seismic activity, and other relevant geologic hazards and soil conditions for development. New development would be required to incorporate project features that avoid or minimize the identified hazards to the satisfaction of the City.

Conclusion

Implementation of policies and programs in the 2030 General Plan and existing regulations (including the Alquist-Priolo Fault Earthquake Fault Zoning Act, the California Seismic Hazards Mapping Act, and the California Uniform Building Code regulations described in the regulatory setting of this chapter) would reduce the potential for substantial adverse effects due to exposure to seismic-related ground failure. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond compliance with existing regulations and the 2030 General Plan policies and programs is required.

IMPACT 4.7-3 **Soil Erosion or Loss of Topsoil.** *Buildout of the 2030 General Plan would result in substantial soil erosion or the loss of topsoil. Implementation of policies and programs in the 2030 General Plan and existing regulations would result in use of best practices to prevent soil erosion and topsoil loss. This impact would be* ***less than significant****.*

A number of soils within the Plan Area are considered to have high potential for erosion. Highly erosive soils can damage roads, bridges, buildings, and other structures and result in damage to sensitive biological habitats such as riparian areas and waterbodies. Soil loss can be caused by sheet or rill erosion in areas where 50–75% of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

Erosion is a large-scale impact caused by human activity and disturbance of surface soil, wind, and water. Erosion cannot be eliminated altogether, although existing regulations such as Chapter 15.10 through 15.20 of the Gridley Code of Ordinances, and the California Building Standards Code (which includes erosion control measures and best management practices) can reduce the potential impacts of erosion.

Relevant Policies and Programs of the 2030 General Plan

In addition, several proposed policies and programs in the 2030 General Plan would reduce the risk of erosion:

- **Safety Policy 1.2**: New developments that could be adversely affected by geological and/or soil conditions shall include project features that minimize these risks.

- **Conservation Policy 3.2:** New development shall incorporate erosion control measures in grading and other construction activities designed to prevent erosion and discharge of silt and soil materials to streams.

Conclusion

Implementation of existing regulations (including the California Building Standards Code regulations described in the regulatory setting of this chapter and Chapter 15.10 through 15.20 of the Gridley Code of Ordinances), would reduce the potential for erosion caused by buildout of the land use diagram under the Preferred Plan through application of best management practices and engineering controls. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond compliance with existing regulations and the 2030 General Plan policies and programs is required.

IMPACT 4.7-4 **Potential for Unstable Soils.** *Buildout of the 2030 General Plan would result in construction of occupied structures in areas located on a geologic unit or soil that is unstable or that would become unstable, potentially resulting in on- or off-site lateral spreading, subsidence, liquefaction, or collapse. Implementation of policies and programs in the 2030 General Plan and existing regulations would prevent damage from unstable soils. This impact would be* ***less than significant****.*

Unstable soils include soils subject to landsliding, lateral spreading, liquefaction, or collapse. This kind of hazard can be caused by earthquake shaking (i.e., liquefaction, lateral spreading, landslides, collapse), caused by seasonal saturation of soils and rock materials (subsidence), or caused by grading and construction activities.

Soil liquefaction (and associated lateral spreading, landslides, and collapse) results from loss of strength during earthquake shaking. The liquefaction of soils can cause them to move laterally outward from under buildings, roads, pipelines, transmission towers, railroad tracks, and other structures such as bridges. Damage is usually greatest to large or heavy structures on shallow foundations, and takes the form of cracking, tilting, and differential settlement. Where gentle slopes exist such as on stream or slough banks, liquefaction may cause lateral-spreading landslides. Whole buildings can be moved downslope by this type of ground failure. Where the condition is known to exist, structural and foundation design can usually minimize or eliminate liquefaction hazard to new construction.

Subsidence and settlement are localized hazards, commonly caused by the withdrawal of fluids (such as groundwater) from subsurface reservoirs or from the collapse of surface soils over subterranean caves or mines. Settlement results when weak or porous soils (such as fill soils) are compressed as a result of construction activities.

Due to the flat topography of the Study Area, damage from lateral spreading, collapse, and landsliding is not expected. The Study Area lies within an area of moderate risk for liquefaction, and potential subsidence (Butte County 2007).

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes several policies and programs related to risk from unstable soils:

- **Safety Policy 1.1:** New development shall implement state and local building code requirements, including those related to structural requirements and seismic safety criteria in order to reduce risks associated with seismic events and unstable and expansive soils.
- **Safety Policy 1.2:** New developments that could be adversely affected by geological and/or soil conditions shall include project features that minimize these risks.
- **Safety Implementation Strategy 1.1:** The City will continue to enforce the most recent statewide building code requirements.
- **Safety Implementation Strategy 1.2:** The City will require geotechnical evaluation and recommendations before development or construction of buildings meant for public occupancy in geologic hazard areas may proceed. Such evaluations will be required to focus on potential hazards related to liquefaction, erosion, subsidence, seismic activity, and other relevant geologic hazards and soil conditions for development. New development would be required to incorporate project features that avoid or minimize the identified hazards to the satisfaction of the City.

Conclusion

Implementation of existing regulations (including the California Seismic Hazards Mapping Act, and the California Building Standards Code regulations described in the regulatory setting of this chapter), as well as the proposed policies and programs of the 2030 General Plan, would reduce the impacts of unstable soils on buildout of the 2030 General Plan under the Preferred Plan through application of best management practices and engineering controls. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond existing regulations and the 2030 General Plan policies and programs is required.

IMPACT 4.7-5 **Construction in Areas with Expansive Soils.** *Buildout of the 2030 General Plan would result in construction of occupied structures in areas with expansive soils. This impact would be* ***less than significant.***

Expansive or shrink-swell soils contain significant amounts of clay minerals that swell when wet and shrink when dry. These clays tend to swell despite the heavy loads imposed by large structures. Damage (such as cracking of foundations) results from differential movement and from the repetition of the shrink-swell cycle. Soils having high shrink-swell potential in at least the top 12 inches are found throughout the Study Area. Awareness of the presence of expansive soils before construction often means that the problem can be eliminated through foundation design.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes several policies and programs that would control development in areas of expansive soils:

- **Safety Policy 1.1**: New development shall implement state and local building code requirements, including those related to structural requirements and seismic safety criteria in order to reduce risks associated with seismic events and unstable and expansive soils.

- **Safety Policy 1.2**: New developments that could be adversely affected by geological and/or soil conditions shall include project features that minimize these risks.

- **Safety Implementation Strategy 1.1:** The City will continue to enforce the most recent statewide building code requirements.

- **Safety Implementation Strategy 1.2:** The City will require geotechnical evaluation and recommendations before development or construction of buildings meant for public occupancy in geologic hazard areas may proceed. Such evaluations will be required to focus on potential hazards related to liquefaction, erosion, subsidence, seismic activity, and other relevant geologic hazards and soil conditions for development. New development would be required to incorporate project features that avoid or minimize the identified hazards to the satisfaction of the City.

Conclusion

Implementation of existing regulations (including the California Building Standards Code regulations described in the regulatory setting of this chapter), as well as the proposed policies and programs of the 2030 General Plan, would reduce the impacts of expansive soils on buildout of the 2030 General Plan under the Preferred Plan through application of best management practices and engineering controls. This impact would be less than significant.

Mitigation Measure

No mitigation beyond compliance with existing regulations and the 2030 General Plan policies and programs is required.

IMPACT 4.7-6 **Construction in Areas with Soils with Poor Septic Suitability.** *Buildout of the 2030 General Plan would result in construction of occupied structures in areas with soils poorly suited to septic systems. However, these structures would be constructed at densities that would generally require provision of sanitary sewers. Should septic systems be used, implementation of policies and programs in the 2030 General Plan and existing regulations would require use of best practices for septic systems. This impact would be* ***less than significant****.*

Soil limitations with respect to septic systems are described as either low, moderate, or severe. These ratings are based on slope, soil depth, permeability, depth to the water table, and whether or not the soil is subject to ponding. Adverse effects associated with septic suitability of soils can be avoided through proper in-situ soil percolation testing and septic system design, construction monitoring, and postconstruction monitoring and maintenance.

In general, proposed land use changes in the proposed General Plan would not produce development relying on septic systems. Proposed densities would require that municipal sanitary sewer service be available in areas of land use change. However, if individual parcels or projects were to develop using septic systems, implementation of existing regulations would require that septic systems be designed to meet site drainage conditions.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan also includes policies related to limiting use of septic systems in the Plan Area:

- **Public Facilities Policy 2.14:** The City should look for cost-effective strategies to extend municipal wastewater service to properties within City Limits currently served by septic systems, as appropriate.

- **Public Facilities Policy 2.15:** The establishment of new septic systems is not allowed in the City's Sphere of Influence unless needed to serve a City supported employment generating land use.

Butte County Regulations

As noted in Public Facilities Policy 2.15, no new septic systems will be permitted in the City Limits, and new septic systems will only be permitted in the Sphere of Influence if they are necessary to serve a City-supported employment-generating land use. New septic systems in the City's Sphere of Influence would be required to conform to Butte County's regulations for septic systems (Chapter 19 of the Butte County Code).

Conclusion

Implementation of the proposed policies and programs of the 2030 General Plan, and implementation of existing Butte County codes regulating sewage disposal, would reduce the impacts of soils with poor septic suitability on buildout of the 2030 General Plan under the Preferred Plan through application of best management practices and engineering controls. This impact would be less than significant.

Mitigation Measure

No mitigation beyond the existing Butte County Code and the 2030 General Plan policies and programs is required.

IMPACT 4.7-7 **Possible Damage to Unknown, Potentially Unique Paleontological Resources during Earthmoving Activities.** *Construction activities could disturb previously unknown paleontological resources within the Plan Area and along the alignments of the off-site elements. This impact would be* ***less than significant.***

As shown in Exhibit 4.7-3, portions of the Study Area are underlain by Holocene-age (less than 11,000 years old) basin deposits. By definition, in order to be considered a fossil, an object must be more than 11,000 years old. Therefore, construction activities that occur in the Holocene deposits would have no impact on paleontological resources.

However, the remainder of the Study Area (see Exhibit 4.7-3) is underlain by Pleistocene-age sediments of the Modesto Formation, which is considered a paleontologically sensitive rock unit under SVP guidelines (1995). The potential that unique paleontological resources could be discovered varies on a project-by-project basis, and increases with larger projects that disturb larger areas. As discussed in detail in above in the section titled "Paleontological Resource Inventory and Assessment by Rock Unit," numerous of vertebrate fossil specimens have been recorded from the Modesto Formation in Yuba City, Woodland, and Davis. The fact that vertebrate fossils have been recovered near the Study Area and other recorded vertebrate fossil localities have been recorded throughout the Sacramento and San Joaquin Valleys, and that all have been in sediments referable to the Modesto Formations, suggests that there is a potential for uncovering additional similar fossil remains during construction-related earthmoving activities, including trenching for utilities, within the Plan Area and in the locations of the off-site elements. However, implementation of existing regulations and the policy listed below in the 2030 General Plan would require that specific evaluations for paleontological resources be administered prior to implementation of individual development projects.

Relevant Policies and Programs of the 2030 General Plan

- **Conservation Policy 4.1**: Archaeological and paleontological resources shall be protected permanently from urban development, wherever possible.

- **Conservation Policy 4.2**: New developments shall analyze potential impacts, and shall be designed to avoid adverse impacts to any known archaeological and paleontological resources, wherever possible.

- **Conservation Implementation Strategy 4.2**: The City will require a paleontological resources impact assessment for projects proposed within the Modesto Formation, where a CEQA environmental document is required and where substantial excavation is anticipated. The Modesto Formation is an area that is sensitive for paleontological resources and underlies many parts of the central valley. Impacts to paleontological resources would be evaluated on a site-specific basis, pursuant to the State CEQA Guidelines. Where such impacts are found to be potentially significant, the City will require feasible mitigation measures to reduce impacts, such as construction worker personnel education, consultation with a qualified paleontologist should resources be encountered, and recovery and curation of specimens, as appropriate. Infill projects that do not involve substantial excavation would be exempt from this requirement

Conclusion

Implementation of the proposed policies and programs of the 2030 General Plan would reduce impacts related to potential damage to unique paleontological resources to a **less-than-significant** level because impacts to paleontological resources would be evaluated on a site-specific basis pursuant to the CEQA Guidelines. Where such impacts were found to be potentially significant, the CEQA document would include mitigation measures such as construction worker personnel education, consultation with a qualified paleontologist should resources be encountered, and recovery and curation of specimens.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

4.7.4 Residual Significant Impacts

All impacts related to geology and soils would be less than significant. No mitigation beyond the 2030 General Plan policies and programs is required, and **no residual significant impacts** would exist.

4.8 AGRICULTURAL RESOURCES

This section includes an explanation of the various criteria and methods used to evaluate the significance and quality of agricultural land in the City of Gridley General Plan Study Area (Study Area), a description of the existing agricultural resources, and an evaluation of how implementation of the 2030 General Plan would affect agricultural resources.

4.8.1 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Farmland Protection Act

The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture (USDA), is the agency primarily responsible for implementing the federal Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to minimize federal contributions to the conversion of farmland to nonagricultural land uses by ensuring that federal programs are administered in a manner compatible with state government, local government, and private programs designed to protect farmland. The FPPA established the Farmland Protection Program (FPP).

NRCS administers the FPP, which is a voluntary program that provides funds to help purchase development rights to keep productive farmland in agricultural use. This program provides matching funds to state, local, and tribal government entities and nongovernmental organizations with existing farmland protection programs to purchase conservation easements. Participating landowners agree not to convert the land to nonagricultural land uses and retain all rights to the property for future agriculture production. A minimum 30-year term is required for conservation easements and priority is given to applications with perpetual easements. NRCS provides up to 50% of the fair market value of the easement (NRCS 2008).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Cortese-Knox-Hertzberg Local Government Reorganization Act

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Cortese-Knox-Hertzberg Act) (California Government Code Section 56000 et seq.) defines prime agricultural land according to several criteria, which include the NRCS's Land Capability Class System and the Storie Index. Prime agricultural land is defined by the Cortese-Knox-Hertzberg Act as:

> ...an area of land, whether a single parcel or contiguous parcels, that have not been developed for a use other than an agricultural use and that meets any of the following qualifications:
>
> (a) Land that, if irrigated, qualifies for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not the land is actually irrigated, provided that irrigation is feasible.
>
> (b) Land that qualifies for rating 80 through 100 Storie Index Rating.
>
> (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Handbook on Range and Related Grazing Lands, July, 1967, developed pursuant to Public Law 46, December 1935.

(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.

(e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years.

NRCS has prepared a soil survey for all of Butte County that includes a Land Capability Classification system that places soils into agricultural suitability categories. The land capability classes reflect the soil's ability to support common crops and pasture plants without compromising the soil's quality over the long term. The Land Capability Classification system uses eight Land Capability Classes (I through VIII) to rank soils. Prime Farmland generally corresponds to Land Capability ratings of Class I or Class II and soils that are less suitable for farming are assigned to classes with higher numbers.

NRCS also assigns Storie Index Ratings that rank soil characteristics according to their suitability for agriculture from Grade 1 soils (80–100 rating), which have few or no limitations for agricultural production and are considered prime soils, to Grade 6 soils (less than a rating of 10), which are not suitable for agriculture. Use of Storie Index ratings is another way to determine the presence of Important Farmland. Under this system, soils identified as less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or completely removed. Grade 3 soils are only fairly well suited to intensively grown irrigated crops. Soils in Grades 4 and 5 are generally only used for rangeland. Grade 6 soils are generally unsuited for any agricultural purpose. In addition, NRCS provides farmland classifications for individual soil units.

The Cortese-Knox-Hertzberg Act acknowledges that formation of logical local agency boundaries is important to "preserving open-space and prime agricultural lands..." (Government Code Section 56001). In Butte LAFCo's Policies and Procedures, it is noted that "among LAFCo's core purpose is the preservation of open space lands and prime agricultural lands." (Butte LAFCo 2004). Please refer to information under the heading, "Regional and Local Plans, Policies, Regulations, and Ordinances," below.

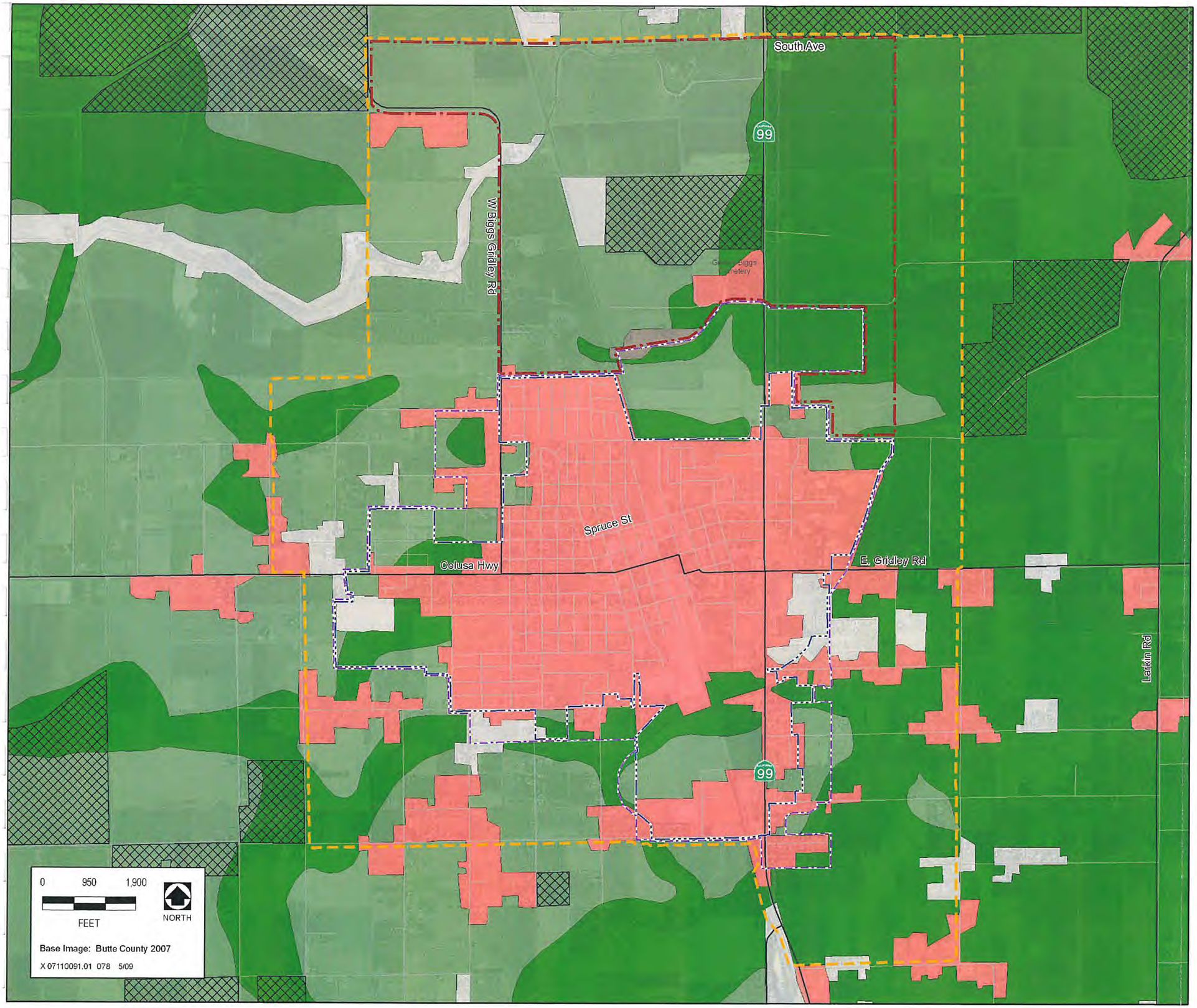
Williamson Act

The California Land Conservation Act of 1965 (Williamson Act) is one agricultural conservation tool currently used in California. Under the Williamson Act, local governments can enter into contracts with private property owners to protect land for agricultural and open space purposes. This voluntary program offers tax breaks by assessing lands based on actual use (agricultural or open space) as opposed to their potential full market value, creating a financial incentive to maintain farmland and open space, as opposed to allowing conversion to other uses.

The Williamson Act program uses 10-year contracts that renew annually until either party files a notice of nonrenewal. If an owner decides to opt out, the land is still protected for 10 years while the tax liability increases in annual increments up to its full market value. Additionally, existing Williamson Act contracts on lands classified by the California Department of Conservation as Important Farmland can be extended to 20-year Farmland Security Zone contracts (i.e., super Williamson Act contracts), which offer landowners greater property tax savings.

Statewide, more than 16.5 million acres have been protected under Williamson Act contracts, representing more than half of the state's agricultural and open space lands. In Butte County, roughly 215,000 acres are held in Williamson Act contracts, representing 62% of the county's agricultural lands. Approximately 117 acres of land in the Planned Growth Area are under Williamson Act contracts; there are no Williamson Act lands within the City Limits or Sphere of Influence. Exhibit 4.8-1 illustrates the location of lands under Williamson Act contracts in the study area.

Exhibit 4.8-1
Important Farmlands



LEGEND

- Study Area
- Sphere of Influence
- Planned Growth Area
- City Boundary
- Williamson Act
- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Grazing Land (G)
- Urban and Built-Up Land (D)
- Other Land (X)

Source: Department of Conservation Farmland Mapping and Monitoring Program 2006

Farmland Mapping and Monitoring Program

The California Department of Conservation, Division of Land Resource Protection, administers the Farmland Mapping and Monitoring Program (FMMP). Land is rated based on its soil characteristics and irrigation status. These ratings are then used to help prioritize conservation efforts. The FMMP uses the term "Important Farmland" to describe parcels that meet certain criteria.

In Butte County, three Important Farmland types have been identified: Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. According to the FMMP:

- **Prime Farmland** is "farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date."

- **Unique Farmland** is "farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated 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 Statewide Importance** is "farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date."

Based on 2006 mapping data, approximately 139,459 acres in Butte County are identified by the FMMP as Important Farmland.

Regional and Local Plans, Policies, Regulations, and Ordinances

Right-to-Farm Ordinance

The Butte County Municipal Code (Chapter 35, Ordinance 2238) requires prospective buyers must be told when property is located within or adjacent to agricultural land as designated on the county's zoning map, and that residents of the property should be prepared to accept inconvenience or discomfort from the normal, necessary farm operations including, but not limited to, agricultural chemicals, dust, smoke, noise, and odor. Butte County's Right-to-Farm ordinance is intended to protect farm operations from nuisance complaints associated with residential uses located next to active agricultural operations. These complaints often cause farm operators to cease or curtail operations which may also deter others from investing in farm-related improvements that would support the Butte County's agricultural economy.

The City of Gridley does not currently have a Right-to-Farm ordinance, but the City does have an Agricultural Overlay District, the intent of which is to allow agriculture and agriculture-related uses on an interim basis until urban uses are developed (see Section 17.31 of the Gridley Municipal Code).

Butte LAFCo Policies

The statutory responsibilities of LAFCo are contained in the Cortese-Knox-Hertzberg Act, and mostly related to agency and special district service boundaries and spheres of influence. LAFCo makes decisions regarding annexations to the City, as well as any adjustments to the City's Sphere of Influence. LAFCo has the specific authority to review and approve or disapprove annexations to, or detachments from, cities or districts; formation or dissolution of districts; incorporation or disincorporation of cities; consolidation or reorganization of cities or districts; the establishment of a subsidiary district(s); the development of, and amendments to, spheres of influence; authorization of extension of services beyond an agency's jurisdictional boundaries; provision of new

or different services by districts; and, to prepare Municipal Service Reviews and Sphere of Influence studies at least every five years.

LAFCo has adopted written policies and procedures that guide its decisions. Butte LAFCo's policies and procedures contain criteria against which proposals to change boundaries are compared. Agricultural resources are mentioned throughout Butte LAFCo's Policies and Procedures, including the purpose statement: [to] "Promote Orderly Development. Provide for planned, well-ordered, efficient urban development patterns with appropriate consideration of preserving agricultural and open space lands within those patterns (Butte LAFCo 2004, page 1).

LAFCo's Policies and Procedures document spells out policies and standards that will be considered in decision making. Included in these policies and standards is the LAFCo intent to exercise its powers to conserve prime agricultural land, unique farmland, and land of statewide importance.

4.8.2 ENVIRONMENTAL SETTING

Agriculture has historically been an important industry in Butte County and the City of Gridley. Agriculture contributes to the City's economic health and prosperity, defines much of the visual character surrounding the City, supports wildlife habitats and migration corridors, and separates the City's urban land uses from surrounding developed areas.

In 2006, Butte County had 649,736 acres of agricultural lands, which represents approximately 61% of Butte County's total land area (FMMP 2006). According to the FMMP, changes in Butte County land uses between 1988 and 2004 (see Table 4.8-1) indicate a loss of farmland during the last two decades (FMMP 2004). Specifically, the amount of farmland in Butte County decreased from 269,182 acres in 1988 to 250,923 acres in 2004, which represents a 6.8% loss. The largest part of the lost farmland was a result of conversion to urban land.

The FMMP designates 231 acres of Important Farmland within Gridley City limits and 1,155 acres of Important Farmland in the Planned Growth Area. FMMP totals include both vacant land and land in agricultural use. Exhibit 4.8-1 illustrates the location of Important Farmland and Williamson Act contracts in the Study Area.

The estimated market value of agricultural production in Butte County for 2007 totaled $342,766,000. Butte County contained more than 2,000 farms in 2007, with an average production value of over $167,000 per farm. The highest-value crops in Butte County in 2007 included rice, almonds, English walnuts, and plums/prunes (USDA 2009).

Table 4.8-1
Farmland Conversions (1988–2004) in Butte County

	Acres		Change, 1988–2004	
FMMP Land Use	1988	2004	Acres	Percent
Irrigated Farmland	256,488	245,475	-11,013	4.3%
Non-irrigated Farmland	12,694	5,448	-7,246	57.1%
Farmland Subtotal	*269,182*	*250,923*	*-18,259*	*6.8%*
Grazing Land	270,065	261,946	-8,119	3.0%
Agricultural Land Subtotal	*539,247*	*512,869*	*-26,378*	*4.9%*
Urban and Built-up Land	35,175	43,819	8,644	24.6%
Other Land	322,783	339,578	16,795	5.2%
Water Area	20,704	21,643	939	4.5%

Note: FMMP = Farmland Mapping and Monitoring Program
Source: FMMP 2004

4.8.3 Environmental Impacts and Mitigation Measures

Methodology

The environmental analysis in this section is based, in part, on a review of FMMP Important Farmland maps. As part of the analysis, this EIR examines the Important Farmland classifications that are used by FMMP to determine the agricultural significance of the lands (i.e., Prime Farmland, Unique Farmland, and Farmland of Statewide Importance) in the General Plan Area.

Thresholds of Significance

Based on Appendix G of the State CEQA Guidelines, an impact on agricultural resources is considered significant if the proposed project would:

- convert Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) as determined by the FMMP Important Farmland criteria;
- conflict with existing zoning for agricultural use, or conflict with a Williamson Act contract; or
- involve other changes in the existing environment that, because of their location or nature, could result in conversion of Important Farmland to nonagricultural use.

The 2030 General Plan envisions changes in land use which would result in conversion of Important Farmland, as analyzed in Impact 4.8-1. However, with the exception of this direct effect, the proposed project would not result in other changes to the existing environment that would result in conversion of Important Farmland to nonagricultural use. The DEIR does not include further discussion of "other changes in the existing environment" which could result in conversion of Important Farmland; all such changes are analyzed in Impact 4.8-1.

Impact Analysis

IMPACT 4.8-1 **Loss of Important Farmland.** *Buildout of the 2030 General Plan would result in the conversion of Important Farmland and areas zoned for agricultural use to nonagricultural uses. Approximately 231 acres of Important Farmland in the City of Gridley (includes existing agricultural and vacant lands) and 1,155 acres of Important Farmland in the Planned Growth Area could be converted to urban uses. This impact is considered* ***significant****.*

According to Important Farmland designations identified by FMMP, the City of Gridley currently has approximately 231 acres of Important Farmland within City limits. Of this acreage, approximately 102 acres are designated as Prime Farmland and approximately 128 acres are classified as Farmland of Statewide Importance. In the Planned Growth Area, approximately 424 acres of Prime Farmland and 731 acres of Farmland of Statewide Importance currently exist. For the purposes of the analysis in this EIR, it conservatively assumed that implementation of the 2030 General Plan would result in conversion of all Important Farmland in the City of Gridley and the Planned Growth Area (526 acres of Prime Farmland and 859 acres of Farmland of Statewide Importance). Furthermore, the existing land use and zoning designations for the Planned Growth Area are for agricultural use.

As described below, some policies and programs of the 2030 General Plan would also protect agricultural land, both by requiring mitigation for agricultural land conversion, and by encouraging the continued viability of agricultural uses in proximity to urban uses.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan incorporates the following policies and implementation program aimed at protecting agricultural land, including Important Farmland, in the City of Gridley.

- **Conservation Policy 1.3**: New development within the Planned Growth Area shall mitigate for the conversion of agricultural land to urban use. Mitigation shall include in-lieu fees to acquire agricultural conservation easements or direct placement of agricultural conservation easements on a similar quality and amount of land.

- **Conservation Policy 1.4**: New developments that propose subdivision of property in areas adjacent to ongoing agricultural operations shall notify buyers of the potential use of agricultural chemicals, noise, and dust through notes on subdivision or parcel maps or by placing a note on a separate document that is recorded concurrently with the map.

- **Conservation Policy 1.5**: The City will not consider agricultural operations to be a nuisance when new residential development has become established adjacent to ongoing agricultural operations.

- **Conservation Policy 1.7**: The City will support small, niche farming on larger properties provided these operations are compatible with surrounding uses.

- **Conservation Implementation Strategy 1.1**: The City will adopt a "right to farm" ordinance (or adopt the Butte County Right to Farm ordinance, as appropriate) that informs residents of ongoing agricultural practices at the edges of Gridley and protects farmers and other agriculture interests from dumping, nuisance complaints, and other problems typically associated with new residents on the City fringe. The notice should advise new residents of potential mosquito abatement programs by the Butte County Mosquito and Vector Control District in the surrounding area. The City will coordinate with Butte County regarding the contents of the County's Right to Farm Ordinance to develop consistency, where appropriate.

- **Conservation Implementation Strategy 1.2**: The City will communicate with the County, nearby cities, the Department of Conservation, and other interested agencies to establish a regional agricultural land mitigation fee and conservation program. Such a program should support farmers and agriculture property owners alike in identifying areas of the County with rich soils and where long-term agricultural operations will be preserved. For development requiring annexation, the applicant should either directly preserve, through a conservation easement, or pay on a fair-share basis into a program to preserve permanently a similar amount and quality of farmland. The mitigation program should consider lower preservation ratios for agricultural land preservation within Butte County and higher ratios for preservation outside Butte County, in order to provide substantial incentives for local agricultural preservation. In addition, some portion of the impact fees should support agricultural extension, research, value-added programs, direct marketing of local agricultural products, and other efforts that would support local agricultural productivity. Agricultural mitigation fees could be applied toward research and development of agriculture-related renewable and sustainable energy sources. The City will tie its agricultural land mitigation fee and conservation program to the regional approach, once developed. In-lieu fees for use in this agricultural mitigation program should be based on a City-approved Nexus Study. The City will consider formalizing the agricultural mitigation program in an ordinance, if appropriate.

Conclusion

The 2030 General Plan includes policies that are intended to conserve agricultural land. However, the 2030 General Plan identifies urban land uses for all areas of the in the City's Sphere of Influence and in the Planned Growth Area, including some areas with high-quality agricultural land and areas zoned for agricultural use. Implementation of the General Plan would result in the loss of agricultural land uses, including Important Farmland and lands zoned for agricultural use, to urban development. This impact is considered **significant**.

Mitigation Measure

Planning for the development of urban uses in the Planned Growth Area is the purpose of the project. With the exception of the policies and programs of the 2030 General Plan, no additional feasible mitigation is available to reduce this impact.

Significance after Mitigation

Because any actions taken by the City, including policies in the proposed 2030 General Plan, would only extend the timeframe for conversion of Important Farmland associated with urban development or prevent against further loss elsewhere, loss of Important Farmland and areas zoned for agricultural use would still occur in the City of Gridley and the Planned Growth Area. Although the 2030 General Plan has programs and policies aimed at protecting existing agricultural lands, including Important Farmland, these policies would not prevent or offset the conversion of Important Farmland associated with urban development. Because no new farmland would be made available and the productivity of existing farmland would not be improved as a result of implementing agricultural protection policies, full compensation for losses of farmland would not be achieved and a net loss of Important Farmland would still occur. No feasible mitigation is available to reduce this impact to a less-than-significant level. This impact would remain **significant and unavoidable.**

IMPACT 4.8-2 **Conflict with Williamson Act Contracts.** *Buildout of the 2030 General Plan would result in the development of urban land uses on lands under a Williamson Act contract. Approximately 117 acres of land in the Planned Growth Area are currently under a Williamson Act contract and would be converted to urban uses. To allow for urban development, these agricultural land uses would be removed from protection under the Williamson Act. This impact is considered* ***significant****.*

Currently, there is one property located in the Planned Growth Area (approximately 117 acres in size, APN 022-210-079, located at 2185 Highway 99 in Gridley) that is currently protected under a Williamson Act contract (document number 2004-0052638 recorded August 27, 2004). With implementation of the 2030 General Plan, approximately 117 acres of existing agricultural land uses located in the Planned Growth Area and protected under a Williamson Act contract would be converted to urban use. This parcel is in nonrenewal status and should be out of the Williamson Act contract on January 1, 2014.[1] Although the development of this parcel could occur after the expiration of the Williamson Act contract, it is conservatively assumed that development would occur prior to this time, and therefore, the impact is considered **significant**.

Mitigation Measure

Planning for urban uses in the Planned Growth Area is the purpose of the project. No feasible mitigation is available to reduce this impact. Please refer to Section 5.0 of this EIR, which discusses alternatives to the 2030 General Plan.

Significance after Mitigation

Because any actions taken by the City, including policies in the proposed 2030 General Plan, would only entice, but not require, property owners to continue agricultural operations of their property, full compensation for losses of agricultural operations protected by a Williamson Act contract from urban development would still occur in the City of Gridley. No feasible mitigation is available to reduce this impact. This impact would remain **significant and unavoidable**.

[1] Blake King, Butte County Assessor's Office. Personal correspondence. August 26, 2009.

4.8.4 RESIDUAL SIGNIFICANT IMPACTS

Although the 2030 General Plan has programs and policies aimed at promoting agricultural productivity and value-added practices, as well as protecting existing agricultural lands, including Important Farmland, these policies would not prevent or offset the conversion of Important Farmland and lands zoned for agricultural use associated with urban development. Because no new farmland would be made available and the productivity of existing farmland would not be improved as a result of implementing agricultural protection policies, full compensation for losses of farmland would not be achieved and a net loss of Important Farmland would still occur in the City of Gridley. Therefore, Impact 4.8-1 would remain **significant and unavoidable.**

Development envisioned in the 2030 General Plan would require removing existing agricultural lands from protection under a Williamson Act contract. There is no feasible mitigation that would at once allow the City to plan for urban land uses as illustrated on the General Plan Land Use Diagram and would also preserve lands under a Williamson Act permanently from conversion to non-agricultural use. Therefore, Impact 4.8-2 would remain **significant and unavoidable.**

4.9 PUBLIC SERVICES AND UTILITIES

This section provides information on existing public services, utilities, and facilities within the City of Gridley. Buildout of the 2030 General Plan is analyzed relative to potential impacts to public service provision. This section analyzes impacts related to service extensions or expansions required to serve growth accommodated under the 2030 General Plan and discloses and mitigates physical adverse environmental impacts related to such service expansions or extensions.

4.9.1 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws pertaining to public utilities and services are applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Water Supply and Management

Senate Bill 610

Senate Bill (SB) 610 (Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code) requires the preparation of "water supply assessments" (WSA) for large developments (e.g., for projects of 500 or more residential units, 500,000 square feet of retail commercial space, or 250,000 square feet of office commercial space). These assessments, prepared by "public water systems" responsible for service, address whether there are adequate existing or projected water supplies available to serve proposed projects, in addition to urban and agricultural demands and other anticipated development in the service area in which the project is located.

Where a WSA concludes that insufficient supplies are available, the WSA must lay out steps that would be required to obtain the necessary supply. The content requirements for the assessment include, but are not limited to, identification of the existing and future water suppliers and quantification of water demand and supply by source in 5-year increments over a 20-year projection. This information must be provided for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not preclude project approval, but does require a lead agency to address a water supply shortfall in its project approval findings.

Groundwater Management Act

The Groundwater Management Act, Assembly Bill (AB) 3030, signed into law in 1992, provides a systematic procedure for, but does not require, an existing local agency to develop a groundwater management plan. This section of the code provides such an agency with the powers of a water replenishment district to raise revenue to pay for facilities to manage the basin (extraction, recharge, conveyance, quality). In some basins, groundwater is managed under other statutory or juridical authority (such as adjudicated groundwater basins) and is not subject to the provisions of this act for groundwater management plans.

Urban Water Management Act

The California Urban Water Management Planning Act of 1983 requires that each urban water supplier, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, shall prepare, update and adopt its urban water management plan at least once every five years on or before December 31, in years ending in 5 and 0. The plan describes and evaluates sources

of water supply, projected water needs, conservation, implementation strategy and schedule. The City of Gridley is not yet subject to this requirement (Butte Local Agency Formation Commission 2008).

Waste Management

Sewer System Management Plan

The State Water Resources Control Board (SWRCB) adopted new policies in December 2004 requiring wastewater collection providers to report sanitary sewer overflows and to prepare and implement Sewer System Management Plans (SSMPs). SSMP requirements are modeled on proposed federal capacity, management, operations, and maintenance plans. The SSMP policy requires dischargers to provide adequate capacity in the sewer collection system, take feasible steps to stop sewer overflows, identify and prioritize system deficiencies, and develop a plan for disposal of grease, among other requirements. In addition, wastewater providers must now report sanitary sewer overflows greater than 100 gallons to the Central Valley Regional Water Quality Control Board (Central Valley RWQCB), must keep internal records of overflows of less than 100 gallons, and must produce an annual report on overflows. Overflows from laterals on private property, if caused by an owner, are not required to be reported.

California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the California Legislature passed the California Integrated Waste Management Act (CIWMA) of 1989 (AB 939, Statutes of 1989), effective January 1990. According to the CIWMA, all cities and counties were required to divert 25% of all solid waste from landfill facilities by January 1, 1995, and 50% by January 1, 2000.

To help in the increase of diversion rates, each jurisdiction is required to create an integrated waste management plan. Each city plan must demonstrate integration with the relevant county plan. The plans must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. Elements of the plans must be updated every 5 years.

AB 939 established the California Integrated Waste Management Board (CIWMB) to oversee integrated waste management planning and compliance. Its passage led to the refinement of a statewide system of permitting, inspections, maintenance, and enforcement for waste facilities in California, and also required the CIWMB to adopt minimum standards for waste handling and disposal to protect public health and safety and the environment. CIWMB is responsible for approving permits for waste facilities, approving local agencies' diversion rates, and enforcing the planning requirements of the law through Local Enforcement Agencies (LEAs). The LEA for Butte County is the Butte County Environmental Health Division (BCEHD) (Butte Local Agency Formation Commission 2008). LEAs are responsible for enforcing laws and regulations related to solid waste management, issuing permits to solid waste facilities, ensuring compliance with State-mandated requirements, coordinating with other government agencies on solid waste related issues, and overseeing corrective actions at solid waste facilities. LEAs inspect facilities, respond to complaints, and conduct investigations into various aspects of solid waste management.

Public Utilities

California Public Utilities Commission

California Public Utilities Commission General Order 131-D (adopted by Decision 94-06-014 and modified by Decision 95-08-038) contains the rules for the planning and construction of new transmission facilities, distribution facilities, and substations. This decision requires utilities to obtain permits to construct certain power line facilities or substations if the voltage would exceed 50 kilovolts (kV) or if the substation would require the acquisition of land or an increase in voltage rating above 50 kV. Utilities do not need to comply with this decision for distribution lines and substations with voltage less than 50 kV; however, they must obtain any

nondiscretionary local permits required for the construction and operation of these projects. Compliance with the California Environmental Quality Act (CEQA) is required for construction of facilities constructed in accordance with the decision. The California Public Utilities Commission also has jurisdiction over the siting of natural gas transmission lines.

California Energy Commission

SB 1037, signed into law in September 2005, mandates that all publicly-owned utilities (POUs) report to the California Energy Commission (CEC) on cost-effective and feasible energy efficiency programs. AB 2021 was chaptered in 2006 and built upon SB 1037, further requiring POUs to develop energy efficiency targets on a triennial basis. The CEC is authorized to set targets for all municipal utilities. POUs do not report to the California Public Utilities Commission, which oversees investor-owned utilities.

Schools

California Department of Education Facilities and Planning Division

The California Education Code contains various provisions governing the siting, design, and construction of new public schools (e.g., Education Code Sections 17211, 17212, and 17212.5). In addition, to help focus and manage the site selection process, CDE's School Facilities and Planning Division has developed screening and ranking procedures based on criteria commonly affecting school selection (Education Code Section 17251[b], 5 CCR Section 14001[c]). The foremost consideration in the selection of school sites is safety. Certain health and safety requirements are governed by state statute and CDE regulations. In selecting a school site, a school district should consider the factors including proximity to airports, proximity to high-voltage power transmission lines, presence of toxic and hazardous substances, hazardous air emissions, and facilities within one-quarter mile, and proximity to railroads.

School Facility Fees

Education Code Section 17620 authorizes school districts to levy a fee, charge, dedication, or other requirement against any development project for the construction or reconstruction of school facilities, provided that the district can show justification for levying of fees. Government Code 65995 limits the fee to be collected to the statutory fee (Level I) unless a school district conducts a Facility Needs Assessment (Government Code Section 65995.6) and meets certain conditions. These fees are adjusted every 2 years in accordance with the statewide cost index for Class B construction as determined by the State Allocation Board.

SB 50 (1998) instituted a new school facility program by which school districts can apply for State construction and modernization funds. This legislation imposed limitations on the power of cities and counties to require mitigation for school facility impacts as a condition of approving new development. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "...legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property..." (Government Code Section 65996[b]). Additionally, a local agency cannot require participation in a Mello-Roos for school facilities; however, the statutory fee is reduced by the amount of any voluntary participation in a Mello-Roos. Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation."

State Service Standards Affecting All Districts

The California Education Code Section 41402 states that unified school districts are required to have eight administrative employees per 100 teachers.

State standards for the number of students per classroom pursuant to Chapter 407, Statues 1998 (loading standards) require a maximum of 25 students per classroom in elementary schools and 27 students per classroom in both middle and high schools.

Parks

Quimby Act

As part of approval of a final tract or parcel map, the California Quimby Act allows a city to require dedication of land, the payment of in-lieu fees, or a combination of both to be used for the provision of parks and recreational purposes. Cities can require land or in-lieu fees for a minimum of 3 acres per 1,000 residents, with the possibility of increasing the requirement to a maximum of 5 acres per 1,000 residents if the city already provides more than 3 acres per 1,000 residents.

Regional and Local Plans, Policies, Regulations, and Ordinances

Butte County

Butte County prepared a 2003–2008 stormwater management plan. In 2004, Butte County adopted an integrated water resources plan.

4.9.2 Environmental Setting

The population in Gridley was 4,631 in 1990, 5,450 in 2000, and 6,417 in 2009. This represents an annual growth rate of just over 2.1% between 1990 and 2009. As of January 1, 2009, existing housing in the City of Gridley included approximately 2,436 dwelling units according to California Department of Finance (DOF) estimates.

Utilities and Service Systems

This discussion of utilities and service systems is focused on existing water, wastewater, storm drainage facilities, solid waste disposal, and electrical services in the City of Gridley. Much of the information presented in this section is based on information contained in the *Final Municipal Service Review* prepared for the Butte Local Agency Formation Commission in 2008. Refer to Section 4.5, "Hydrology and Water Quality," for a discussion of water quality issues, including those related to stormwater runoff, and for a detailed discussion of groundwater issues.

Water Supply and Services

Domestic Water

Water users in the Gridley area depend on groundwater from the East Butte subbasin for domestic water supply (Butte Local Agency Formation Commission 2008). The water table is elevated throughout the Gridley area, ranging from 8 to 10 feet below surface grade (bsg). As reported in the *Final Municipal Service Review* prepared for the Butte Local Agency Formation Commission, a 2006 groundwater status report indicates that groundwater levels in the southwest valley portion of Butte County have generally remained stable, including during the 1976–1977 and 1986–1994 droughts. The stability of the groundwater level indicates sufficient water supply to accommodate projected growth. Refer to Section 4.5, "Hydrology and Water Quality," for further discussion of groundwater issues.

Six wells in the City of Gridley supply domestic water to residents (Butte Local Agency Formation Commission 2008). Two or three wells are kept online at all times. The City's system has a pumping capacity of 6,280 gallons per minute (gpm). All of the existing wells are equipped with backup generators. Private wells supply potable water at the fairgrounds and the Rio Pluma Company (a fruit processing and packaging facility). The City is

permitted for seven wells and is in the process of constructing an additional well in the Eagle Meadows subdivision on the west side of the city. Exhibit 4.9-1 shows the locations of the existing wells serving the city and the location of the well that is under construction in the Eagle Meadows development.

The City currently serves 2,126 connections; 91% of those are for residential use, and the remaining 9% are for commercial, industrial, and landscape irrigation uses. Domestic water use in Gridley averages approximately 225 gallons per capita per day (gpcd). Water meters have been installed throughout the City's service area. In 2006, all meters were replaced with radio-read meters as an efficiency measure. The City does not provide water service outside of the City Limits. In the unincorporated areas of the Study Area, water is pumped from private wells.

The elevated storage tank in the City was taken out of service because it is below the hydraulic grade line of the water system (56 psi, or 129 feet). The tank isn't high enough to provide adequate system pressure. However, the City is able to provide approximately 2½ times the maximum daily demand through pumping capacity. Additional pumping capacity may be required by 2010 to maintain acceptable standards (Butte Local Agency Formation Commission 2008).

The distribution system consists of 37.7 miles of a combination of iron (50%), polyvinyl chloride (PVC) (40%), asbestos (3%), and steel and galvanized steel (7%) pipes (Butte Local Agency Formation Commission 2008). The City is in the process of replacing all steel water mains. In 2006, 0.8 miles of mains were installed to eliminate 2-inch and dead-end mains. Some mains with older valves cannot be tested due to the possibility of creating leaks. The City anticipates eliminating all dead-end mains by 2012. As reported in the *Final Municipal Service Review*, there were no reported problems with service connection breaks, main breaks, leaks, water outages, or low pressure in 2006.

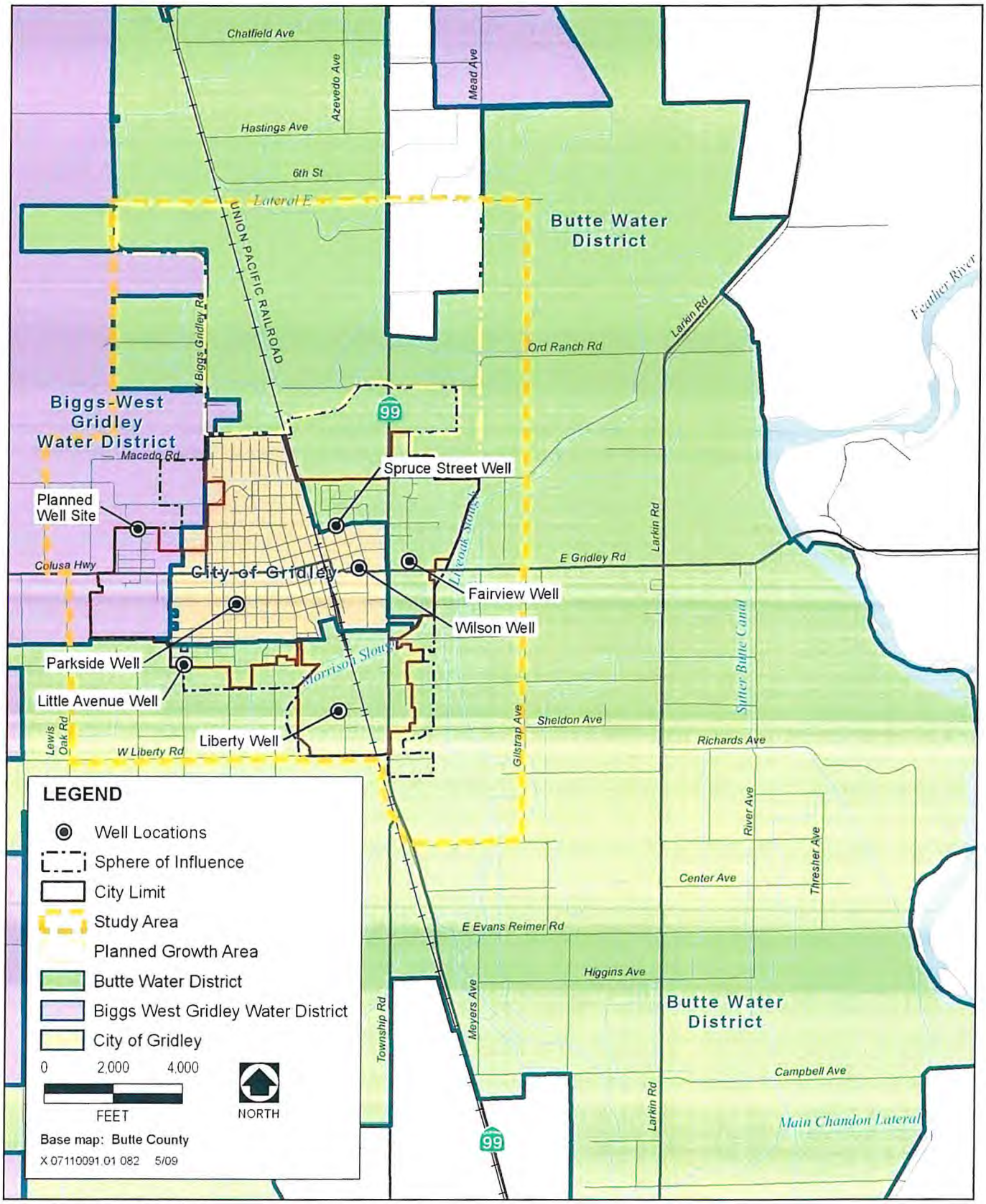
The City's existing (pre-update) General Plan addresses improvements to the City's water system. Those planned improvements include maintaining loops along the perimeter of the system to provide adequate pressure distribution and water circulation (City of Gridley 1999). The existing General Plan also addresses installation of a large diameter pipeline along the eastern boundary of the Sphere of Influence to provide fire flows to potential commercial and/or high-density residential uses near the proposed State Route (SR) 99 bypass. That large diameter pipeline has since been installed. The City also installed a new water main on West Biggs-Gridley Road, which includes fire hydrants and provisions for future connections with new property subdivisions. Developers are required to construct distribution mains and lines in their proposed property subdivisions. As additions are completed based on City standards, they are accepted into the City's system.

Service Standards and Reliability

Urban water suppliers are expected to address catastrophic disruptions of water supplies in plans reviewing the vulnerability of source and delivery and distribution systems to events such as regional power outages and system failures (Butte Local Agency Formation Commission 2008). The City of Gridley has produced a notification plan outlining strategies to notify the appropriate personnel and residents in case of emergency.

Urban water systems must maintain adequate pressure in order to provide adequate fire flow. The County Fire Marshall uses State of California fire flow requirements included in Appendix III-A of the 2000 Uniform Fire Code, which identifies fire flow requirements based on building area, construction type, and occupancy. There are no other requirements for water pressure, although customers generally expect adequate pressure for typical uses. The City's system provides adequate pressure with 45–55 pounds per square inch (psi) during normal operating conditions and 25 psi under maximum demand (Butte Local Agency Formation Commission 2008).

Although not a regulatory agency, the Insurance Services Office (ISO) considers fire flow availability in determining ISO ratings for jurisdictions. The ISO relies on criteria called the Fire Suppression Rating Schedule (FSRS) in the creation of its Public Protection Classification (PPC), which is used to rate a community's ability to suppress fires. The classification system is based on a survey of water pumps, storage facilities, and filtration systems. Approximately 40% of the PPC is based on the supply of water that is maintained and the available



Source: Burr Consulting, 2008.

Existing Well Locations **Exhibit 4.9-1**

water flow. Water flow requirements include water flow rate (in gpm) and duration, which vary throughout a community by building area and construction type. Water flows are assessed through a survey of representative locations within the community. Fire flow is adequate in most of the city of Gridley (Butte Local Agency Formation Commission 2008). The only fire flow deficiency noted by the local fire battalion chief relates to dead-end water mains, and as discussed above, the City is correcting this problem.

Irrigation

Two irrigation districts serve areas that are within Gridley's city limit and Sphere of Influence, and each district provides water for agricultural purposes to some parcels within these areas. The Biggs-West Gridley Water District (BWGWD) and the Butte Water District (BWD) have pre-1914 water rights to surface water from the Feather River through a joint powers agreement (JPA) with Ramirez Irrigation District and Sutter Extension Water District (Butte Local Agency Formation Commission 2008). BWGWD receives 161,000 acre-feet of Feather River water that is diverted through Thermalito Afterbay. Water then enters the BWGWD canal network through the Sutter-Butte Main Canal. BWD receives 133,200 acre-feet of water from the Feather River, which also enters BWD's canal system through the Sutter-Butte Main Canal. Some of BWD's canals run through and adjacent to Gridley. BWGWD has been short by about 5,000 acre-feet of water every year for the past 5 years. BWD reports surplus water available to serve other agencies, and is open to providing water for municipal uses (Butte Local Agency Formation Commission 2008).

BWGWD is located mostly west of the cities of Biggs and Gridley (Butte Local Agency Formation Commission 2007). Its eastern boundary overlaps the western portion of the city approximately to Randolph Avenue (Exhibit 4.9-1). Formed in 1942, BWGWD covers approximately 32,000 acres and provides irrigation services to the residential, agricultural, and open space property owners in its service area. Most of BWGWD's acreage is irrigated for agriculture and managed wetland uses at Gray Lodge Wildlife Area. The District provides water to orchards within the city and the surrounding Sphere of Influence. Eventually, water within BWGWD flows downstream to Reclamation District (RD) 833 canals and then into the Sacramento River. The population within BWGWD was recently estimated to be 1,749 (Butte Local Agency Formation Commission 2007). A relatively small portion of the Planned Growth Area along the east side of Biggs Gridley Road is within the BWGWD service area. Several property subdivisions, including Eagle Meadows, have been approved within orchard areas on the west side of Gridley where BWGWD has historically provided irrigation water. Conversion of these areas to urban uses will eliminate the need for agricultural irrigation; however, the areas have not yet been detached from BWGWD.

BWD was formed in 1956 and covers approximately 18,030 acres around the south, east, and north sides of Gridley (Butte Local Agency Formation Commission 2008). The majority of the parcels served by BWD are in agricultural uses with associated rural residences. Approximately one-half of the irrigated acres within the BWD service area are planted in orchards. Exit flows from BWD enter the reclamation drains, Sutter Bypass, and Butte Creek. BWD currently serves a considerable portion of the Planned Growth Area and other areas that are planned for residential and commercial development along the east and south sides of Gridley. Generally, as parcels are annexed into the City, they are detached from BWD; however, some parcels remain within both BWD and the City limits. The population within BWD was recently estimated to be 4,217 (Butte Local Agency Formation Commission 2007).

Wastewater Collection, Treatment, and Disposal

Existing Facilities and Service Demand

Gridley's wastewater collection system includes two main sewer trunk lines, one on the west side of the city and the other on the east side of the Union Pacific Railroad (UPRR) (City of Gridley 2005). The trunk line on the west side collects wastewater flows from low-density residential and commercial areas, and the trunk line on the east side collects wastewater flows from low- and high-density residential, commercial, and industrial areas. Flows

from these trunk lines discharge to two main pump stations, the Corporation Yard Pump Station on the west side, and the SR 99 Pump Station on the east side, with both discharging to a primary force main. Other minor pump stations collect flows from outlying areas and discharge to branches of the primary force main, which then conveys all wastewater flows east for approximately 5 miles, crosses under the Feather River in a pipeline that is trenched across the river bottom, and then delivers the flows to the City of Gridley's wastewater treatment plant (WWTP) on the east bank of the Feather River. The City is considering preparation of a study to determine the condition of the main under the river; however, there is no evidence of any leakages along the main (Butte Local Agency Formation Commission 2008). The WWTP provides secondary treatment of the wastewater before it is discharged to four percolation ponds located south of the plant. The percolation ponds are designed to infiltrate the treated effluent into the groundwater aquifer. The City is not permitted to directly discharge treated effluent to the Feather River. Emergency storage ponds are located on the west side of the river.

The City primarily provides wastewater treatment services to areas within the City limits, including wastewater flows from the Rio Pluma Company. Outside the City limits, Gridley serves two connections in south Gridley and provides treatment for septage from septic tanks. The City also operates a sewer lift station beyond the City limits that serves a farm labor camp located on the west side of the Feather River across from the WWTP. Properties that lie outside of Gridley's service area generally rely on septic systems for wastewater treatment. Generally, as individual septic systems fail, residents must connect to the City's system. There are 15 septic systems within the City limits.

The City of Gridley's WWTP was built in 1979. The current permitted capacity of the plant is 1.05 million gallons per day (mgd) of average dry weather flow (ADWF) (Butte Local Agency Formation Commission 2008). The City currently uses 0.88 mgd, or 84% of the plant's design capacity. Of the total daily effluent flow, 11% is from the Rio Pluma Company. Most of the remaining flow is from the City's sewer system with relatively small flows contributed from septage and the farm labor camp. Assuming an average of 100 gallons of wastewater per day per capita, the remaining capacity of 0.17 mgd would serve a population increase of approximately 1,700 people. The Central Valley RWQCB issued a revised waste discharge permit to the City in 2006 to allow a capacity increase of 0.65 mgd for a total WWTP treatment capacity of 1.7 mgd ADWF. Assuming that each person produces an average of 100 gallons of wastewater per day, this capacity increase would serve a population increase of approximately 6,500 people. The remaining capacity of 0.17 mgd and the capacity expansion of 0.65 mgd would serve a total population increase of 8,200 people, if all new allocations were for residential uses. However, a significant portion of existing wastewater generation is due to commercial and industrial operations, and these uses are expected to expand along with the City's population. WWTP expansion is scheduled for completion in fall 2009.

Infiltration and Inflow

Gridley's wastewater collection system experiences some infiltration and inflow (I/I) entering the gravity system, particularly during periods of rain (Butte Local Agency Formation Commission 2008). The City has reviewed peaking factors for the east- and west-side tributary gravity flow mains and found that the west side main has a higher peaking factor than the east side, indicating a higher degree of I/I. City staff suspects that the downtown area has a high degree of I/I due to older sewer mains; however, inflow locations and necessary corrective measures have not yet been identified. The City's *Wastewater System Capacity Analysis* includes a recommendation to prepare a detailed study to determine where the most serious degradation is occurring.

Known Deficiencies and Anticipated Infrastructure Needs

The wastewater collection system is currently operating at or slightly above capacity (City of Gridley 2005, Butte Local Agency Formation Commission 2008). The flow through the primary force main exceeds the original design criteria, but does not necessarily exceed the maximum allowable operating conditions. Preparation of the City's *Wastewater System Capacity Analysis* addressed needed improvements to the wastewater treatment system; funding has not yet been identified for all projects. The plans include construction of new gravity and force mains

and pump stations to direct flow around the city, as the collection system in the core of the city has reached capacity. An additional parallel force main to the WWTP is recommended by the City's engineer to accommodate increased wastewater flows that are expected to occur from growth and development in Gridley. A second force main under the Feather River would increase collection system capacity, lessen the load on the current primary force main, and act as backup to the existing main.

In the downtown area, approximately 30% of the collection system was installed before 1919. The City uses closed-circuit television (CCTV) to inspect the sewer lines. Portions of the sewer collection system are inspected annually to the extent possible as staff and funding are available. The inspection rate averages 0.19 miles per year, which represents 0.6% of the system. This inspection rate will improve with the implementation of the Sewer System Management Plan required by the Central Valley RWQCB.

The sewer collection pipe at the west end of Sycamore Street is located on a level slope and does not drain adequately by gravity. The project needed to replace this pipe will be funded by a USDA loan/grant. In the meantime, the City Public Works Department assigns staff to regularly flush out the pipe.

Drainage and Stormwater Conveyance

Stormwater Drainage Operations and Infrastructure

The Gridley area drains primarily to the southwest through ditches and sloughs toward the Sacramento River (Butte Local Agency Formation Commission 2008). Although the Gridley area lies between the Feather and Sacramento Rivers, it is outside of the 100-year floodplain, and it is not classified as a flood hazard area. As noted elsewhere, the Federal Emergency Management Agency (FEMA) is currently pursuing a re-mapping project for flood hazard zones. A preliminary map produced as a part of this project shows the entire Gridley area and much of southern Butte County in Zone A – 100 year floodplain with unknown flood depts.[1] However, this map is preliminary and subject to revision.

As described previously, groundwater elevations throughout much of the Gridley area are high. Drainage rates are slow due to the relatively flat terrain, with an average gradient of 0.5 foot per 1,000 feet in the ditches and sloughs. Within the city, an underground stormwater collection system serves new development and the older part of the city west of SR 99. Above-ground channels carry stormwater flows in the area east of SR 99. Four detention basins serve the city. Caltrans maintains a collection system along portions of SR 99 in the city; its system of drainage pipes operates at capacity.

Gridley's stormwater collection system discharges to several open drainage ditches and sloughs maintained by three special districts: RD 833, RD 2056, and Drainage District (DD) 1. The drainage systems operate at capacity during peak flow periods. Most of the Gridley area, including the western portion of the city and land within the Sphere of Influence, drains to sloughs maintained by RD 833 (Butte Local Agency Formation Commission 2008). All of the Planned Growth Area is located within RD 833. Stormwater drains into RD 833 Laterals E-1, E-1A, E-6, E-7, and E-7A through the Traynor Lateral; some of these drainage ditches cross under irrigation ditches.

Under a 2005 settlement agreement between RD 833 and the City, the City is authorized, but not obligated, to clean trash and debris, spray for weeds, and make structural changes to RD 833 laterals in the urban area. The City conducts routine maintenance of RD 833 facilities within the City limits, but this work is limited to areas where the City owns the drainage pipes. No official standards are in place for maintenance of drainage ditches and facilities. The City and the drainage districts conduct maintenance on an as-needed basis, subject to financing constraints.

[1] Zone A is defined as, "areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones."

RD 833 also serves the agricultural areas west of the city and the city of Biggs to the north. RD 833 maintains approximately 157 miles of drainage ditches, and a 720-acre area in Butte Sink used for drainage detention, duck club wetlands, and agricultural uses. The RD 833 drainage system extends more than 12 miles west of Gridley and 2 miles south to the point of discharge at the duck clubs located approximately where the Cherokee Canal and Butte Creek enter the Butte Sink. Butte Creek conveys irrigation and floodwater for several districts, including RD 833.

RD 2056 is generally located south of the city between Lewis Oak Road and SR 99, with a portion extending up the east side of SR 99 south of E. Gridley Road. The area within RD 2056 that is east of the UPRR and south of Magnolia Street and East Gridley Road drains to Morrison Slough, which originates in Gridley and extends 20 miles south before discharging through the Wadsworth Canal to the Sutter Bypass, a floodwater bypass from the Sacramento River (Butte Local Agency Formation Commission 2008). The system was designed to convey agricultural drainage flows. RD 2056 also serves farmlands south of Gridley, with the majority of its service area extending into Sutter County. RD 2056 maintains 35 miles of drains, of which 18 miles are in Butte County. The capacity of Morrison Slough is approximately 15 cubic feet per second (cfs) per square mile, the equivalent of a 2-year storm.

The eastern Gridley area, east of SR 99, drains to Live Oak Slough, which is maintained by private vendors retained by DD 1. Live Oak Slough flows south/southwest and eventually discharges to the Feather River. When river flow peaks, DD 1 relies on a pumping station to pump drainage into the Feather River. DD 1 also serves the agricultural area east of the city. The area east of SR 99 in Gridley does not have underground drainage pipes between the roads and the drainage channels.

Open drainage ditches were originally located outside the City limits. Subsequent annexations have extended the City boundary, and some of these ditches are now located within the City limits. Ditches in urban areas are protected by fencing. The three districts have requested that ditches adjacent to new development be installed underground. However, the City preferred to use fencing along drainage ditches in the past due to the prohibitive costs associated with installing buried pipelines. The high water table also affects construction costs associated with buried pipelines.

Need for Additional Stormwater Detention, Conveyance, and Discharge Capacity

It is the City's policy to require review and analysis of the inundation potential of new development and to require construction of appropriate on- and off-site drainage improvements to ensure that no net increase in peak drainage flows occurs during a 100-year storm event (Butte Local Agency Formation Commission 2008, City of Gridley 1999). The City also requires new development projects to provide on-site or off-site detention sufficient to maintain pre-development levels of peak stormwater runoff at predetermined locations in drainage canals. Detention can occur on the project site or downstream; it can occur above ground in swales or ponds or below ground, in holding tanks or oversized pipes, based on consultation with the affected reclamation or drainage district. Detention and storage facilities must have adequate security fencing to control access and must be designed to minimize pooling water to control mosquitoes. New development has included construction of on-site detention facilities to comply with this requirement. The City accepts responsibility for maintenance of new facilities by forming a maintenance district in the new subdivision or growth area, and property owners pay assessments to fund maintenance of new detention facilities. The City has considered installation of a regional detention basin, which would involve upgrading related infrastructure (e.g., drainage pipes). Project developers would be required to contribute to the cost of a regional detention facility.

The local drainage channels tend to back up due to inadequate channel capacity, lack of pumping capacity, or lack of capacity in downstream discharge waterways that are also used by the state for flood control purposes. During periods of high flows on the Sacramento River, flows are released into the Butte Sink area and other floodwater detention areas along the Sacramento River. These flood control activities create a backflow of waters in drainage

tributaries that serve the Gridley area. Additional drainage conveyance and discharge capacity is needed in the city to adequately handle stormwater runoff.

Solid Waste Disposal

Existing Solid Waste Management, Facilities, and Operations

The Butte Regional Waste Management Authority (BRWMA) regulates waste collection and recycling services in the cities of Biggs and Gridley, and in the unincorporated areas of the county (Butte Local Agency Formation Commission 2008). Solid waste service for the City of Gridley is provided under a franchise agreement with North Valley Waste Management. Solid waste generated in the city is disposed of at the Neal Road Landfill approximately 19 miles north of Gridley. The facility is located on 190 acres, 140 of which are used for solid waste disposal. The landfill is owned by the County and operated by the Butte County Public Works Department.

The Ord Ranch Transfer Station is located in Butte County, approximately one-half mile east of SR 99 on Ord Ranch Road. The transfer station is leased by the City of Gridley from Butte County and operated by North Valley Waste Management. The transfer station has a maximum permitted throughput of 64 tons of solid waste per day; all materials collected at the transfer station are hauled to the Neal Road Landfill for disposal.

Curbside recycling services for the City of Gridley are also provided by North Valley Waste Management. Curbside recycling containers are provided for green waste and co-mingled recycling. Household hazardous waste disposal is available to all county residents at the Butte Regional Household Hazardous Waste Collection Facility. Residents of Gridley may also use the Gridley Household Hazardous Waste Disposal Facility located at the Ord Ranch Transfer Station. Electronic hazardous waste (e-waste) facilities are available to all Butte County residents at the Neal Road Landfill and at e-waste collection site and satellite locations, including one in Gridley.

As reported in the City's *Final Municipal Service Review*, the BRWMA currently meets the 50% diversion rate requirement of AB 939 (Butte Local Agency Formation Commission 2008). In 2006, approximately 56% of solid waste generated within the BRWMA was diverted from disposal facilities.

Landfill Capacity

The Neal Road Landfill has a maximum permitted capacity of approximately 25 million cubic yards, and a maximum permitted throughput of 1,500 tons per day. The landfill accepted 183,000 tons of waste in 2005 and 169,713 tons in 2006 (California Integrated Waste Management Board 2008). A total of 136,540 tons of waste had been accepted at the landfill through the third quarter of 2007. As of July 2006, the estimated remaining capacity of the facility is 21.7 million cubic yards. The Neal Road Landfill was expanded in 2002 to extend the closure date of the landfill by 15 years, from 2018 to 2033; the landfill's tentative closure date is January 1, 2033.

It is estimated that 6,099 tons of solid waste were generated in Gridley in 2006, or over 5.5 pounds per person per day (Butte Local Agency Formation Commission 2008). This is slightly higher than the countywide average of 5.2 pounds per person per day for the same period. A 2.5% to 3.5% increase in waste per year is anticipated at the Neal Road Landfill due to anticipated growth in the county; however, no further expansions of the landfill are planned at this time.

Electrical Services

Existing Services and Facilities

The City of Gridley has operated its own electrical utility since 1910 (Butte Local Agency Formation Commission 2008). The Gridley Municipal Utility (GMU) provides services to 2,667 accounts. Most of its customers are residential followed by commercial accounts. There are currently very few transportation and industrial accounts.

Gridley is a member of the Northern California Power Agency (NCPA) and the Western Area Power Administration (WAPA) (Butte Local Agency Formation Commission 2008). The City has ownership interests in two generation facilities operated by the NCPA and has a long-term contract for a percentage in WAPA's base resources. The first of the NCPA interests is a 2-unit geothermal generation facility in Lake County with a generation capacity of 220 megawatts (MW) of power. The City of Gridley's ownership percentage is approximately 0.34%, or 3,200 megawatt-hours (MWh) per year. The second is a 5-unit combustion turbine peaking project with a capacity of 125 MW. This second system operates at peak usage times across NCPA member communities to insulate members from high prices of spot market power.

The City has a long-term contracted interest of 0.62% in WAPA base resources (i.e., hydroelectric power). The amount of power available to the City in any year from this system is subject to gross production, which changes depending on water and energy needs for system operations. In an average year, this system provides 17,600 MWh of power to Gridley, but a wet year can generate over 30,000 MWh while a critically dry year could result in zero power generation. Total WAPA capacity is more than 2,000 MW. The Gridley electrical system is linked to this generation mix through its interconnection with Pacific Gas and Electric Company's (PG&E's) transmission system.

The City is also a member of the California Joint Pole Association and shares common poles throughout the city with other utilities such as PG&E, Comcast, and AT&T (Butte Local Agency Formation Commission 2008). GMU provides certain services to the City of Biggs electrical utility, including operation and maintenance services for the distribution system. This includes maintenance of the City of Biggs 60 kV transmission system (from SR 99 to the Biggs substation). PG&E serves the unincorporated areas around Gridley. Under law, residents in areas that are annexed into the city may continue to receive their electrical service from PG&E, or they may switch to the municipal utility. The City of Gridley may not provide electrical service to residents outside the City limits. When areas served by PG&E are annexed and customers opt for service from GMU, the City installs wiring to connect these new areas to the electrical system.

Gridley owns and operates a modular electric substation on Fairview Drive that was constructed in 1983 (Butte Local Agency Formation Commission 2008). It has a primary voltage rating of 60 kV. Its design life is 50 years and it is currently in good condition. The substation has a rated capacity of 10 MW and an operational capacity of about 12.5 MW. The average daily load is about 45% of capacity. When peak load nears 10 MW, the use is at about 80–100% of capacity. Gridley also owns a back-up substation that was constructed in 1950. This substation is used during the annual maintenance and testing of the primary substation. Otherwise, it is only used for emergencies, which has not been necessary for the past 10–15 years.

Gridley's main substation taps into the regional PG&E high-voltage (60 kV) transmission line, transforms the high-voltage power, and feeds it into the City's electrical distribution lines. The distribution system was upgraded from 4,000 to 12,000 volts in 1975 and uses three main circuits. One is primarily for SR 99 traffic signals and Rio Pluma (agricultural processing facility). Biggs-Gridley Memorial Hospital and uses in the northern portion of the city share another circuit. The remaining circuit serves Gridley's main shopping center and uses on the southern side of the city.

In fiscal year (FY) 2005–2006, total energy usage in Gridley reached 35.9 gigawatt-hours (GWh) (Butte Local Agency Formation Commission 2008). Monthly usage during summer in Gridley ranges from 4,000 to 4,500 MWh (133 to 150 MWh per day); winter usage ranges from 2,500 to 3,000 MWh (83 to 100 MWh per day). Peak demand indicates the maximum load in a system. The peak demand in FY 2005–2006 was 9.7 MW, and in Biggs it was 3.8 MW. During the heat wave in July 2006, peak usage reached 10.4 MW. The average peak usage from October to May ranges from 4.5 to 5 MW.

The GMU has been able to adequately serve the City, and power outages are rare. During a 7-month period beginning in May 2007, several minor power outages were recorded, and one power outage was recorded that lasted over 15 hours.

Anticipated Electrical Infrastructure Needs

All three circuits have adequate capacity to serve buildout of the Sphere of Influence (Butte Local Agency Formation Commission 2008).

Infill projects will require establishing connections to the existing distribution system. New developments will require additional electrical infrastructure, specifically new distribution lines and transformers.

New developments typically require the construction of self-contained distributions systems that are then connected to one of the three existing circuits. New distribution systems for projects are not constructed until project approval has been obtained and after construction costs have either been paid to the City, or the developer has constructed the facilities in accordance with applicable City standards.

A new substation with increased capacity will likely be required to accommodate growth in the existing Sphere of Influence. New subdivisions continue to contribute impact fees for the eventual construction of this new substation.

PUBLIC SERVICES

This discussion of public services is focused on existing fire protection and emergency medical services (EMS), law enforcement, public schools, and parks and recreation facilities in the City of Gridley. Much of the information presented in this section is based on information contained in the *Final Municipal Service Review* prepared for the Butte Local Agency Formation Commission in 2008.

Fire Protection and Emergency Medical Services

Existing Fire and Emergency Services and Facilities

Pursuant to Section 4142 of the California Public Resources Code, the City provides emergency medical and fire protection, prevention, investigation, and permitting services through a cooperating agreement with the California Department of Forestry and Fire Protection (CAL FIRE) (Butte Local Agency Formation Commission 2008). "Schedule A" is the term used by CAL FIRE for the cooperating agreement by which local government pays CAL FIRE for year-round fire protection and emergency services. The agreement is renewed annually. The City retains funding control and policy direction, while the CAL FIRE Unit Chief provides for the daily needs of full-service fire protection.

Gridley benefits from automatic aid agreements with the City of Biggs, which also contracts with CAL FIRE, and the Sutter County Fire Department, including the City of Live Oak Fire Department. These aid agreements provide for additional fire suppression support when necessary. When needed, the City of Gridley also receives service from 11 professionally staffed county stations and six state fire stations through a cooperative agreement.

Butte County Fire Department (BCFD) also provides services for management of hazardous materials through a contract with CAL FIRE.

Advanced life support and ambulance transport are provided by Enloe Medical Center, which is located approximately 30 miles north of Gridley in Chico.

Gridley is currently served by five fire stations (Butte Local Agency Formation Commission 2008). Station Nos. 74 and 76 are located within the City limits. The Biggs Station is located at 434 B Street in the City of Biggs. Fire stations in outlying areas include one in the community of Palermo, approximately 13 miles northeast of Gridley, and another in Richvale, approximately 12 miles north of Gridley. The Biggs station provides automatic aid response in Gridley. The station in Palermo does not provide primary service to the City, but responds with a back-up engine when required. CAL FIRE provides professional staffing at Station No. 74, which is owned by

BCFD. Station No. 74 is located at 47 E. Gridley Road. It operates 24 hours a day, 7 days a week with a staff of four paid professional firefighters. Butte County and the City contribute funding toward the four existing positions at Station No. 74.

The City provides space and equipment at Station No. 76, which is staffed primarily by BCFD with volunteer firefighters. Station No. 76 is located at 685 Kentucky Street next to City Hall. When needed, the volunteer firefighters are called upon by CAL FIRE. The station was constructed in 2000. The station was originally designed and built as expansion space for the Gridley-Biggs PD.

The City's fleet of fire engines includes one ladder truck, one reserve engine, a wildland engine, two squad trucks, and an air and lighting unit at Station No. 74. The City recently purchased a new ladder truck and one Type 3 engine and a new Type 1 engine has been ordered. As reported in the City's *Final Municipal Service Review*, no other vehicles are currently needed.

Service Standards and Adequacy

Training

CAL FIRE conducts in-house training for firefighting personnel year-round (Butte Local Agency Formation Commission 2008). Some training is also provided by the Butte College Fire Academy. Rescue crews include certified "EMT-1" personnel who are versed in the latest lifesaving techniques and equipment. New career firefighters attend a formal 6-week CAL FIRE Firefighter Academy. All new employees complete a mandated 3-year apprenticeship program. Firefighters promoting to Fire Apparatus Engineers status attend an additional 6-week CAL FIRE Engineer/Company Officer Academy. All employees attend refresher training in areas such as technical rescue, hazardous materials, confined space rescue, and Emergency Medical Technician (EMT). Fire suppression employees participate in two multi-company drills per month as well as daily engine company training. Fire suppression employees are also encouraged to attend both in- and out-of-state fire service conferences. On average, a CAL FIRE employee participates in over 400 hours of training each year. Some employees also attend additional formal training to maintain their EMT/Paramedic license and Hazardous Materials Specialist certifications.

Service Demand and Response Times

As reported in the City's *Final Municipal Service Review*, CAL FIRE responded to 585 service calls in 2006. Approximately 79% of the calls were for emergency medical services (EMS). Vehicle accidents accounted for 6% of total calls; fire alarms accounted for 4% of total calls; and false alarms accounted for 3% of total calls.

The guideline established by the National Fire Protection Association (NFPA) for fire response times is 6 minutes at least 90% of the time, with response time measured from the time of the 911 call to arrival of the first responder at the scene. The fire response time guideline established by the Center for Public Safety Excellence (formerly the Commission on Fire Accreditation International) is 5 minutes, 50 seconds at least 90% of the time. The existing Gridley General Plan (City of Gridley 1999) has a goal of 4 minutes for response time.

The Gridley Fire Department provides first-response to emergency medical calls and basic life support (BLS) until Enloe Medical Center arrives at the scene to provide advanced life support (ALS) and ambulance transport (Butte Local Agency Formation Commission 2008). A paramedic captain is trained to provide ALS as well. The BLS medical response time guideline established by the California EMS Agency is 5 minutes in urban areas and 15 minutes in suburban or rural areas. Response time is affected not only by service area size, but also by anticipated traffic congestion, topography, and street layouts. CAL FIRE is challenged to meet minimum response times in areas west of the railroad tracks in Gridley. The Gridley Fire Department responds within 6.2 minutes 90% of the time. Northern California Emergency Medical Services, Inc. is the regional agency that implements the state EMS Authority's policies in Butte County and regulates ALS and ambulance providers. California EMS

guidelines for ALS first-response times are 8 minutes in urban areas and 20 minutes in suburban areas. Enloe Medical Center achieves the first-response goal 90% of the time.

ISO Classification

ISO's Public Protection Classification (PPC™) Service gauges the capacity of the local fire department in a community to suppress fires (Butte Local Agency Formation Commission 2008). ISO assigns a PPC number from a range of 1 to 10 as a way to assess fire service in communities. Class 1 represents the best public protection and Class 10 indicates no recognized protection. Criteria that are evaluated include water distribution systems, fire department facilities, equipment, personnel, fire alarms, and communications. There is a direct relationship between a PPC rating and the cost of property insurance for every home and building in a community. The ISO classification within Gridley's City Limits is 4; this classification applies to both urban and rural areas. In the Sphere of Influence, the City has an ISO classification of 4 for urban areas and rural areas that are within 1,000 feet of a fire hydrant. Structures within 5 miles of a fire station that have no hydrants are classified as ISO 8B. The ISO rating was updated in 1996.

Known Deficiencies and Anticipated Service Improvements

The fire department does not currently meet the response time goal identified in the existing 1999 General Plan. As reported in the City's *Final Municipal Service Review*, the UPRR tracks are sometimes a barrier to providing timely service on the west side of the city. To improve response times, the City is planning to construct a new station on the west side of the tracks (Butte Local Agency Formation Commission 2008). This station may replace Station No. 76 next to City Hall. Tentative plans for the new station have been developed; however, a site for a new station has not yet been selected and plans have not been approved. Construction timing will depend on development activity in the area. Although an acceptable level of service is currently maintained in the area west of the railroad tracks, response times will increase as subdivisions are constructed further to the west until the new station can be built. If growth is directed to the north toward the Planned Growth Area, an additional station may instead be planned in cooperation with Biggs to allow for maximum response efficiency. As growth occurs, the area north of Gridley near Ord Ranch Road will need infrastructure improvements to provide for greater fire flows.

Water pressure and water reserve have been identified by CAL FIRE as issues in the northern part of the City along SR 99, which are issues related to the dead-end water mains. As discussed above, the City anticipates eliminating dead-end mains by 2012. As reported in the City's *Final Municipal Service Review,* growth in the Gridley-Biggs area will require hiring another career firefighter sometime before 2015. Funding for such a position is yet to be determined.

Law Enforcement

Existing Law Enforcement Services and Facilities

The City provides law enforcement, traffic and parking enforcement, investigation, dispatch, and animal control services within the City limits. The City has provided contract service to the City of Biggs for police and animal control services since 2001. Since then, Gridley's police department has been known as the Gridley-Biggs PD (Butte Local Agency Formation Commission 2008).

The Gridley-Biggs PD facility was built in 2000 and is located at 685 Kentucky Street adjacent to City Hall. The facility has interview rooms but no temporary holding facilities. The Gridley-Biggs PD coordinates with the Butte County Sheriff's Office (County Sheriff's Office) when it is necessary to transport arrested suspects directly to the Butte County Jail. The Gridley-Biggs PD operates a fleet of 18 vehicles. Twelve vehicles are fully marked police cars, three are unmarked police cars, and three are specialized vehicles used for undercover narcotics operations, animal control, and scheduled patrols with local senior citizens. The City-owned animal shelter is located at 895 Sycamore Street. The City relies on the County Sheriff's Office for search and rescue, SWAT,

bomb squad, and long-term holding facilities at the Butte County Jail. Crime laboratory services are provided by the California Department of Justice (DOJ) office in Chico.

Sworn officers provide emergency and law-enforcement related activities. The City staffs its PD with 17 sworn officers, including the Chief of Police, an assistant chief, three sergeants, two detectives, and 10 patrol staff (Butte Local Agency Formation Commission 2008). Other staff includes six civilians, reserve officers, and part-time dispatchers. The City has a minimum of two officers on duty at all times, and usually three on duty in the evenings. Special assignments include a school resources officer to address school violence in Gridley and Biggs, a full-time Butte Interagency Narcotics Task Force officer and as-needed participation in the Butte County Anti-Gang Enforcement Unit. Additional gang suppression services include community meetings directed at educating parents on gang issues, four to five annual gang sweeps, and a detective dedicated primarily to gang-related crime.

The Gridley-Biggs PD operates a full dispatch center where 911 calls from landlines in the City limits are initially dispatched. The dispatch center also handles animal control calls and coordinates ongoing calls for after-hours public works and electrical system emergencies. The center is operated by a supervisor and four dispatchers. The Gridley-Biggs PD receives and dispatches all 911 calls that originate from cellular phones.

The County Sheriff's Office provides law enforcement services outside the City limits. The Sheriff assigns one deputy to the Gridley-Biggs area about one-quarter of the time (40 out of 168 weekly hours) on a variable schedule. The remainder of the time, the County Sheriff's Office responds to incidents from its Oroville station 15 miles northeast of Gridley. The California Highway Patrol (CHP) is responsible for traffic enforcement in unincorporated areas. The Gridley-Biggs PD, County Sheriff's Office, and CHP exchange general law enforcement assistance as necessary. The Gridley-Biggs PD often responds to calls faster than the County Sheriff's Office, particularly when no deputy is in the Gridley-Biggs area.

Crime Rates

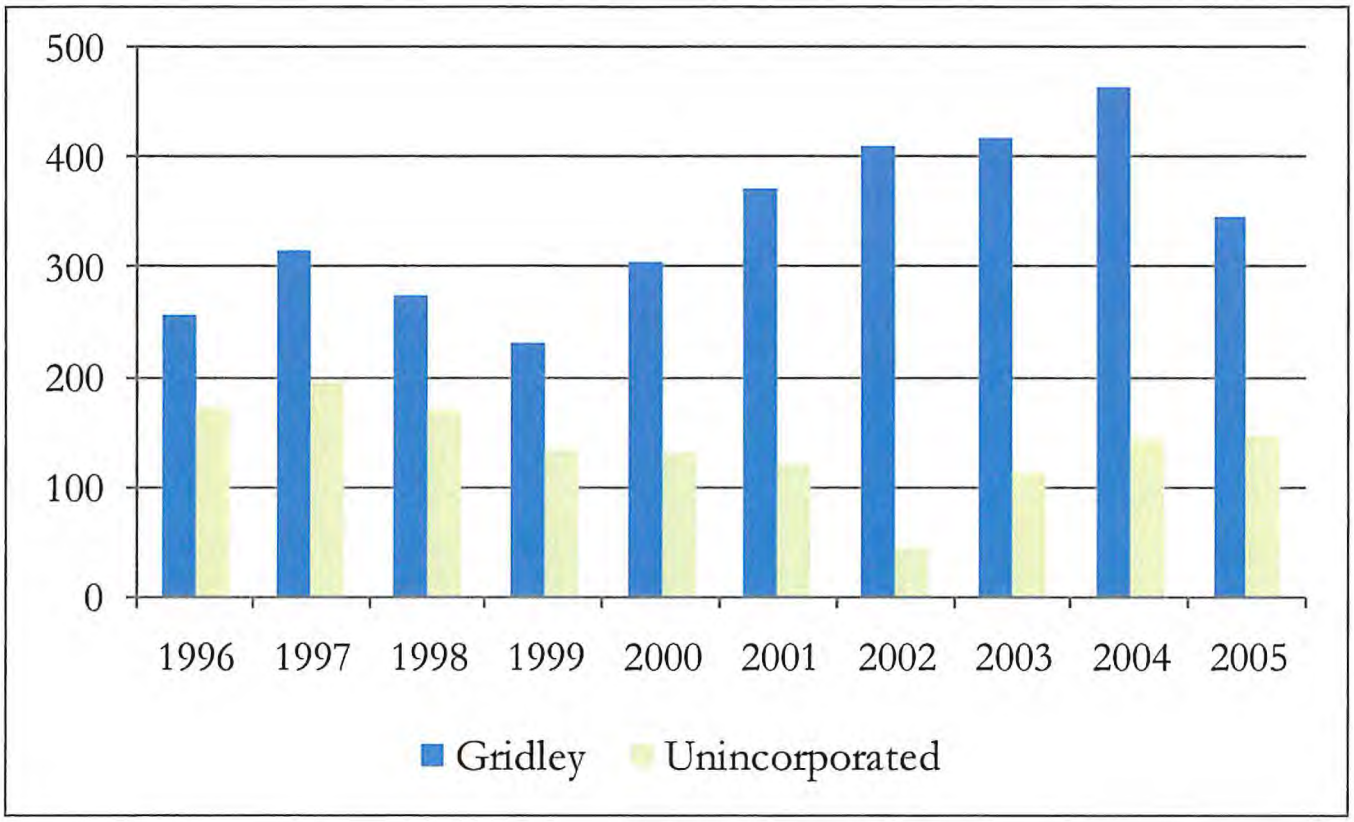
The Uniform Crime Reporting Program provides nationally standardized criminal statistics for use in law enforcement. In California, this program is administered by the California Department of Justice (DOJ). Data are collected on homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft over $400, motor vehicle theft, and arson. Serious crime rates reflect the ratio of violent crimes and serious property crimes per 10,000 residents. From 1999 to 2004, there was a general increase in the City's crime rate (Exhibit 4.9-2) (Butte Local Agency Formation Commission 2008). Data from 2005 shows a 26% decline in Gridley's crime rate from the previous year. The unincorporated areas of the county declined following a peak in 1997 through 2002, but numbers of crimes have increased each year since then.

As reported in the City's *Final Municipal Service Review*, no official gang-specific statistics are available to track the number of incidents in Gridley or neighboring areas. Gang-related crime and violence is a concern throughout the region and in neighboring counties. A federal-local task force was formed in 2004 that has conducted gang sweeps in Butte, Sutter, and Glenn Counties, in response to escalating gang violence. The City of Gridley has experienced several shooting incidents suspected to be gang related, including a drive-by shooting in 2004 and shootings at two Gridley homes in 2007.

Service Standards and Adequacy

Best Practices

Best practices include developing law enforcement agency policies on use of force, use of safety belts, review of complaints about personnel, fitness-for-duty evaluations, and law enforcement values. The Gridley-Biggs PD has implemented law enforcement policies customized by Lexipol, a nationally recognized firm that provides risk management resources for public safety organizations. Based on its body of law enforcement policies, the



Source: Butte LAFCo 2008

Rate of Serious Crimes per 10,000 Residents, 1996–2005 **Exhibit 4.9-2**

Gridley-Biggs PD investigates all complaints, maintains use of force and seat belt policies, and conducts fitness-for-duty evaluations every three years. Its policies cover a wide range of issues, including pursuits, discipline, sexual harassment, elder abuse, and anti-reproductive rights reporting.

Training

The Gridley-Biggs PD meets the standards of the California Commission for Peace Officer Standards and Training (POST) (Butte Local Agency Formation Commission 2008). Personnel hired by the Gridley-Biggs PD must have received POST training. Additional training for a range defensive tactics is provided by the Gridley-Biggs PD, and law enforcement personnel receive additional training through classes offered by POST.

Service Demand and Response Times

The Gridley-Biggs PD is responsible for responding to 911 calls, burglar alarms, and various non-emergency calls, in addition to conducting patrol activities and issuing citations. Each year, the Gridley-Biggs PD receives a total of approximately 13,000 total calls for service; of that total, approximately 1,500 are 911 calls. Total service calls have increased consistently due to growth. A significant increase in service calls occurred in 2001 when the City began serving Biggs (Butte Local Agency Formation Commission 2008).

Although police response times for serious crimes in progress are an important indicator of service adequacy, there are no clear standards as to what that response time should be. As reported in the City's *Final Municipal Service Review*, the average response time for the Gridley-Biggs PD is 2½ minutes (Butte Local Agency Formation Commission 2008).

Although the number of sworn officers per capita is a traditional indicator of service level, no state or national standards have been established for police staffing levels. In FY 2004–2005, many California cities with an independent police department had 1.3 sworn officers per 1,000 residents. Staffing levels tend to be higher in smaller cities. Small cities with a population of 5,000 to 10,000 residents averaged 1.7 sworn officers per 1,000 residents. For FY 2004–2005, staffing levels per capita in nearby cities with populations similar to Gridley were somewhat lower than Gridley (Butte Local Agency Formation Commission 2008).

The Public Facilities Element of the existing General Plan includes a goal to maintain a law enforcement level of service of at least 1.0 sworn officer per 1,000 residents (City of Gridley 1999). The City's current staffing ratio of 2.1 sworn officers per 1,000 residents in the combined Gridley-Biggs service area is more than double the goal. As reported in the City's *Final Municipal Service Review*, the Gridley-Biggs PD expects to maintain a minimum ratio of 1.7 sworn officers per 1,000 residents under existing staffing levels until the Gridley population increases by approximately 2,000 residents.

Crime Clearance Rates

Crime clearance rates are the proportion of crimes that are solved or cleared. There are no standards or guidelines on the proportion of crimes that should be cleared. Cleared crimes refer to offenses for which at least one person was arrested, charged with the offense, and turned over to the appropriate court for prosecution. A crime is also considered cleared by exceptional means if the offender dies, the victim refuses to cooperate, or extradition is denied.

In 2005, the Gridley-Biggs PD cleared 62% of violent crimes in Gridley and 100% in Biggs. By comparison, the County Sheriff's Office cleared 38%, Oroville cleared 56%, and Chico cleared 31%. Property crime clearance rates were lower. The Gridley-Biggs PD cleared 6% of burglaries and the County Sheriff's Office cleared 5%. The Gridley-Biggs PD cleared 13% of motor vehicle thefts in Gridley and 29% in Biggs, and the County Sheriff's Office cleared 5% of motor vehicle thefts (Butte Local Agency Formation Commission 2008).

The crime clearance rates declined when Gridley began serving Biggs in 2001. As the City has adjusted to its new service responsibilities, the violent crime clearance rates have improved. Property crime clearance rates declined in 2001 and have not yet recovered. Arrest rates (measured as felony and misdemeanor arrests per capita) declined in 2004 and 2005. A renegotiated contract with the City of Biggs in 2007 is expected to result in adjustments to workload that should contribute to a recovery of crime clearance rates.

Known Deficiencies and Anticipated Infrastructure and Service Improvements

The Gridley-Biggs PD intends to expand its facilities by using space that is presently part of Fire Station No. 76 (described above under, "Fire Protection and Emergency Medical Services"). This would allow expansion of the existing evidence and storage facility and the addition of a sergeant's office.

Upgrades and replacements are needed for radio equipment, which will be paid for with funds the City has set aside for several years. The City has also set aside funds to purchase replacement vehicles and computers. Marked police vehicles must be replaced every 5 to 7 years; to achieve this replacement rate, five new cars are required approximately every 3 years.

As reported in the City's *Final Municipal Service Review*, City staff has indicated that a new Union Pacific Railroad (UPRR) crossing may be needed as a measure to ensure that service standards are maintained. This new crossing may require an overpass; however, the City does not have plans to implement such a project at this time.

A non-sworn traffic officer is needed to address accidents and other potential traffic issues, and the addition of a canine unit would improve the City's ability to address drug enforcement. To match the median service level among small California cities (1.7 officers per 1,000 residents), it is estimated that the City would need an additional nine sworn officers by 2025. To sustain existing service levels, an estimated 16 additional sworn

officers would be needed by 2025 (Butte Local Agency Formation Commission 2008). No new hires would be needed to maintain the minimum adopted policy of 1.0 officer per 1,000 residents.

Schools

Gridley is served by the Gridley Unified School District. The following schools are within the Gridley Unified School District, which serves students in Gridley:[2]

- McKinley Elementary School at 1045 Sycamore Street is a kindergarten (K) through 1st grade school with a student enrollment of 329.
- Wilson Elementary School at 409 Magnolia Street is a 2nd through 5th grade school with a student enrollment of 589.
- Sycamore Middle School at 1125 Sycamore Street serves 6th through 8th grades and has a student enrollment of 445 students.
- Gridley High School serves grades 9 through 12 and has a student enrollment of 607.
- Gridley Alternative Education Center (alternative education, continuation high school, community day school) serves grades 9 through 12 and has a student enrollment of 151.

Known Deficiencies and Anticipated Infrastructure and Service Improvements

Each of the schools serving Gridley today is under capacity, although two schools have less than 10 percent of their capacity remaining. As new development occurs within the School District service boundary, new school facilities would need to be constructed.

Parks and Recreation

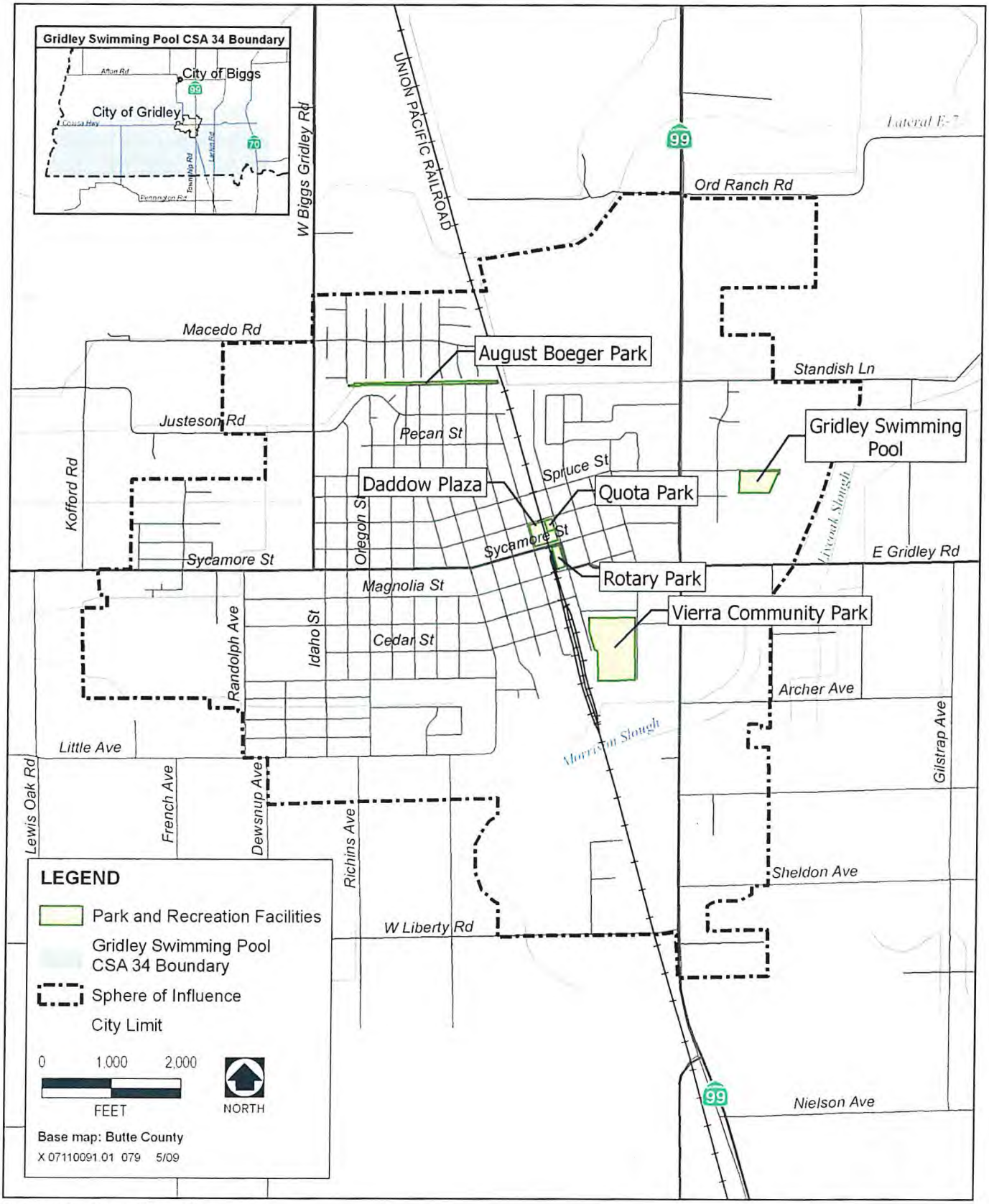
Existing and Planned Park Facilities and Programs

The City of Gridley owns and maintains four parks within the City limits through its Recreation Department. Existing and planned parklands in Gridley are shown in Exhibit 4.9-3.

Vierra Community Park covers 13.5 acres and is the largest of the park facilities (Butte Local Agency Formation Commission 2008). It is located south of Norman Street between Washington and Haskell Streets. Facilities at Vierra Park include two playgrounds, a tot lot, two recreational buildings, two tennis courts, a barbecue and picnic area, and baseball and softball fields. Gridley Little League baseball games are played at Vierra Park. A fenced area at the park is available for children's birthday parties.

Three small parks are located in downtown Gridley adjacent to the UPRR tracks: Daddow Park, Quota Park, and Rotary Park. Together these parks total 4.4 acres. Facilities include a bandstand, and picnic tables and benches. Free concerts are often held at the gazebo in Daddow Park. The City used Proposition 12 grant funds to purchase these three parks from UPRR in FY 2004–2005. A grant-funded skate park was opened in November 2008 and a water park will soon be constructed. These facilities are located at a new 0.81-acre park facility on Washington Street, north of Hazel Street. The site was purchased by the City in FY 2004–2005 with funds from Proposition 12.

[2] Gridley Unified School District, personal correspondence, May 27, 2009.



Source: Burr Consulting, 2008.

Existing and Planned Parklands **Exhibit 4.9-3**

August Boeger Park is a linear park area that covers 1.9 acres in the Heron Landing subdivision in the north part of the city. The 5-acre Eagle Meadows Park is planned on the west side of the city in the subdivision of the same name. The Gridley Community Swimming Pool is located east of SR 99 on E. Hazel Street. A total of 25.6 acres parkland are developed or planned for development within Gridley.

Recreation programs in Gridley include a teen center offering activities after school, and a variety of summer programs and day camps for school-aged children, ranging from sports leagues to science and reading offerings to art and cooking classes. The Teen Center is open after school, Monday through Friday, until 5:30 p.m. Activities and games at the Teen Center include air hockey, video games, basketball, karaoke, sewing, and cooking. Movies are shown and computers are available. The Teen Center is located at the corner of Fairview Drive and Spruce Street, on the grounds of Gridley High School. School recreational facilities are located on the campuses of the McKinley School, Wilson School, Sycamore Middle School, and Gridley High School. These facilities are available for community events. The Gridley Community Center on East Spruce Street is jointly owned and operated by the City and the Gridley Unified School District, and offers several rooms, including an 8,000 square foot room used for the Teen Center, high school band, and special events. Beyond the City Limits, the Manzanita School Gymnasium is available for use for up to 20 hours per week under a joint-use agreement between the City and the Manzanita School District. The Butte County Fairgrounds are located east of SR 99 on the east side of Gridley.

The City also owns and maintains a boat launch area on the Feather River as part of its recreation facilities (Butte Local Agency Formation Commission 2008). The boat ramp is located on the Feather River frontage of the City's WWTP on the east side of the river, south of the E. Gridley Road bridge. Problems with vandalism resulted in installation of a locked gate at the boat ramp. Revenue is generated for minor ongoing expenses at the facility through the annual sale of permits for use of the ramp and keys to the gate.

Parkland Dedication Standards, Service Standards and Adequacy

For developer park dedication requirements (i.e., "Quimby" fees), the California statute sets a benchmark of 3 to 5 acres per 1,000 residents. Cities with a general plan policy of as much as 5 acres per 1,000 residents may impose that requirement on developers. Otherwise, cities may require developers to dedicate or finance up to 3 acres of parkland per 1,000 residents. The Open Space Element of the existing General Plan specifies a standard for neighborhood and community parkland of 5 acres per 1,000 residents (City of Gridley 1999). The City's parkland dedication standards are as follows:

- Standard for Fees In-Lieu of Parkland Dedication—(dwelling units) × (average household population) × (5 acres ÷ 1,000 persons) × (per acre cost of the lot) × ($^6/_5$) = in-lieu fee. The $^6/_5$ figure represents the improvement costs for off-site improvements for development of the lot.

- Standard for Parkland Dedication In-Lieu of Fees—(average household population) ÷ (1,000 persons ÷ 5 acres) = minimum acreage dedication.

Known Deficiencies and Planned Improvements to Existing Facilities

The City offers 3.99 acres of parkland per 1,000 residents, which represents a deficiency below the existing General Plan's standard of 5 acres per 1,000 residents. There was a total of 19.8 acres of City-owned parkland, or 3.1 acres per thousand residents, as of the writing of this document. This total does not include Eagle Meadows Park (private) or the City-owned boat launch area on the Feather River.

In addition to the deficiency in parkland acreage relative to the existing General Plan standard, several needed improvements are identified in City's *Final Municipal Service Review* for the City's park facilities:

- Funding for upgrades to park sprinkler systems and landscaping has been pursued as a way to reduce maintenance costs at existing park facilities.

- Extensive rehabilitation of the trails and the irrigation system at Daddow Park.

- Maintenance services at August Boeger Park adjacent to the Heron Landing subdivision north of Orange Avenue. Additional funding would be required for improvements if Orange Avenue is developed to supplement the park, in addition to a plan for maintaining the facility.

The City completed upgrades to irrigation and remodeling of the recreation building at Manuel Vierra Park. The City also completed a project to add new seating and lighting and installation of a fountain for Quota Park. The City plans to resurface the tennis courts at Vierra Park. The City also plans to replace wood tables and benches with concrete tables, benches, and trash receptacles throughout its park system.

In FY 2006–2007, the California Boating and Waterways Commission awarded funds to the City for various improvements to the Feather River boat ramp facility. Tentative improvements include installation of a fully functional boat dock and various riverbank renovations, bathrooms, improved parking, signage, and an automated gate to the facility. As of FY 2007–2008, the project is in the planning and design phase.

Continual maintenance is required at the Gridley Community Swimming Pool to keep this aging facility serviceable, but no plans to renovate this facility have been identified.

4.9.3 Environmental Impacts and Mitigation Measures

Analysis Methodology

Impacts related to public services, utilities, and service systems were determined by comparing existing service capacity and facilities, staffing, and equipment against future demand that is projected to occur as a result of growth accommodated under the 2030 General Plan. This includes areas that could be developed within the Planned Growth Area, as well as buildout of lands designated for development under Gridley's existing (pre-update) General Plan.

Demand for services was evaluated at a programmatic level based on current estimates for housing types and persons per household in all growth areas. Several CEQA documents have been prepared for the City of Gridley to evaluate the environmental effects of development projects. These documents were reviewed, and impact descriptions related to the provision of public services and utilities for those projects served to provide background included in the discussion of impacts below, as appropriate:

- Final Environmental Impact Report for the Boeger Annexation Project, prepared in March 2002.

- Eagle Meadows Initial Study, prepared in 2002.

- Final Environmental Impact Report and Environmental Assessment for the City of Gridley Industrial Park, prepared in April 2003.

- Draft Environmental Impact Report for the Deniz Ranch Project, prepared in October 2006.

Thresholds of Significance

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on the State CEQA Guidelines. An impact to public services, utilities, and service systems is considered significant if implementation of the proposed project would do any of the following:

- exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board;

- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- exceed water supplies available to serve the project from existing or permitted entitlements and resources;
- result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- create demand for electrical service that is substantial in relation to the existing demands;
- generate solid waste beyond the capacity of existing landfills;
- violate federal, state, or local statutes and regulations related to solid waste; or,
- create a need for the development of new service facilities (e.g., fire, police, schools, parks) in order to maintain established performance standards, the construction of which could result in significant environmental impacts.

IMPACT ANALYSIS

IMPACT 4.9-1 **Result in substantial adverse impacts related to the provision of water supply and water infrastructure.** *Buildout of the 2030 General Plan would increase the demand for a reliable supply of water for domestic uses, landscape irrigation, and fire flow. The 2030 General Plan includes goals, policies, and implementation strategies to ensure the adequacy of the City's water supply system. Before approving a project, the City would be required to carefully assess whether adequate domestic water supplies and pumping capacity are available to serve the project. However, the construction of infrastructure required to serve water demand under the 2030 General Plan could result in* ***significant*** *impacts.*

Approximately 9,000 to 12,000 new residents could be added to Gridley over the next 20 years with full buildout of the 2030 General Plan. Based on the proposed distribution of housing types, implementation of the proposed project could add approximately 3,900 to 4,700 new housing units to Gridley (Table 4.9-2).

The existing total water demand on average per day in Gridley is approximately 1.4 million gallons per day (MGD). The City used existing water demand to derive estimates of water demand for different land use types (see Table 4.9-1 below). Due to the current industrial mix, the industrial water demand is lower than what typically might be expected. Therefore, for future water demand estimates, the City began with a much more conservative assumption, 2,000 gallons per day per acre, for industrial use and then applied expected savings from water conservation measures that will be required in the future.

With full buildout of the *existing* (pre-update) General Plan, water demand could increase to as much as 2.2 MGD (including both existing and new development). With full buildout of the 2030 General Plan (including existing + existing GP + Planned Growth Area), the total water demand could increase to as much as 3.23 MGD.

These estimates assumes a 20 percent reduction in new development from indoor water use and 50 percent reduction from outdoor water use, consistent with the requirements of the 2007 Supplement to the California Building Standards Code, effective August 1, 2009 (commonly called the Green Building Standards Code).

Table 4.9-1 Existing Water Demand		
Gridley Water Demand (in gallons per day)		
Existing	Assumption	Units Dom.
Residential Low Density and Residential Very Low Density	450	GPD per unit
Residential, Medium Density	400	GPD per unit
Residential, High Density	300	GPD per unit
Commercial	1500	GPD per acre
Civic/Public	1700	GPD per acre
Park	1400	GPD per acre
Industrial	235	GPD per acre
Total	n/a	1,426,000 GPD

Table 4.9-2 Estimated Population Increase with Implementation of the Proposed Project				
Residential Densities	Estimated Range of Total Dwelling Units	Proposed Distribution of Housing Types	Average Household Size (Numbers of Persons)	Estimated Population Increase
Existing City Limits and Sphere of Influence (Infill Development)				
High-Density Residential	1,500–1,800	167 high density	1.8	301
Low-Density Residential		1,496 low density	2.8	4,189
Estimated Population Increase			Subtotal	4,490
Planned Growth Area				
High-Density Residential	350–440	397 high density	1.8	715
Medium-Density Residential	790–960	875 medium density	2.3	2,013
Low-Density Residential	1,200–1,500	1,341 low density	2.8	3,755
Estimated Population Increase			Subtotal	6,483
Estimated Total Population Increase			Total	10,973
Note: No new areas for medium-density housing are proposed for the existing City Limits and Sphere of Influence.				

Butte County has recently forecast urban (as well as other sector) water demand and compared future demand to future supply. In *Butte County Integrated Water Resources Program Urban Water Demand Forecast,* the County estimated, based on different land use mix, demographic, and other assumptions, that Gridley's water demand

would increase to 1.81 MGD by 2030.[3] The focus of the Butte County study, however, is different than that of this EIR. Whereas the County was analyzing what is likely to occur given demographic trends available at the time of that study, this EIR is providing a worst-reasonable case analysis assuming the entire 2030 General Plan builds out. Therefore, it is not surprising that the County estimates would be substantially lower than that presented in this EIR. As described previously, a total of six wells in the City of Gridley supply domestic water to residents (Butte Local Agency Formation Commission 2008). The City does not currently use water storage; the City has an elevated storage tank which is not in use because it is not at sufficient height to produce adequate pressure. In order to meet future demand, the City will need to drill more wells to meet the requirement for a water system without storage.

The number of service connections per well varies depending on the yield of the well. The last three wells drilled in Gridley have yielded an average of 1,300 gpm; assuming this average yield, a new well would be required for approximately every 350 water service connections (Nash, pers. comm., 2008).

Of the total connections currently served by the City, 91% are for residential use, and the remaining 9% are for commercial, industrial, and landscape irrigation uses. Based on these existing percentages, it is reasonable to assume that most future connections would be for residential uses followed by commercial, industrial, and landscape irrigation uses. Assuming one new well for every 350 water service connections, an additional 12 wells could be required to serve the proposed residential growth, or to serve some combination of types of service connections that would generally equal that level of residential growth (Table 4.9-3). Refitting the City's existing water storage tank and/or constructing new storage facilities could eliminate the need for some new wells.

Table 4.9-3
Estimated Demand for Domestic Water with Implementation of the Proposed Project

Proposed and Potential Growth Areas	Estimated Total of All Types of Housing Units	Estimated Demand for Domestic Water (potential number of new wells without water storage)
Existing City Limits and Sphere of Influence (Infill Development)	1,663	4.75
Planned Growth Area	2,613	7.47
Total	4,276	12.2

Some of the areas proposed for development within the Plan Area have undergone previous environmental review in accordance with the requirements of CEQA. A draft environmental impact report (DEIR) was prepared for the Deniz Ranch project, and identified a potentially significant impact related to water supply availability (City of Gridley 2006). The DEIR includes a mitigation measure requiring the project applicant to pay all applicable water impact fees in effect when the building permit for the project is issued. With implementation of this mitigation measure, the impact was considered less than significant. An initial study prepared in 2002 for the Eagle Meadows subdivision on the west side of the city discussed the demand for water to serve that development (City of Gridley 2002a). It was determined that drilling a new well on the site would provide the additional water supply and would be adequate to maintain required fire flows for that development.

New development under the proposed project would increase the demand for a reliable supply of water for domestic uses and fire flow. As reported in the City's *Final Municipal Service Review*, the City plans to install a new water main on West Biggs Gridley Road, which includes fire hydrants and provisions for future connections with new subdivisions. Conversion of orchards and other irrigated agricultural areas to residential and other urban uses would result in their detachment from either the BWGWD or the BWD service area, which would incrementally reduce the need for a surface supply of irrigation water in these areas. Urban development

[3] Butte County. *Integrated Water Resources Program Urban Water Demand Forecast.* October 2003

accommodated by the 2030 General Plan would increase local water demand, which would be met through drilling additional groundwater wells, as necessary, during General Plan buildout.

Butte County and the Butte Basin Water Users Association have studied long-term water supply and demand on a countywide level, including the major categories of agricultural water demand, environmental water demand, and urban water demand. Agriculture is responsible for 71% of total demand, followed by water conveyance losses at 15%, water needed for environmental resources at 10%, and urban water needs, such as those required to serve the 2030 General Plan, with 4%.[4,5] The 2030 General Plan would reduce slightly the agricultural water demand as current irrigated agricultural areas become developed with urban uses, and would increase the urban water demand.

The 2030 General Plan could increase urban water demand in the county, compared to the above-described normal year by 3.3% and the total water demand by 0.14%, not including any reductions associated with reduced agricultural water demand.

Existing water demand countywide has been compared to existing water supply and water supply during drought scenarios. Although local pumping may seasonally depress groundwater levels, pumping generally does not result in a long-term decrease of storage.[6] The County examined annual groundwater status reports for 2000 and 2005. No depletion in groundwater storage was occurring after the wet period that followed the 1987–1993 drought.[7] The 2005 groundwater monitoring indicates that groundwater levels had steadily declined since then, but that this has stabilized. Annual reports have noted that there is no subsidence occurring.

California Water Year (October 1 through September 30) 2008 was a critically dry year statewide. A measure of eight precipitation stations that represent northern California's major watersheds showed 34.9 inches of rain in Water Year 2008, the 15th driest year in 88 years of monitoring. The 3.5 inches of rainfall between March and September were the driest on record. However, monitoring of wells in the Gridley vicinity shows no declining trend. In the Gridley area, as with most portions of the county, water demand during periods of drought (assuming no change in agricultural practices) are greater than typical supply. However, shortages only occur in areas that do not receive surface water and do not have the infrastructure to pump groundwater.

The well in the Biggs-West Gridley Sub-area (of the County's groundwater monitoring network) that has been monitored since the late 1940s shows "almost no change in groundwater levels associated with the 1976–77, 1987-92 and or 1994 drought periods."[8] Groundwater levels have increased by approximately two feet since the late 1940s. The well in the Butte Sub-area shows a small decline in spring groundwater levels associated with the 1976–77, 1987–92 and or 1994 drought periods, followed by a return to normal levels. Autumn groundwater levels have declined by approximately three feet since the mid-1950s.

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4 Conveyance losses include those related to transport of water to the end user, including water surface evaporation and evapo-transpiration by canal riparian areas.

5 Butte County. *Water Inventory and Analysis Report*. March 30, 2001. Available online: http://www.buttecounty.net/Water%20and%20Resource%20Conservation/Inventory%20Analysis.aspx. Accessed June 9, 2009.

6 Butte County. *Water Inventory and Analysis*. March 30, 2001. Available online: http://www.buttecounty.net/Water%20and%20Resource%20Conservation/Inventory%20Analysis.aspx. Accessed May 28, 2009.

7 Butte County. Technical Memorandum I. Butte County Water Supplies and Demands. June 14, 2008. Available online: http://www.buttecounty.net/Water%20and%20Resource%20Conservation/~/media/County%20Files/Water%20Resource/Public%20Internet/Inventory%20Analysis/2008%20TM%20draft%203_61408.ashx. Accessed May 28, 2009.

8 Butte Basin Water Users Association. *Groundwater Status Report*. February 2009. Available online: http://www.buttecounty.net/Water%20and%20Resource%20Conservation/Reports.aspx. Accessed June 8, 2009.

The proposed 2030 General Plan includes measures to ensure that sufficient water sources are made available to serve new development and that fire flows meet all applicable standards. The 2030 General Plan also includes a range of policies requiring water conservation and promoting groundwater recharge. The following proposed goals and policies address potential impacts related to water supply:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 1.1**: New development shall set aside land, install and dedicate land and water infrastructure, and/or contribute in-lieu fees, as directed by the City, for new water supply, pumping, treatment, storage, and delivery.

- **Public Facilities Policy 1.3**: The City will maintain, and update as appropriate, a water master plan to identify needed improvements to serve new and infill growth under the General Plan.

- **Public Facilities Policy 1.5**: The City will ensure reliable water supplies and provide prompt response to any disruption in water supply to the greatest extent feasible.

- **Public Facilities Implementation Strategy 1.1**: During General Plan buildout, the City will monitor water quality and intervene, as necessary, to address water supply and quality issues. The City will remove wells from service and establish new well sites, if necessary. The City will upgrade treatment facilities, if necessary. The City will consider long-term public health, state and federal standards, and cost/benefits to residents in future investments in the water system. The City will proactively pursue grant programs to finance water supply improvements, and will coordinate with other local agencies and special districts, where necessary to address water quality or supply problems.

- **Public Facilities Implementation Strategy 1.2**: The City will direct extension of the City's water system to serve the Planned Growth Area, consistent with the policy direction in this General Plan. To assist with implementation, the City will consider drafting a water master plan to identify phased improvements to the City's infrastructure, costs, and financing strategies for extending water infrastructure to the Planned Growth Area. The City will also consider including in this master plan updates to water infrastructure and facilities planning in the existing Sphere of Influence and the Planned Growth Area, covering the same topics. The City will identify water flow requirements including water flow rate (gallons per minute) and duration, which may vary throughout a community by building area and construction type. The water master plan will identify candidate well sites in the Planned Growth Area, as well as pumping, the location of water mains, fire hydrants, new storage tanks, and other components of the water infrastructure. The City will consider also priority upgrades in the existing City to maintain pressure or supply. The water master plan will be coordinated with capital improvements planning and development impact fee programs. Financing of the water system shall be on a per-capita or other fair-share basis, per State law. Smaller housing units with fewer bedrooms and faucets, homes with smaller yards, and other types of development that would have lower demand for water should contribute proportionally less in development impact fees, as appropriate.

- **Public Facilities Implementation Strategy 1.3**: The City will maintain a plan for emergency response to disruption in water supply. This plan will also review vulnerability of source and delivery and distribution systems to events, such as regional power outages and system failures. The City will maintain a notification plan for both personnel and residents in case of emergency.

- **Public Facilities Implementation Strategy 1.4**: During implementation of the 2030 General Plan (present to 2030), the City will consult with area irrigation districts and other water purveyors to examine any surface water supply options. Among other options, the City will coordinate with Butte Water District to investigate surplus water availability. State water law will dictate to a large degree the City's ability to obtain surface water supply and effectively create a conjunctive surface/groundwater water system. Implementing a conjunctive water system in Gridley could also be very expensive. In determining the feasibility of conjunctive use, the City will examine environmental and public health benefits and impacts and the long-

term costs and benefits for residents of Gridley before implementing this program. Any future conjunctive use program should be consistent with policies in Gridley's Urban Water Management Plan, once developed (see the Conservation Element).

- **Conservation Policy 2.1**. The City will encourage the use of recycled water for appropriate use, including, but not limited to, outdoor irrigation, toilet flushing, fire hydrants, and commercial and industrial processes.

- **Conservation Policy 2.2**. Native, drought tolerant landscaping will be used, to the maximum extent feasible, in new City parks and open space and for landscaping within new rights of way as well as within new developments, including commercial, industrial, and residential projects.

- **Conservation Policy 2.3.** The City will explore opportunities in existing City-owned parks, open space, rights-of-way, and other City properties to replace landscaping with native, drought tolerant landscaping.

- **Conservation Policy 2.4**. The City will require the use of water conservation technologies such as low-flow toilets, efficient clothes washers, and efficient water-using industrial equipment in all new construction, in accordance with State law.

- **Conservation Policy 2.5**. The City will provide voluntary water audits to identify conservation opportunities and will explore provide financial incentives for adopting identified efficiency measures.

- **Conservation Policy 2.6**. The City will comprehensively assess water supply and demand and identify a range of local conservation measures to be implemented through an Urban Water Management Plan.

- **Conservation Implementation Strategy 2.1.** When Gridley approaches 3,000 water customers or 3,000 acre-feet of water supplied annually, the City will prepare an Urban Water Management Plan (pursuant to the California Urban Water Management Planning Act). The Urban Water Management Plan (UWMP will describe and evaluate sources of water, will estimate future water needs, and include conservation measures, and implementation strategy, and schedule for implementation. The City will update the Urban Water Management Plan (UWMP), as necessary and as required by State law.

- **Conservation Implementation Strategy 2.2**. The City will prepare a Nexus Fee Study following the 2030 General Plan update and update fees. As a part of this update, the City will evaluate its fee structure to align more closely the fees it charges with the actual cost of providing public services. In particular, City will analyze the cost of installing wells, water treatment, and water delivery and reduce water hook-up fees for more compact residential development (with smaller lawns and other areas that would need to be irrigated). The City will also evaluate whether incentives for water efficiency can be built into water rates.

- **Conservation Implementation Strategy 2.3**. The City will analyze the feasibility of installation of recycled waters systems in new development. The City will consider whether up-front fees or ongoing rates can be reduced for properties that install and use recycled water. The City will consider revisions to the Public Works Construction Standards, as necessary, to allow installation of recycled water systems in new developments.

- **Conservation Policy 3.3**. The City will require that waterways and floodplains are maintained in their natural condition, wherever possible.

- **Conservation Policy 3.4.** Existing swales and sloughs shall be preserved, restored, and used for naturalized stormwater drainage in the context of new development to the maximum extent feasible.

- **Conservation Policy 3.5.** New development shall incorporate natural drainage system design that includes infiltration and decentralized treatment to the greatest extent feasible.

- **Conservation Policy 3.6.** New development should incorporate low impact development (LID) strategies to the greatest extent feasible to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, and reduce pollutants close to their source.

- **Conservation Policy 3.7**. New development should minimize the amount of impervious surfaces such as driveways, streets, and parking lots in order to reduce stormwater, reduce pollutants in urban runoff, recharge groundwater, and reduce flooding.

- **Conservation Policy 3.8.** In new developments, impervious surfaces such as driveways, streets, and parking lots should be interspersed with vegetated areas that allow for filtering and infiltration of stormwater.

- **Conservation Policy 3.9.** New development should use permeable surfaces for hardscape, wherever feasible.

- **Conservation Implementation Strategy 3.2.** The City will revise the Public Works Construction Standards, as necessary, to encourage use of natural drainage systems and low impact development principles. The City will establish standards and fee programs to require and/or provide incentives for methods to slow down and filter stormwater. The City will make revisions required to emphasize slowing down and dispersing stormwater, using existing and constructing new landscaped swales to convey stormwater runoff, encourage sheet flow to filter stormwater runoff, encourage use of landscaped infiltration basins in planter strips along roadways and in parking lots, and other best management practices, as appropriate. The City will revise its parking design standards, as necessary, to encourage consistency with the 2030 General Plan.

- **Conservation Implementation Strategy 3.3**. Following adoption of the 2030 General Plan, the City will adopt new landscaping standards, as necessary, to ensure consistency with policies in the Conservation Element. Among these revisions, the City will revise landscaping requirements to include drought-tolerant, low-maintenance plants.

Conclusion

New development under the 2030 General Plan will require the installation of several groundwater wells, a system of water mains and pipelines, and potentially new water storage facilities. As development in the Planned Growth Area would add urban water demand, it would also reduce agricultural water demand, to the extent that existing agricultural uses in the Study Area provide irrigated cropland. Although buildout of the 2030 General Plan has the potential to increase the demand for water supply, goals and policies identified in the proposed 2030 General Plan address impacts related to the development that is projected for Gridley. The General Plan includes a broad range of water conservation measures, as well as strategies that direct the City to consider whether blending surface water with groundwater would be feasible in the future, as well as investigating incorporation of recycled water systems. The City, through implementation of General Plan policies, will ensure adequate water supply through review and approval of development projects that occur under the General Plan. Therefore, potentially significant impacts related to water supply availability are addressed by these goals and policies, and implementation of the goals and policies would reduce impacts related to water supply to a **less-than-significant** level.

The specific environmental impacts of each phase of improvements to the water infrastructure will be evaluated at the project level and is beyond the scope and purpose of a General Plan programmatic EIR. As development proceeds in the city's infill areas and the Planned Growth Area, separate environmental review and analysis of the potential impacts of that development will occur in accordance with the requirements of CEQA. However, because of the level of development anticipated under the 2030 General Plan, it is possible that the construction of additional facilities could generate significant impacts. Installing water lines would involve earth disturbance, transport of materials, and operation of equipment similar to that which will also be required for installation of other infrastructure in the same public rights-of-way and between public rights-of-way and end users. Although General Plan policy requires infrastructure and facilities to be provided in a way that reduces environmental impacts, the extent of infrastructure required to serve future demand, depending on phasing of future

development, could create significant impacts. The impacts of infrastructure required to serve General Plan buildout is analyzed at a programmatic level along with the direct effects of construction and operation of General Plan land uses throughout this EIR. Due to the potential extent of infrastructure improvements, this impact is considered **significant**.

Mitigation Measure

No mitigation is available beyond General Plan policy that would reduce impacts of the construction of water supply related infrastructure to a less-than-significant level.

The impact is considered **significant and unavoidable**.

IMPACT 4.9-2 **Result in substantial adverse impacts related to wastewater treatment and disposal.** *The current permitted capacity of the City's WWTP is 1.05 mgd ADWF. The city currently uses 0.88 mgd. Assuming an average of 100 gallons of wastewater per person per day, the remaining capacity of 0.17 mgd will serve a population increase of 1,700 people. The City is implementing a project to increase WWTP capacity to 1.7 mgd ADWF. This capacity increase would serve an additional population increase of 6,500. The WWTP's remaining capacity and the capacity expansion would serve a total population increase of 8,200. Implementation of the proposed project could add up to approximately 10,970 residents to Gridley over the next 20 years. This level of population growth would exceed the City's expanded wastewater treatment capacity by 0.28 mgd. The 2030 General Plan includes goals, policies, and implementation strategies to ensure the adequacy of the City's wastewater treatment and disposal system. Before approving a project, the City would be required to carefully assess whether adequate wastewater treatment capacity was available to serve the project. The City would ensure that all applicable standards are met. However, construction of wastewater facilities to meet the needs of new growth under the General Plan could result in* ***significant*** *impacts.*

The City's WWTP is currently permitted by the Central Valley RWQCB to treat 1.05 mgd ADWF (Butte Local Agency Formation Commission 2008). The city currently uses 0.88 mgd ADWF. Assuming that each person produces an average of 100 gallons of wastewater per day, the remaining capacity of 0.17 mgd would serve a population increase of approximately 1,700 people. With full development of areas within the City's existing Sphere of Influence, it is conservatively estimated that the City could add between 1,500 and 1,800 dwelling units (see Table 4.9-2 above). New residential development in the Planned Growth Area could add between 2,340 and 2,900 dwelling units. The 2030 General Plan could accommodate as much as 1 to 1.3 million square feet of commercial building space; 3.2 to 4 million square feet of building space for industrial, light industrial, and agricultural processing uses; and parks, schools, and other land uses if all portions of the Plan Area were to buildout between present and 2030.

U.S. Census Bureau data for 2000 show an average household size in Gridley of 2.86 people. However, more recent trends indicate that household size is decreasing somewhat in Gridley, particularly for high- and medium-density housing. Table 4.9-2 shows the potential number of new residents in the city, based on current estimates for housing types and persons per household in infill areas and in the Planned Growth Area. Up to 4,490 new residents could theoretically be added as a result of infill development. The Planned Growth Area could add up to 6,480 new residents, for a total estimated population increase of 10,970. Assuming an average of 100 gallons of wastewater per person per day, the projected population increase would result in an estimated increase in wastewater flows of 1.1 mgd (Table 4.9-4).

In 2006, the Central Valley RWQCB issued a revised waste discharge permit to the City to allow a capacity increase of 0.65 mgd for a total WWTP treatment capacity of 1.7 mgd ADWF. The City's WWTP expansion project is ongoing as of the writing of this document. This capacity increase would serve a population increase of approximately 6,500. If all allocations were for residential uses, the remaining capacity of 0.17 mgd and the capacity expansion of 0.65 mgd would serve a total population increase of approximately 8,200 people.

Table 4.9-4 Estimated Increase in Wastewater Flows with Implementation of the Proposed Project		
Proposed and Potential Growth Areas	Total Estimated Population Increase	Estimated Increase in Wastewater Flows (million gallons per day)
Existing City Limits and Sphere of Influence (Infill Development)	4,490	0.45 mgd
Planned Growth Area	6,483	0.65 mgd
Total	10,973	1.1 mgd
Note: The City's design flow assumption is 250 gallons per day per equivalent dwelling unit (EDU) (one dwelling unit equals the wastewater effluent from one home). A national average household size of 2.5 persons per household is assumed. However, this analysis uses average household sizes that have been refined for each housing type to determine an estimated total population increase. The total estimated increase in wastewater flows is then based on an average of 100 gallons of wastewater per person per day.		

With implementation of the proposed project, a population increase of approximately 10,970 people could occur, which would result in generation of additional wastewater flows of approximately 1.1 mgd ADWF. This level of population growth would exceed the City's wastewater treatment capacity by approximately 0.28 mgd, after implementation of the WWTP expansion project. The currently programmed WWTP capacity increase would be insufficient to serve all of the residential growth that is projected for Gridley's infill areas and in the Planned Growth Area. However, implementation of the proposed project would occur gradually over the next 20 years, and the City has proposed policies and programs in the General Plan to ensure the adequacy of wastewater treatment capacity to serve new development. If the City were to allocate any future wastewater flows to new major industrial uses, allocations for residential uses would be adjusted accordingly.

Preparation of the City's *Wastewater System Capacity Analysis* addressed needed improvements to the wastewater collection system, however, funding has not yet been identified for all projects (City of Gridley 2005); some of these improvements were subsequently discussed in the City's *Final Municipal Service Review* (Butte Local Agency Formation Commission 2008):

- **Detailed infiltration and inflow (I/I) study**—Gridley's wastewater collection system experiences some infiltration and inflow entering the gravity system, particularly during periods of rain. It is recommended that the City prepare a detailed study to determine where the most serious degradation is occurring.

- **New gravity and force mains and new pump stations**—The wastewater collection system is currently operating at or slightly above capacity. Planned improvements include construction of new gravity and force mains and pump stations to direct flow around the City. An additional parallel force main to the WWTP is recommended by the City's engineer to accommodate increased wastewater flows that are expected to occur from growth and development in Gridley. A second force main under the Feather River would increase collection system capacity, lessen the load on the current primary force main, and act as backup to the existing main.

- **Inspection rate for sewer lines**—The City uses CCTV to inspect the sewer lines. Portions of the sewer collection system are inspected annually to the extent possible as staff and funding are available. The inspection rate averages 0.19 miles per year, which represents 0.6% of the system. This inspection rate will improve with the implementation of the Sewer System Management Plan required by the Central Valley RWQCB.

- **Sewer collection pipe on Sycamore Street**—A specific need has been identified for a replacement sewer collection pipe at the west end of Sycamore Street. The project needed to replace this pipe is presently

unfunded. The City Public Works Department will continue to assign staff to regularly flush out the pipe until it can be replaced.

New development under the proposed project would require new connections to the City's wastewater collection system. Wastewater influent flows to the City's WWTP would increase gradually at a rate of approximately 100 gallons per day for each new resident. Any new major industrial use could result in a significant increase in influent flows to the WWTP. The proposed 2030 General Plan includes measures to ensure that the City's wastewater conveyance and disposal infrastructure is sufficient to handle the increase in influent wastewater flows from any new development. The following proposed goals and policies address potential impacts to wastewater collection, treatment, and disposal infrastructure and facilities:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 2.1**: New development shall install and dedicate and/or contribute in-lieu fees, as directed by the City, for new wastewater collection, conveyance, pumping, treatment, and disposal.

- **Public Facilities Policy 2.2**: The City will direct phased, efficient extension of wastewater collection and improvements to wastewater treatment and disposal systems, to meet existing and future needs.

- **Public Facilities Policy 2.6**: Properties located within City Limits prior to adoption of the 2030 General Plan have access to existing remaining wastewater treatment and force main sewer capacity and such properties shall not be required to contribute toward treatment capacity expansion necessary to serve the Planned Growth Area.

- **Public Facilities Policy 2.7**: The City and Redevelopment Agency will ensure that collection and wastewater treatment capacity is available for infill development needs.

- **Public Facilities Policy 2.10**: The City will ensure compliance with applicable state and federal standards for wastewater disposal.

- **Public Facilities Policy 2.11**: The City will conduct monitoring and reporting programs may be required, as appropriate, to comply with state and federal regulations.

- **Public Facilities Policy 2.12**: The City should examine the older sections of the wastewater collection system and address infiltration and inflow problems, as funding is available.

- **Public Facilities Policy 2.16**: The City will promote wastewater demand management strategies, such as controlling infiltration and inflow, industrial pretreatment and recycling, and water conservation, as appropriate.

- **Public Facilities Implementation Strategy 2.1**: Following adoption of the General Plan, the City will identify wastewater improvements necessary to serve development in the 2030 General Plan. The City will require wastewater demand analysis for new development, using City endorsed peaking factors and other methodology.

  The City will continue with capital improvements necessary to accommodate future development through build-out of the City's sphere outlined in the City's Wastewater System Capacity Analysis. The City will continue with plans to expand wastewater treatment plant and add conveyance capacity to the WWTP. The City will continue current plans to expand the City's waste discharge to 1.7 mgd ADWF (treatment capacity for an additional 2,600 EDUs). The City will install groundwater monitoring, as necessary, to ensure against impacts of wastewater treatment. The City will plan for additional wastewater treatment plant expansion needs following General Plan adoption, as necessary. The City will continue plans to construct new gravity and force mains and pump stations to direct flow around the City. The City will consider a second parallel

force main crossing the Feather River at the bridge to the north of the WWTP after examining the condition of existing sewer mains under the river. The City will examine the sewer collection pipe on the west end of Sycamore Street and other problem areas in the City and identify phased improvements, as feasible. The City will examine remaining sewer line capacity in areas east of State Route 99 compared to development potential and identify cost effective solutions to expand conveyance capacity in this area, as feasible.

The City will phase wastewater capacity and infrastructure improvements consistent with the General Plan and, as required, providing efficiencies in service. The City will coordinate wastewater treatment planning with the RWQCB using groundwater basin plan objectives. The City will proactively pursue grant funding from SWRCB, the Small Community Grant program, other federal/state sources for wastewater improvements.

Wastewater improvements will be financed in new growth areas on a fair-share basis according to expected population and treatment demand of new projects. The City will consider available techniques to improve wastewater effluent, including but not limited to: 1) limit on the strength and contaminant levels of industrial and commercial wastewater; 2) increased rates or surcharges on high-strength wastes; and/or 3) incentives or requirements for water recycling and reuse within the industrial or commercial operation.

- **Public Facilities Implementation Strategy 2.2**: The City will maintain a Sewer System Management Plan (SSMP) consistent with State Water Resources Control Board policies. The City's SSMP will identify sewer capacity, management, operations, and maintenance plans. The SSMP will be consistent with other City wastewater plans, prioritizing infrastructure investments needed to address any existing deficiencies.

- **Public Facilities Implementation Strategy 2.3**: The City will submit a groundwater quality study report to the RWQCB comparing the groundwater quality at locations both up-gradient and down-gradient from the City's wastewater percolation ponds. The City will evaluate nitrate levels and other applicable constituents. The City will plan for upgrades to a tertiary level of treatment at the WWTP, as necessary.

- **Public Facilities Implementation Strategy 2.4**: The City will monitor and inspect the condition of its wastewater system and perform routine cleaning, as required, during General Plan buildout.

- **Public Facilities Implementation Strategy 2.5**: The City will consider recommendations from the Wastewater System Capacity Analysis to analyze and improve infiltration and inflow (I/I) problems in the existing City. The City will review peaking factors for the east and west side tributary gravity flow mains to isolate the location of I/I problems. The City will explore opportunities to improve wastewater infrastructure downtown inflow locations and make corrective measures, as funding is available. The City will consider such measures as pipeline rehabilitation, manhole cover replacement, and root eradication, repairing service lines, uncapped cleanouts and exterior drains, public education, incentives, and regulatory strategies.

Conclusion

New development under the 2030 General Plan will generate additional wastewater demand and require improvements for wastewater treatment and disposal, as well as conveyance. The specific environmental impacts of each phase of improvements to the wastewater infrastructure will be evaluated at the project level and is beyond the scope and purpose of a General Plan programmatic EIR. As development proceeds in the city's infill areas and the Planned Growth Area, separate environmental review and analysis of the potential impacts of that development will occur in accordance with the requirements of CEQA.

Adherence to the above goals and policies would provide the City with the means to implement the required wastewater infrastructure that is described in detail in the Sewer System Management Plan. Goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the development that is projected for Gridley. Policies and strategies ensure the City will assess individual development projects under

buildout of the 2030 General Plan, collect fees to fund wastewater improvements, and to ensure that the City has the capacity to meet wastewater treatment demands.

Adherence to the above goals and policies would ensure that the expansion and improvements to infrastructure would occur to meet the needs of new growth according to wastewater treatment and disposal standards. Because of the level of urban development anticipated under the General Plan, the construction of additional facilities could generate significant impacts. The impacts of infrastructure required to serve General Plan buildout is analyzed along with the direct effects of construction and operation of General Plan land uses throughout this document. The impact is considered **significant**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is available that would reduce the impact of construction of facilities to a less-than-significant level. The impact is considered **significant and unavoidable**.

IMPACT 4.9-3 **Result in substantial adverse impacts related to the construction of new stormwater drainage facilities or expansion of existing facilities.** *Development of urban uses within Gridley's infill areas and in the Planned Growth Area would increase the need for stormwater collection, detention/retention, and conveyance facilities. Buildout of the 2030 General Plan has the potential to cause significant impacts by increasing stormwater runoff associated with construction activities, thereby placing greater demands on Gridley's stormwater conveyance system. Runoff from impermeable surfaces has the potential to increase localized flooding. The proposed 2030 General Plan includes goals, policies, and implementation strategies to ensure that historic peak flows in local drainage ditches are maintained at pre-construction levels. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. However, the due to the extent of new facilities which will be required, this impact is considered* ***significant.***

Buildout of the 2030 General Plan has the potential to cause significant impacts by increasing stormwater runoff associated with construction activities and increasing impermeable surfaces, thereby placing greater demands on Gridley's system of open drainage ditches and sloughs maintained by RD 833, RD 2056, and DD 1. Runoff from building roofs, parking lots, and roads also contain impurities and has the potential to increase flooding. (Refer also to Section 4.5, "Hydrology and Water Quality," for a discussion of water quality issues related to stormwater runoff.)

Goals and policies contained in the Public Facilities Element of the existing General Plan (City of Gridley 1999) are intended to protect Gridley from flood hazards and minimize flood-related impacts of development in Gridley on downstream properties and the public. It is the City's policy to require review and analysis of the inundation potential of new development, and to require construction of on- and off-site drainage improvements to ensure that no net increase in peak drainage flows occurs during a 100-year storm event (Butte Local Agency Formation Commission 2008). The City also requires new development projects to provide on-site or off-site detention sufficient to maintain pre-development levels of peak stormwater runoff at predetermined locations in drainage canals. Consultation with the affected reclamation or drainage district by the lead agency is necessary to determine the location, type, and design of detention facilities. Possible alternatives could include creating or enhancing above ground drainage swales or ponds, or installing below ground holding tanks or oversized pipes to contain and/or carry stormwater runoff. Detention facilities could be constructed on the project site or at a downstream location.

New development has included construction of on-site detention facilities to comply with this requirement. The City of Gridley Industrial Park project included installation of private on-site storm drainage basins where runoff is detained and later released to the drainage canals. Development of the Eagle Meadows subdivision on the west side of the city included installation of a 6-acre detention basin. The City accepts responsibility for maintenance of new facilities by forming a maintenance district in the new subdivision or growth area, and property owners

pay assessments to fund maintenance of new detention facilities. The City has considered installation of a regional detention basin, which would involve upgrading related infrastructure (e.g., drainage pipes). Project developers would be required to contribute to the cost of a regional detention facility.

The local drainage channels tend to back up due to inadequate channel capacity, lack of pumping capacity, or lack of capacity in downstream discharge waterways that are also used by the state for flood control purposes. Flood control activities of Central Valley Flood Protection Board (CVFPB) and DWR create a backflow of waters in drainage tributaries that serve the Gridley area. Additional drainage conveyance and discharge capacity is needed in the city to adequately handle stormwater runoff. Installation of stormwater detention facilities is the primary infrastructure strategy available to the City. The City has found that other alternatives—expanded ditch capacity, pumping runoff to the Feather River, and use of irrigation canals—are impractical due to excessive costs, engineering obstacles, and limitations on expanding drainage easements, according to its master drainage plan and 1999 General Plan.

The City has adopted a master drainage plan, which was prepared in 1988. The master plan identifies infrastructure capacity issues and future infrastructure needs. In addition, a peak flow and detention study was prepared in 1998 at the request of RD 833 in cooperation with and with funding from the City. The 2030 General Plan outlines an updated approach to stormwater management and includes an implementation strategy that directs City staff to draft a new, or update the existing drainage master plan.

New development under the proposed project would increase stormwater runoff, thereby placing greater demands on Gridley's stormwater conveyance system. The proposed 2030 General Plan includes measures to ensure that historic peak flows in local drainage ditches are maintained at pre-construction levels and to prevent localized flooding. The following proposed goals and policies address potential impacts to stormwater drainage facilities:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 3.2**: The City will ensure that new development provides for no net increase in peak flow conditions during a 100-year storm event.

- **Public Facilities Policy 3.3**: Proposed projects must submit construction and long-term drainage plans to the City or otherwise demonstrate consistency with the City's drainage standards and applicable Regional Water Quality Control Board standards prior to project approval.

- **Public Facilities Policy 3.4**: New developments shall construct a drainage collection system consistent with City standards, which could be a combination of underground pipes and natural drainage swales that connect on-site facilities with planned detention areas.

- **Public Facilities Policy 3.5**: New development shall construct and dedicate and/or contribute in-lieu fees, as directed by the City, to develop drainage infrastructure needed to support new growth.

- **Public Facilities Policy 3.6**: In the Planned Growth Area, the City will plan for an area-wide approach to stormwater detention and conveyance, instead of project-by-project approach, with new projects contributing in-lieu fees for their fair-share of the Planned Growth Area drainage system.

- **Public Facilities Policy 3.7**: The City may require construction of temporary stormwater detention facilities during buildout of the Planned Growth Area, as necessary, to meter and convey drainage prior to completing the entire drainage system.

- **Public Facilities Policy 3.8**: As the City annexes land served by agricultural reclamation districts, the City will assume responsibility for maintenance of agricultural drainage ditches.

- **Public Facilities Policy 3.11**: The City will implement best management practices to slow down and treat stormwater runoff and otherwise prevent against stormwater pollution in both existing developed areas and in new developments, to the greatest extent feasible.

- **Public Facilities Implementation Strategy 3.1**: Following the adoption of the 2030 General Plan, the City will update the existing or prepare a new drainage master plan to address the Planned Growth Area. The drainage master plan will be designed to move away from individual site drainage requirements to an area-wide approach for the Planned Growth Area, consistent with the General Plan. Although the focus for the natural drainage system is on the Planned Growth Area, the City will look for opportunities to expand these concepts into the existing developed City, also.

  The drainage master plan will be designed to handle specified storm events and deliver pre-development flows to the reclamation districts under post-development conditions. Construction of the Planned Growth Area stormwater management system will be phased in a way that provides adequate drainage as the area builds out. Temporary detention facilities may be necessary.

  The drainage master plan will emphasize the use of drainage swales to convey runoff although piping may be used in combination with swales, as appropriate, in the Planned Growth Area. The drainage master plan will be coordinated with the location of future parks so that excess stormwater can be detained and infiltrated within open playfield areas. Linear open space corridors themselves may also be designed to detain and infiltrate stormwater runoff.

  Preservation and restoration of agricultural drainage ditches should consider habitat value, sensitive species, and water quality objectives (see the Conservation Element). The City will explore whether mitigation fees through regional habitat conservation planning or grants from other government agencies could be made available to fund restoration elements of the City's open space strategy.

  The drainage master plan will coordinated with a Nexus Fee Study to allow fair-share contribution to drainage improvements. The Nexus Fee Study should consider efficiencies created through co-location of linear parkland, trails, drainage, and buffering. Drainage fees should be structured to provide incentives for use of low impact development stormwater management best practices (see also the Conservation Element).

  The City may require formation of one or more maintenance districts or some other approach to long-term operational funding for drainage facilities in the Planned Growth Area.

- **Public Facilities Implementation Strategy 3.2**: The City will consult with local agencies and special districts to draft a comprehensive regional drainage plan to address urban growth in the southern and western portions of Butte County and northern Sutter County, as feasible. Such a drainage plan should include mitigation fees or other funding mechanisms to provide the needed facilities.

- **Public Facilities Implementation Strategy 3.3**: The City will communicate on an ongoing basis with drainage districts in the vicinity as these districts work to address channel capacity, lack of pumping capacity, or lack of capacity in downstream discharge waterways.

Conclusion

The specific environmental impacts of constructing new stormwater detention or conveyance facilities cannot be determined at this programmatic level of analysis. As development proceeds in the city's infill areas and the Planned Growth Area, separate environmental review and analysis of the potential impacts of that development will occur in accordance with the requirements CEQA. Although buildout of the 2030 General Plan has the potential to increase and intensify the effects of stormwater runoff, goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the development that is projected for Gridley. Impacts that could result from stormwater runoff attributed to new development are addressed by these goals and

policies. Because of the level of urban development anticipated under the General Plan, the construction of additional facilities could generate significant impacts. Construction of drainage facilities would involve earth disturbance, transport of materials and equipment, operation of equipment, and associated environmental impacts. The impacts of infrastructure required to serve General Plan buildout is analyzed at a programmatic level along with the direct effects of construction and operation of General Plan land uses throughout this document. Because of the amount of stormwater management infrastructure that would be required to serve the needs of new growth, the impacts of the construction and operation of this infrastructure is considered by the City to be **significant**.

Mitigation Measure

The City has addressed local drainage needs, best environmental practices to reduce impacts related to stormwater management, and regional drainage needs in the 2030 General Plan. No mitigation beyond the 2030 General Plan policies and implementation strategies is available. The impact is considered **significant and unavoidable**.

IMPACT 4.9-4 **Result in a substantial adverse impact related to landfill capacity and solid waste disposal.** *Solid waste generated in Gridley is disposed of at the Neal Road Landfill, which is tentatively scheduled for closure on January 1, 2033. Landfill capacity and services in Gridley are considered adequate through 2033, three years after the time horizon of the 2030 General Plan. Growth that would occur under the proposed project would not result in an impact related to the disposal of solid waste, nor would it otherwise compromise the provision of solid waste and recycling services in Gridley. The proposed 2030 General Plan includes o goals, policies, and implementation strategies to reduce the waste stream and ensure the continued adequacy of these services. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. Although it appears that there will be sufficient capacity to meet the City's needs during this General Plan time horizon, the City does not control landfill capacity and does not dictate urban growth in other places within Butte County that would have an important bearing on the effective lifetime of the landfill. The City is not does not develop new landfills or expand existing landfills, does not permit landfill construction or expansion, and does not operate landfills. Due to the factors beyond the control of the City, it is possible that the 2030 General Plan would generate solid waste beyond the capacity of the existing landfill. This is considered a* ***significant*** *impact.*

Solid waste service for the City of Gridley is provided under a franchise agreement with North Valley Waste Management. Solid waste is hauled to the Ord Ranch Transfer Station and then to the Neal Road Landfill for disposal. Charges for standard solid waste service in Gridley include curbside recycling services for both green waste and co-mingled recycled materials. The Neal Road Landfill was expanded in 2002 to extend the closure date of the landfill by 15 years, from 2018 to 2033; the landfill's tentative closure date is January 1, 2033.

It is estimated that 6,099 tons of solid waste were generated in Gridley in 2006, or over 5.5 pounds per person per day (Butte Local Agency Formation Commission 2008). This is slightly higher than the countywide average of 5.2 pounds per person per day for the same period. A 2.5% to 3.5% increase in waste per year is anticipated at the Neal Road Landfill due to anticipated growth in the county; however, no further expansions of the landfill are planned at this time, and landfill capacity and services are considered adequate at least until 2033.

The DEIR prepared for the Deniz Ranch project identified a potential need for additional recycling and disposal of construction materials (City of Gridley 2006). The DEIR includes a mitigation measure requiring the project developer to submit a recycling plan for construction materials to the City for review and approval. The plan requires recycling of all materials that would be acceptable for disposal at the landfill. The mitigation measure requires documentation of all materials that would be recycled, as well as receipts documenting where the materials were taken. The developer is required to submit a performance deposit to the City, as established in the conditions of approval, to ensure recycling of demolition materials. The project developer is further required to cover all staff costs related to the review, monitoring, and enforcement of the mitigation measure through the deposit account.

New development under the proposed project would increase the demand for solid waste disposal and recycling services. The following proposed goals and policies address disposal of solid waste and recycling services in Gridley:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 7.1**: The City will encourage yard waste collection and will explore opportunities for residents or organizations to use compost material for gardens and landscaping, as feasible.
- **Public Facilities Policy 7.2**: The City will consult with the local solid waste collection provider to implement community or Citywide composting facilities for yard waste collected locally.
- **Public Facilities Policy 7.3**: The City will consult with the Butte Regional Waste Management Authority and the Butte County Environmental Health Division, as necessary, to comply with state law on solid waste collection and disposal.
- **Public Facilities Policy 7.4**: New development shall recycle construction waste to the greatest extent feasible.
- **Public Facilities Policy 7.5**: The City should encourage recycling of demolition waste within the context of City-sanctioned projects and in coordination with applicants proposing redevelopment of properties with existing structures.
- **Public Facilities Policy 7.6**: The City will consider the use of recycled materials in new City facilities, as economically feasible.
- **Public Facilities Policy 7.7**: Submittal and implementation of a recycling plan for construction materials is required for new commercial, industrial, and residential projects with more than 10 units to ensure recycling of construction waste materials to the greatest extent feasible.
- **Public Facilities Implementation Strategy 7.1**: The City will implement recycling education programs for residents designed to promote source reduction, recycling, and composting to decrease Gridley's waste stream.

Conclusion

Although buildout of the 2030 General Plan would increase generation of solid waste, goals and policies identified in the proposed 2030 General Plan are intended to address potential future impacts related to the growth that is projected for Gridley's infill areas and in the Planned Growth Area. Implementation of and the City's policies and programs would ensure that the City complies with applicable regulations related to the disposal and reduction of solid waste and would reduce the amount of solid waste entering the Neal Road Landfill. The City is part of the Butte County Regional Waste Management Authority, which coordinates solid waste management, including diversion and recycling programs. The City does not manage the Neal Road Landfill and the City's portion of the waste stream at this landfill is approximately 3 to 4 percent of the total municipal waste received at the Neal Road Landfill on an annual basis. Although it appears that there will be sufficient capacity to meet the City's needs during this General Plan time horizon, the City does not control landfill capacity and does not dictate urban growth in other places within Butte County that would have an important bearing on the effective lifetime of the landfill. The City is not does not develop new landfills or expand existing landfills, does not permit landfill construction or expansion, and does not operate landfills. Due to the factors beyond the control of the City, it is possible that the 2030 General Plan would generate solid waste beyond the capacity of the existing landfill. This is considered a **significant** impact.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is available. The City has identified all feasible measures to reduce the local waste stream, but does not control landfill capacity. The impact is considered **significant and unavoidable**.

IMPACT 4.9-5 **Result in a substantial adverse impact to the provision of electrical service.** *The Gridley Municipal Utility (GMU) has adequate infrastructure to serve the city, and GMU's three main circuits have adequate capacity to serve buildout of the Sphere of Influence. Infill projects will require establishing connections to the existing distribution system. New development will require installation of electrical infrastructure, and a new substation with increased capacity will likely be required to accommodate growth in the existing Sphere of Influence. For growth areas beyond the City Limits, the City will continue to pursue opportunities to purchase existing infrastructure from PG&E as an alternative to installing new wiring to these areas. The proposed 2030 General Plan includes goals, policies, and implementation strategies to ensure the adequacy of electrical service. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. Therefore, this impact is considered* ***less than significant.***

GMU continues to adequately serve the City, and power outages are rare. Its modular electric substation on Fairview Drive has a rated capacity of 12.5 MW and an operational capacity of about 15 MW. The average daily load is about 36% of capacity. When peak load nears 10 MW, the use is at about 66–80% of capacity. During peak demand periods, it can increase to 88% of capacity. Gridley also owns a back-up substation that is used during the annual maintenance and testing of the primary substation. Otherwise, it is only used for emergencies, which has not been necessary for the past 10–15 years. GMU's distribution system at its main substation has adequate capacity to serve buildout of the Sphere of Influence.

PG&E serves the unincorporated areas around Gridley. Under law, residents in areas that are annexed into the city may continue to receive their electrical service from PG&E, or they may switch to the municipal utility. When areas served by PG&E are annexed and customers opt for service from GMU, the City installs wiring to connect these new areas to the electrical system. The City has pursued purchasing the existing infrastructure from PG&E in newly annexed areas, but this has been a challenge in the past.

Infill projects will require establishing connections to the existing distribution system. New development will require additional electrical infrastructure, specifically new distribution lines and transformers. Distribution systems for new subdivisions are not constructed until project approval has been obtained and after construction costs have either been paid to the City, or the developer has constructed the facilities in accordance with applicable City standards. A new substation with increased capacity will likely be required to accommodate growth in the existing Sphere of Influence. New subdivisions continue to contribute impact fees for the eventual construction of this new substation.

The DEIR prepared for the Deniz Ranch project identified a potentially significant impact on the electrical distribution system from implementation of the project (City of Gridley 2006). The DEIR includes a mitigation measure requiring the project applicant to coordinate with PG&E and the City prior to issuance of building permits to determine the electrical utilities and/or easements needed to serve the project. The mitigation measure further specifies that the project applicant shall be responsible for all costs associated with the needed improvements. With implementation of this mitigation measure, the impact was considered less than significant.

New development under the proposed project would increase the demand for electrical service. The following proposed goals and policies address potential impacts to electrical service and facilities:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 4.1**: New development shall construct and dedicate per City standards and/or contribute in-lieu fees on a fair-share basis for electric infrastructure, including new distribution lines, transformers, a new substation, and other infrastructure, as directed by the City.

- **Public Facilities Policy 4.2**: The City will monitor the electricity infrastructure in existing developed portions of the City and explore options for infrastructure improvements, as needed and as funding is available.

- **Public Facilities Policy 4.3**: The City will consider options for the location, financing, and facilities sharing for a new electrical substation.

- **Public Facilities Policy 4.4**: The City will monitor, prevent, and respond as quickly as feasible to power outages.

- **Public Facilities Policy 4.5**: The City should purchase relevant infrastructure from PG&E for electrical service upon annexation.

- **Public Facilities Policy 4.6**: New electrical infrastructure should be installed underground and the City should pursue opportunities to place power lines underground, as funding is available.

- **Public Facilities Implementation Strategy 4.1**: The City Electric Utility and Department will monitor the adequacy of infrastructure serving the City and Sphere of Influence, including changes to the City's Sphere of Influence made following the 2030 General Plan update. The City will plan for long-range infrastructure needs, including a new substation to serve planned growth under the General Plan. The City will review the distribution system to assess system infrastructure needs and to propose a plan of action to the City based on findings. The City will consider preparing and/or updating an electricity master plan to identify needed improvements, phasing, and financing, if appropriate. The City will consider any changes to the electrical infrastructure or electrical facilities planning are needed to encourage development and use in Gridley of renewable energy.

- **Public Facilities Implementation Strategy 4.2**: The City will prepare a Nexus Fee Study and update impact fees following adoption of the General Plan, including those that address electrical infrastructure. The City's Nexus Fee Study and update to impact fees should include analyze energy procurement and distribution costs. Fees will be on a fair-share basis, considering estimated demand for new development. For newly developing properties that include energy conservation techniques beyond those required by building codes, the City will examine whether reduced impact fees would be appropriate.

Conclusion

Although buildout of the 2030 General Plan would increase demand for electrical service, goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the growth that is projected for Gridley's infill areas and in the Planned Growth Area. Therefore, potentially significant impacts that could result from increased electrical power usage are addressed by these goals and policies, and implementation of the goals and policies would reduce impacts to a less-than-significant level.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is required.

IMPACT 4.9-6 **Result in substantial adverse impacts to fire protection and EMS.** *The Gridley Fire Department currently responds within 6.2 minutes 90% of the time, which exceeds the recommended CAL FIRE standard. However, as reported in the City's* Final Municipal Service Review, *CAL FIRE is challenged to meet minimum response times in areas west of the UPRR tracks in Gridley. Also, planned growth in the north part of the city would require infrastructure improvements to provide for greater fire flows. The proposed 2030 General Plan includes goals, policies, and implementation strategies to ensure the adequacy of fire protection services and EMS. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. However, new growth under the General Plan could result in the need to construct new facilities and/or expand existing facilities to accommodate demand for service. The City cannot rule out the possibility of significant impacts associated with these improvements at this time. Therefore, the impact is considered* ***significant****.*

Recommended fire response times vary somewhat among agencies and organizations with a role in establishing guidelines for emergency service providers. The guideline established by the NFPA for fire response times is 6 minutes at least 90% of the time. The fire response time guideline established by the Center for Public Safety Excellence is 5 minutes, 50 seconds at least 90% of the time. (Butte LAFCo 2008) The Gridley Fire Department responds within 6.2 minutes 90% of the time. However, CAL FIRE recommends that the City adopt a 7-minute response time, which includes 1 minute for dispatch and 2 minutes to exit the station.

Although an acceptable level of service is currently maintained in the area west of the UPRR tracks, response times will increase as subdivisions are constructed further to the west until a new fire station can be built somewhere on the west side of the city. If growth is directed northward toward the Planned Growth Area, an additional station may instead be planned in cooperation with Biggs to allow for maximum response efficiency. As growth occurs, the area north of Gridley near Ord Ranch Road will need infrastructure improvements to provide for greater fire flows. Additional potential safety measures include periodic inspections of vacant properties to ensure that dry weeds and other combustible fuels are not permitted to accumulate.

Implementation of the 2030 General Plan would accommodate development of residential, commercial, and industrial uses within the existing Plan Area and the Planned Growth Area. The 2030 General Plan could accommodate low- and medium-density residential infill projects west of the UPRR tracks on the west side of the city. Some of these potential residential growth areas are located over 1½ miles from Station No. 74 on E. Gridley Road. Areas proposed for residential uses in the Planned Growth Area are located roughly 1½ to 2 miles north of Station No. 74. There is substantial additional industrial development capacity on the south side of the city, approximately one-half mile south of Station No. 74.

As reported in the City's *Final Municipal Service Review,* growth in the Gridley-Biggs area will require hiring another career firefighter sometime before 2015. Funding for such a position is yet to be determined.

The City typically requires development to pay all applicable fire protection impact fees that are in effect when the building permit for the project is issued.

The proposed 2030 General Plan includes goals and policies to ensure provision of adequate fire protection and EMS, including new facilities, additional staffing, new equipment, and operational costs to meet future growth. The following proposed goals and policies address potential impacts to fire protection services and facilities and EMS:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 6.1:** The City will ensure that fire suppression service providers have facilities with sufficient capacity, personnel, and equipment to provide a response time of four minutes or less at least 90

percent of the time within City Limits, with response time measured from the 911 call time to the arrival time of the first responder at the scene.

- **Public Facilities Policy 6.2**: New development shall set aside land, and/or contribute development impact fees on a fair-share basis for fire suppression facilities and equipment, as needed to serve new development.
- **Public Facilities Policy 6.3**: New development shall construct and dedicate infrastructure that provides adequate water pressure for fire flow and emergency fire reserve capacity, as required by the City, based on building area, construction type, and occupancy.
- **Public Facilities Policy 6.4**: The City will plan for one or more new fire stations to serve development anticipated under the 2030 General Plan.
- **Public Facilities Policy 6.6**: Wherever feasible, new fire stations should co-locate on the same property as other public service providers or other civic uses and share facilities to the greatest extent feasible.
- **Public Facilities Policy 6.7**: Gridley fire service providers should review development proposals and make recommendations to ensure adequate emergency access or other recommendations that reduce risk related to fire.
- **Public Facilities Policy 6.8**: The City should maintain an Insurance Services Organization (ISO) rating of 4 or better within City Limits.
- **Public Facilities Policy 6.9**: The City will support ongoing fire suppression, hazardous materials, lifesaving, and other needed training and drills for fire personnel.
- **Public Facilities Policy 6.10**: The City will monitor water pressure for firefighting in existing developed portions of the City and explore options for infrastructure improvements, as funding is available.
- **Public Facilities Policy 6.11**: The City will review the need for additional fire protection facilities, equipment, and personnel, as part of the annual budget preparation process.
- **Public Facilities Implementation Strategy 6.1**: The City will monitor growth under the 2030 General Plan and coordinate with CALFIRE and the Butte County Fire Department to ensure adequate staffing, fire stations, and equipment to provide fire suppression services consistent with City policy. The City will coordinate with the City of Biggs on siting of a fire station in the northern portion of the Planned Growth Area, as appropriate.

Conclusion

Potentially significant impacts that could result from increased demand for fire protection services and facilities and EMS would be mitigated by implementation of applicable goals and policies. However, new growth under the General Plan could result in the need to construct new facilities and/or expand existing facilities to accommodate demand for service. The City cannot rule out the possibility of significant impacts (such as noise from fire station operations, increased light and glare, etc.) associated with these improvements at this time. Therefore, the impact is considered **significant and unavoidable**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is available.

IMPACT 4.9-7 **Result in substantial adverse impacts to law enforcement services, staffing, and deployment.** *Implementation of the proposed project would allow for additional residents, businesses, and other urban development within the existing Plan Area and the Planned Growth Area. The 2009 population in Gridley is estimated to be 6,417 people. To maintain adequate service levels, hiring of additional law enforcement personnel will be necessary. The need for specialized law enforcement services will also continue to increase. The proposed 2030 General Plan includes goals, policies, and implementation strategies to ensure the adequacy of law enforcement services. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. It is possible that growth accommodated under the General Plan could result in the need to construct new facilities or expand existing facilities to serve new growth, and impacts from this construction could result in a* ***significant*** *impact.*

Since 1990, the population in Gridley has increased by an average of 2.1% per year. The 2009 population in Gridley is estimated to be 6,417 people. To match the median service level among small California cities (1.7 officers per 1,000 residents), it is estimated that the City would need an additional nine sworn officers by 2025. As reported in the City's *Final Municipal Service Review*, the Gridley-Biggs PD expects to meet that minimum ratio under existing staffing levels until the Gridley population increases by approximately 2,000 residents. The anticipated increase in population in the Gridley-Biggs area could result in an overall increase in serious crime rates. Specialized services related to drug enforcement and to address potential increases in gang-related crimes may also be necessary.

As reported in the City's *Final Municipal Service Review*, the average response time for the Gridley-Biggs PD is 2½ minutes. As the city continues to grow, it is assumed that this average response time could increase. Maintaining adequate response times in the area west of the UPRR tracks could present a particular challenge. The Gridley-Biggs PD intends to expand its facilities by using space that is presently part of Fire Station No. 76. The City has no plans to construct a new police station. Marked police vehicles must be replaced every 5 to 7 years; to achieve this replacement rate, five new cars are required approximately every 3 years. Planning for funding of upgrades and replacements for other equipment is a continual part of the City's annual budget reviews.

The 2030 General Plan is intended to achieve steady and orderly growth that allows for the adequate provision of services and community facilities. To support this overall goal as it relates to law enforcement, the proposed 2030 General Plan includes proposed goals and policies to ensure the provision of adequate police services needed to provide a safe environment in Gridley. The following proposed goals and policies address potential impacts to law enforcement services:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 5.1**: The City will maintain a service level of at least 1.9 sworn officers per 1,000 residents served.
- **Public Facilities Policy 5.2**: The Police Department should review development proposals to ensure adequate access, and to make design recommendations that would increase community surveillance and discourage criminal activities.
- **Public Facilities Policy 5.3**: The City will require roadway connectivity, emergency access, and siting of new police facilities with the goal of maintaining an average police response time of 3 minutes or less for emergency calls.
- **Public Facilities Policy 5.4**: The City will charge development impact fees on a fair-share basis to fund purchase of equipment and facilities for use by the Police Department.

- **Public Facilities Policy 5.5**: If additional police facilities are needed to serve growth in population during General Plan buildout, the City will look for opportunities to co-locate with other service providers to the greatest degree feasible.

- **Public Facilities Policy 5.6**: The Police Department should continue to consult with law enforcement officials from nearby jurisdictions, the County Sheriff, and other relevant agencies on monitoring and prevention of gang-related crime and violence.

- **Public Facilities Implementation Strategy 5.1**: Following General Plan adoption, the City will monitor new growth in light of the City's policies for staffing levels and response time and make investments, as required, to maintain level of service. The City will consider additional non-sworn staff to address accidents and traffic, plus a canine unit to assist with drug enforcement.

- **Public Facilities Implementation Strategy 5.2**: The City will consider establishing or supporting community outreach programs that encourage residents to be proactive in crime prevention. Such programs could include, but are not limited to: neighborhood watch, youth outreach programs, and other community-based programs.

Conclusion

Goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the proposed growth areas in Gridley and the Planned Growth Area. Impacts that could result from increased demand for law enforcement services and facilities would be mitigated by implementation of applicable goals and policies. It is possible that growth accommodated under the General Plan could result in the need to construct new facilities or expand existing facilities to serve new growth. The City cannot demonstrate at this time that impacts of such development (such as noise from public safety operations, increased light and glare, etc.) would result in less-than-significant impacts. Therefore, the City considers this impact to be **significant and unavoidable**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is available.

IMPACT 4.9-8 **Result in a substantial adverse impact to the public school system.** *The 2030 General Plan would increase the population of the City of Gridley, and produce a corresponding increase in the number of students in the Gridley Unified School District. However, policies and implementation strategies of the 2030 General Plan would require payment of school fees as required under State law. This impact would be* ***less than significant****.*

Build out of the 2030 General Plan would increase demand for school facilities. Additional staff, equipment and facilities would be required to maintain service standards. The 2030 General Plan could add as many as 2,565 students based on full buildout of the 2030 General Plan and the School District's student enrollment rate of 0.6 students per household (K-12).[9]

Each of the schools serving Gridley today is under capacity (Table 4.9-5), although two schools have less than 10 percent of their capacity remaining. Based on the growth projected in the General Plan, it can be assumed that new school facilities would need to be constructed within both districts. The actual location of new and expanded facilities would depend on where growth occurs; schools would probably be located in residential areas, in proximity to the student populations they serve. The 2030 General Plan identifies potential locations for new schools central to neighborhoods they could serve, but recognizes that the School District rather than the City is charged with located and constructing new schools.

[9] Clark Redfield, Gridley Unified School District. Personal correspondence, December 6, 2007.

Table 4.9-5 Enrollment and Capacity at Local Schools		
School	Current Enrollment	Capacity
McKinley Elementary School	329	340
Wilson Elementary School	589	650
Sycamore Middle School	445	486
Gridley High School	607	810
Gridley Alternative Education	90	150
Esperanza Continuation School	42	90
Community Day School	19	40

New development under the proposed project would increase the number of school-age children attending public schools in Gridley. The following proposed goals and policies address potential impacts to the public school system in Gridley:

Relevant Policies and Programs of the 2030 General Plan

- **Public Facilities Policy 9.6**: New developments shall set aside land as identified in the Land Use Diagram, contribute school development impact fees, construct and dedicate new school facilities, or provide a combination of the above, according to state law and School District requirements.

- **Public Facilities Policy 9.7**: Developments providing more than their fair share of land for school facilities use shall be reimbursed through development impact fees from other projects benefitting from school sites.

- **Public Facilities Implementation Strategy 9.1**: During General Plan buildout, the City will involve the school district proactively in development proposals, and will cooperatively monitor housing, population and enrollment trends, and to evaluate the effects of those trends on future school facility needs. The City will provide information to the School District to support updates to school facilities plans consistent with the City's General Plan, particularly with respect to the proposed location of future school sites. The City will proactively communicate with the School District to create joint-use arrangements for recreational facilities and library facilities. Joint-use facilities could occur on both existing and new school sites. The City will consider potential cost savings in sharing maintenance responsibilities for joint-use facilities.

Conclusion

Although buildout of the 2030 General Plan would increase the number of school-age children in the community who would be attending schools in the Gridley Unified School District, goals and policies identified in the proposed 2030 General Plan are intended to address potential future impacts related to the growth that is projected for Gridley's infill areas and in the Planned Growth Area through a requirement for payment of school impact fees. Although school impacts fees are often insufficient to fund 100% of new school facility construction and operation, the California State Legislature has declared the school impact fee to be full and adequate mitigation under CEQA. Under California Government Code Section 65996, the City is limited to charging the statutorily-created fee to offset impacts on local schools generated by proposed projects. Section 65996 does not provide for remediation of existing deficiencies in school services. Implementation of these goals and policies would require payment of school fees, and therefore the proposed project would result in **no impact** related to the public school system. Construction of school facilities could result in environmental impacts, including traffic, noise, biological resources, geology and soils, hazards, and utilities impacts. However, these impacts would be addressed by a separate environmental document or documents prepared by the school district as new schools are proposed.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is required.

IMPACT 4.9-9 **Result in substantial adverse impacts to parks and recreation services and facilities.** *Implementation of the proposed project would include development of residential uses within the existing Plan Area and the Planned Growth Area. An increase in population of approximately 10,970 people through 2030 could occur as a result. Additional parkland and recreational facilities will be needed to meet the needs of future residents of Gridley. The proposed 2030 General Plan includes goals, policies, and implementation strategies to ensure that the City's parkland standards are met. Before approving a project within its existing Plan Area or Planned Growth Area, the City will ensure compliance with all applicable standards. New growth accommodated under the General Plan will result in the need to construct additional facilities. The impact is considered* ***significant****.*

Based on current estimates for housing types and persons per household in infill areas and in the Planned Growth Area, implementation of the proposed project could result in a population increase of approximately 10,970 people (see Table 4.9-1 above).

The City owns and maintains parks near Downtown, including: Vierra Community Park (12.5 acres); Daddow Plaza, Rotary Park, and Quota Park (totaling 4.4 acres); and the skateboard/water park (1.01 acres). Parks are also provided in residential areas, including: August Boeger Park (1.9 acres) and Eagle Meadows Park (6.01 acres of private parkland). There was a total of 19.8 acres of City-owned parkland, or 3.1 acres per thousand residents, as of the writing of the 2030 General Plan.[10] This total does not include Eagle Meadows Park (private) or the City-owned boat launch area on the Feather River.

The Open Space Element of the existing General Plan identifies the overall standard of 5 acres or parkland per 1,000 residents (City of Gridley 1999). The 2030 General Plan Land Use Diagram also identifies areas for new parks of different types and sizes, including areas for linear parkland. Assuming a service standard of 5 acres per 1,000 residents, an estimated total of 55 acres of new parkland and recreational areas would be required to serve potential new Gridley residents at full buildout of the 2030 General Plan (Table 4.9-6).

Table 4.9-6
Estimated Parkland Acreage Requirement with Implementation of the Proposed Project

Proposed and Potential Growth Areas	Total Estimated Population Increase	Estimated Parkland Acreage Required to Serve New Residents
Existing Plan Area (Infill Development)	4,490	22.5 acres
Planned Growth Area	6,483	32.5 acres
Total	10,973	55 acres

As discussed above, a total of 24.6 acres of parkland are developed or planned for development within Gridley. The 2009 population in Gridley is estimated to be 6,417 people. Based on the existing General Plan standard of 5 acres per 1,000 residents, a total of 32 acres of parkland acres are required to serve the existing population. Based on the 2009 population estimate of 6,417, an additional 7.4 acres of developed parkland are needed to achieve the City's standard of 5 acres per 1,000 residents. When added to the parkland acreage that would be required for new development, a total of approximately 62 acres of various types of parkland and recreational areas would be required to serve current and potential future Gridley residents with implementation of the proposed project. If

[10] The City's official 2008 population was 6,403 according to the California Department of Finance: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, May 2008.

additional acres in parkland are not provided, there could be a significant impact associated with a shortage of park and open space facilities and the substantial deterioration of existing facilities from overuse of existing facilities.

The EIR prepared for the Boeger Annexation Project (City of Gridley 2002b) identifies lack of adequate parkland space as a significant impact of the project. The EIR includes a mitigation measure requiring the project applicant to explore the possible use of a portion of the agricultural buffer at the north end of the project site for parkland/open space, which could be combined with development of an expanded stormwater detention facility within the buffer area. The mitigation measure further specifies an alternative mitigation approach requiring the project applicant to either dedicate parkland or pay in-lieu fees in accordance with the City's Parkland Dedication and In Lieu Fee Ordinance. With implementation of this mitigation measure, the impact was considered less than significant.

The DEIR prepared for the Deniz Ranch project identified a less-than-significant impact regarding provision of parks and recreation facilities for new residents (City of Gridley 2006). The initial study prepared in 2002 for the Eagle Meadows subdivision on the west side of the city identifies the shortfall of parkland acreage as a potentially significant impact of the project (City of Gridley 2002a). The initial study includes a mitigation measure requiring the project applicant to pay in-lieu fees in accordance with the City's Parkland Dedication Standards. With implementation of this mitigation measure, the impact was considered less than significant.

As reported in the City's *Final Municipal Service Review*, various improvements, rehabilitation, and maintenance projects are needed at several parks within Gridley. New development under the proposed project would increase the demand for parks and recreational facilities. The following proposed goals and policies address potential impacts to parks and recreational facilities:

Relevant Policies and Programs of the 2030 General Plan

- **Open Space Policy 4.1**: New developments shall provide for improved, public parkland according at a minimum rate of 5 acres per 1,000 residents.

- **Open Space Policy 4.2**: The distribution of parkland between community parks, neighborhood parks, and mini-parks should be 1–3 acres of community parks per thousand residents, 1–3 acres of neighborhood parks per thousand residents, and 0.5–1 acres of mini-parks per thousand residents.

- **Open Space Policy 4.3:** New developments shall contribute on a fair-share basis toward improved, publicly accessible parkland, according to City park standards. If new developments dedicate parkland, fees would be decreased proportionally.

- **Open Space Implementation Strategy 4.1**: During buildout of the 2030 General Plan, the City will ensure development and ongoing maintenance of new parkland to serve a growing population. The City will conduct a Nexus Study to determine fees necessary to develop parkland consistent with the General Plan. New developments shall dedicate and/or contribute to new parks according to the City's revised development impact fees. The City will consider contributing toward a new community park in the Planned Growth Area, with new development in the Planned Growth Area contributing on a fair-share basis.

- **Open Space Implementation Strategy 4.2**: The City will collaborate with the Gridley Unified School District on planning, financing, and development of new park space adjacent to school sites. It is intended that this park space can be jointly used by schools and new residential development in the surrounding neighborhood. It is anticipated that the City and School District can share maintenance responsibilities for this new joint parkland.

- **Open Space Implementation Strategy 4.3**: The City will revise the Subdivision Ordinance, as necessary, to be consistent with the approach to parkland provision in the 2030 General Plan.

Conclusion

The specific environmental impacts of constructing new individual park or recreation facilities cannot be determined at this programmatic level of analysis. Development and operation of park facilities may result in potentially significant impacts (such as damage to habitat, traffic, noise, and other impacts) that are addressed through plans, policies and mitigation measures identified in other sections of this EIR. However, various park and recreational expansion or improvement projects have been identified in certain areas of the city, which will be subject to specific environmental analysis in accordance with the requirements of CEQA.

Although buildout of the 2030 General Plan would increase demand for parkland, goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the projected population growth for Gridley. Impacts that could result from increased demand and usage of parks are addressed by these goals and policies.

Growth accommodated under the General Plan will result in the need to construct new facilities to serve new growth. The City cannot demonstrate at this time that impacts of such facilities development would result in less-than-significant impacts. Therefore, the City considers this impact to be **significant and unavoidable**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and implementation strategies is available.

4.9.4 RESIDUAL SIGNIFICANT IMPACTS

Impacts associated with construction of new facilities or expansion of existing facilities to serve new demand for water, wastewater, stormwater, law enforcement, fire suppression, solid waste, and park services could result in significant impacts. Although General Plan policies and implementation strategies address such impacts, the City cannot demonstrate at this time that impacts associated with such facilities expansions could be reduce to a less-than-significant level in all instances. Therefore, impacts are considered **significant and unavoidable**.

4.10 CULTURAL RESOURCES

This section outlines the regulatory framework as it applies to cultural resources and is followed by a cultural context that briefly summarizes the prehistoric, ethnographic and historic-era background of the General Plan Area and vicinity. A review of previous investigations and historic archives and known resources within the Plan Area is followed by a description of potential impacts and mitigation measures required to reduce potential significant impacts.

4.10.1 REGULATORY SETTING

Cultural resources in California are protected by a number of federal, state, and local regulations and ordinances. The following provides a brief outline of the regulations, policies, and ordinances that are applicable to the General Plan.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies take into account the effects of their actions, and those they fund or permit, on properties that may be eligible for or listed on the National Register of Historic Places (NRHP), and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on effects to listed or eligible properties. To determine if an undertaking could affect NRHP-listed or eligible properties, all cultural sites that could be affected are inventoried and evaluated for eligibility on the NRHP.

The significance of an archaeological or historic resource per NHPA definitions is an important consideration. Listing, or eligibility for listing, on the NRHP is the primary criterion for deciding whether or not a resource is subjected to further research and documentation. Public agencies should avoid significant effects to historic and unique archaeological resources, particularly those that are listed on or eligible for listing on the NRHP. When significant impacts cannot be avoided, their effects need to be mitigated, if feasible, through measures such as:

- avoidance during construction phases,
- incorporation of sites into open space,
- capping resources with chemically stable fill,
- deeding a site into a permanent conservation easement, and
- data recovery (testing and excavation).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

CEQA

The most frequently applied legislation consists of the provisions of CEQA that provide for the documentation and protection of significant prehistoric and historic resources. Prior to the approval of discretionary projects and the commencement of agency undertakings, the potential impacts of the project on archaeological and historical resources must be considered (Public Resources Code Sections 21083.2 and 21084.1 and the CEQA Guidelines [California Code of Regulations Title 14, Section 15064.5]).

The significance of an archaeological or historic resource per the CEQA Guidelines is an important consideration for management of these resources. Listing or eligibility for listing on the California Register of Historical Resources (CRHR) is the primary consideration in whether or not a resource is subjected to further research and documentation. As a matter of policy, public agencies should generally avoid damaging effects to historic and archaeological resources, particularly those that are CRHR-eligible. When impacts cannot be avoided, their affects can be mitigated through:

- avoidance during construction phases,
- incorporation of sites into open space,
- capping resources with chemically stable fill,
- deeding a site into a permanent conservation easement, and
- data recovery (testing and excavation).

In addition, the State CEQA Guidelines require consideration of unique archaeological sites (Section 15064.5). If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archeological resource as outlined in the Public Resource Code (Section 21083.2), it may be treated as a significant historical resource. Treatment options under Section 21083.2 of CEQA include a project that preserves such resources in place in an undisturbed state. Other acceptable methods of mitigation under §21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Public Resources Code Section 15064.5(e) of the State CEQA Guidelines also requires that excavation activities stop whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, Section 15064.5(d) CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans as identified by the Native American Heritage Commission and directs the lead agency (or applicant) to develop an agreement with the Native Americans for the treatment and disposition of the remains.

CRHR Resource Significance

The significance of cultural resources within a project site is measured against the criteria outlined in the CRHR. CEQA requires that resources eligible for listing on the CRHR be afforded degrees of protection ranging from preservation to the mitigation of adverse impacts. Determining the CRHR eligibility of historic and prehistoric sites is guided by the specific legal context of the site's significance as outlined in Sections 21083.2 and 21084.1 of the Public Resources Code (PRC), and the CEQA Guidelines (California Code of Regulations Title 14) Section 15064.5. In the CRHR, cultural resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. A cultural resource may be eligible for listing on the CRHR if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

In California, if a prehistoric or historic resource does not necessarily meet any of the four CRHR criteria, but does meet the definition of a "unique" site as outlined in the PRC (Section 21083.2), it may still be treated as a significant resource. This is the case if it is

> ...an archaeological artifact, object or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> 1. It contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. It has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. It is directly associated with a scientifically recognized important prehistoric or historic event.

These two sets of criteria operate independently to ensure that significant potential effects on archaeological and historic resources are considered as a part of a project's environmental analysis. PRC guidelines also recommend provisions be made for the accidental discovery of archaeological sites.

Senate Bill (SB) 18

California Senate Bill (SB) 18 states that prior to a local (city or county) government's adoption of any general plan or specific plan, or amendment to general and specific plans, or a designation of open space land proposed on or after March 1, 2005, the city or county shall conduct consultations with California Native American tribes for the purpose of preserving or mitigating impacts to Cultural Places.

A Cultural Place is defined in the PRC sections 5097.9 and 5097.995 as:

- Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine (PRC Section 5097.9), or;

- Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historic Resources pursuant to Section 5024.1, including any historic or prehistoric ruins, any burial ground, or any archaeological or historic site (PRC Section 5097.995).

The intent of SB-18 is to establish meaningful consultation between tribal governments and local governments ("government-to-government") at the earliest possible point in the planning process so that cultural places can be identified and preserved and to determine necessary levels of confidentiality regarding Cultural Place locations and uses. According to the Government Code (GC) Section 65352.4, "consultation" is defined as:

- The meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement. Consultation between government agencies and Native American Tribes shall be conducted in a way that is mutually respectful of each party's sovereignty. Consultation shall also recognize the tribes' potential needs for confidentiality with respect to places that have traditional tribal cultural significance.

While consultation is required to take place on a government-to-government level, the SB-18 process begins with a letter from the local government to the Native American Heritage Commission requesting a list of tribal organizations appropriate to the plan or plan amendment area or proposed open space designation. Once contacted by the local government, the tribes have up to 90 days to respond and request consultation regarding the preservation and treatment of known cultural place(s) if any have been identified by the tribe.

Regional and Local Plans, Policies, Regulations and Ordinances

Butte County General Plan

The following policies in the Butte County General Plan address cultural resources:

- **Policy 6.7.a.** Identify and evaluate all cultural resources impacted proposed projects before approval and development.

- **Policy 6.7.b.** Preserve significant sites or require their detailed investigation by competent archaeologists

- **Policy 6.8.a.** Encourage preservation of significant historical sites.

4.10.2 Environmental Setting

To place the prehistoric and historic resources of the Plan Area into a broader context, they need to be discussed within a larger cultural framework. The presence of a variety of natural resources, topography, and proximity to important transportation routes made the project area an ideal location for prehistoric and historic settlement. Consequently, although no sites, features or artifacts have been formally recorded within the Plan Area, many such resources are likely to be encountered, although they may be buried under a foot or more of sediment.

Prehistoric Archaeological Context

Archaeological investigations in the vicinity of Gridley have been somewhat limited, and while contributing a great deal to the body of knowledge of the prehistory of the region, there are many issues that are poorly understood. The first scientific studies relevant to the region occurred in 1907 when the University of California, Berkeley conducted reconnaissance projects in the Tehama and Red Bluff areas (Nelson 1907). Little else in the way of academic research was conducted until the 1950s when various large-scale water projects were constructed. The River Basin Survey resulted in a considerable body of research prior to the construction of a number of large water projects. One of the most important portions of this study included extensive inventories and excavations of prehistoric sites for the Oroville Dam (Treganza 1954). Treganza also conducted salvage excavations at prehistoric sites prior to the construction of the Redbank Reservoir in nearby Tehama County (Treganza 1954). Investigations by Chartkoff and Chartkoff (1983) at the Patrick Site to the northeast of the Plan Area, built upon the prehistoric cultural sequence developed for the Oroville vicinity first proposed by Olsen and Riddell (1963) (based in part of Treganza's 1953 work), which was further updated and expanded by Ritter (1970) and Kowta (1988). Apart from the more broad-based findings of the work of Treganza, Chartkoff and Chartkoff, Riddell and Olsen, Ritter and Kowta, locally, little information has been gathered in the vicinity of the Plan Area and along the Feather River to the east.

The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (12,000–8000 BP). Social units are thought to have been small and highly mobile. Known sites have been identified within the contexts of ancient pluvial lake shores in the Great Basin and the Coastlines of California and are evidenced by such characteristic hunting implements as fluted projectile points and flaked stone crescent forms. Prehistoric adaptations over the ensuing centuries have been identified in the archaeological record by numerous researchers working in the area since the early 1900s, as summarized by Fredrickson (1974), Moratto (1984), and White (2003a).

Beardsley (1948) and Lillard et al. (1939) and others conducted numerous studies that form the core of our early understanding of upper Central Valley archaeology. Little has been found archaeologically which dates to the Paleo-Indian or the subsequent Lower Archaic time periods (White 2003a). The lack of sites from these earlier periods may be due to high sedimentation rates, which have left the earliest sites deeply buried and inaccessible. However, archaeologists have recovered a great deal of data from sites occupied during the Middle Archaic period (5000–3000 BP). During this time, the broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Subsistence economies were more diversified, possibly including the introduction of acorn processing technology. Human populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established and were primarily located along major waterways.

The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (3000–1500 BP). Archaeological evidence suggests exchange systems became more complex and formalized and evidence of regular, sustained trade between groups was seen for the first time (White 2003a: Fig. 4).

Several technological and social changes characterized the Emergent Period (1500–150 BP) when the bow and arrow were introduced, ultimately replacing the dart and atl-atl. Territorial boundaries between groups became well established and were recorded in early historic and ethnographic accounts. It became increasingly common that distinctions in an individual's social status could be linked to acquired wealth. Exchange of goods between groups became more regularized with more goods, including raw materials, entering into the exchange networks. In the latter portion of this period (500–200 BP), exchange relations became highly regularized and sophisticated. The clamshell disk bead became a monetary unit for exchange, and increasing quantities of goods moved greater distances just prior to large-scale European settlement of California (White 2003a).

Ethnographic Context

Ethnographically, the region, including Plan Area, was inhabited primarily by the Maidu who controlled extensive territory (Dreyer 1984, White 2003a). The most comprehensive documentation of the Maidu was compiled by Dixon (1905), with other works by Hill (1978), Kroeber (1925, 1932), Riddell (1978), and Voegelin (1942).

Maidu territory included sections of the Sacramento Valley floor and portions of the Sierra foothills east of the present-day cities of Chico and Oroville (White 2003a). Formal delineations of the territory may have included prominent physiographic features and landforms although any certainty as to the early historic-period boundaries have been lost through decimation of the tribe resulting from disease and the removal of the people from their traditional lands during the 19th century. In general, such boundaries may not have been as hard and fast as reported in ethnographic accounts as extensive trail systems existed within the valley and foothill regions that connected tribes throughout northern and central California.

Maidu settlement conformed to a "village community" pattern that served as the only formal political structure of the tribe (Kroeber 1925). Village communities, which consisted of several closely spaced small settlements and a larger village containing a semi-subterranean earth-covered ceremonial lodge, were autonomous and self-sufficient units (White 2003a). Individual communities probably numbered around 200 inhabitants and "owned" or controlled specific territories in which hunting, gathering, and fishing areas were considered common property. The most politically influential man of each community lived in the central village. This head-man acted as an advisor and spokesman for his group although he possessed little in the way of concrete power. This individual was not selected by members of the village community nor was the position hereditary. Rather, the head-man was chosen by the village shaman with the aid of various messenger spirits who could also remove him as they saw fit (Dixon 1905).

Maidu economic and subsistence patterns were largely based on a seasonal cycle that involved residence in winter village sites in the valley and summer journeys into the mountains for hunting. In the spring, various types of roots, stems, leaves, seeds, and fruits were gathered in large quantities to be dried for winter consumption (Dixon 1905). As with many Native American groups in California, the acorn, gathered from a variety of oak species, formed the staple food of the Konkow and Maidu diet.

In general, Konkow and Maidu life remained unchanged for generations until a disease epidemic, possibly malaria, in 1833 decimated tribes throughout central California. During his expedition north along the Sacramento River in 1833, John Work noted the decimation of villages that had been observed to be thriving earlier in December of 1832 (Maloney 1943 and 1944). The Maidu population and cultural systems probably never fully recovered from the effects of the epidemic that was followed by the Gold Rush period starting in 1849. These two factors combined to thoroughly disrupt their social, spiritual, economic, and subsistence patterns to a point that the Maidu were quickly reduced to a marginal existence in the region. Most illustrative of the impact these events had on the Maidu and the Nisenan neighbors are population estimates: in 1846, approximately 8,000 people from these groups were recorded. By 1910, that population had been reduced to less than 1,000 (Riddell 1978). Currently, Konkow and Maidu groups have reinvigorated and are dedicated to preservation of their traditional lifeways.

HISTORIC CONTEXT

The earliest documented European entry into the region around the Plan Area occurred in 1808. That year, Gabriel Moraga led an expedition that eventually traveled up the Feather River and then proceeded north along the banks of the Sacramento River, possibly to the current location of Butte City. The purpose of Moraga's travels was largely to search for suitable locations for new missions and to further establish Spanish rule in the face of increasing foreign pressure, from the Russians in particular. Thirteen years would pass before another formal exploratory expedition into the region was launched. In 1821, Mexican governor Pablo Vicente de Sola sent Captain Luis Arguello with 55 soldiers to drive out reported American and Russian intruders from the areas north and east of San Francisco. Although Arguello's route is somewhat speculative, it appears he and his party may have eventually followed the Sacramento River north (Beck and Haase 1974).

Hudson Bay trappers were in the vicinity of the Plan Area during the early decades of the 19th century. Jedediah Strong Smith trapped the "golden beaver" (a species of beaver prevalent in the Sacramento Valley) along the Feather River and crossed the river at the fork with Honcutt Creek approximately 5 miles northeast of Biggs on March 21, 1827 (McGie 1982). Another expedition was led by John Work in 1832 and 1833 (Maloney 1943 and 1944), whose description of the environment provides an excellent account of the area prior to Euro-American development. On his return trip north in August of 1833, he indicates that the weather was excessively hot with no wind. On January 18, 1832 the party crossed the Feather River from the east north of the town of Marysville, and from there proceeded north to the "Bute." According to Maloney, this part of their route is that of the Butte House Road (Maloney 1943). In his diary, Work describes this portion of the expedition as follows of January 22nd.

> *The road is in many places still soft and fatiguing on the horses, but considerably dried since we left on the 31st ult. Several of the people arrived with meat, they have a great deal still in cache, these two days past they have killed in all 52 elk & 1 bear. My party 28 men, 22 women, 44 children & 6 Indians, in all 100. Michel's [LaFramboise] party 18 men, 12 women, 16 children, 17 Indians, in all 63.*

Maloney indicates that Michel LaFramboise was a French Canadian that at first was employed by John Jacob Astor, and subsequently with the North West Company and Hudson's Bay Company (Maloney 1943).

The next major exploratory or emigrant group to venture into the area was the Charles Wilkes expedition, led by Lieutenant George Emmons. This party led a group of emigrants into California from the Columbia River, passing south along the west bank of the Sacramento River in October of 1841. Lansford W. Hastings, (best known for his scouting of the "Hastings Cut-off" in Utah that eventually doomed the Donner Party) and Joseph B. Chiles, led an emigrant party into California, through the area in 1843.

The first in a series of events that shaped the economic and cultural landscape in the area occurred during the middle 19th century with the formation of Mexican land grants. One such grant, the Boga grant, was issued to Charles W. Flugge for 22,184 acres along the west side of the Feather River from Ord Ranch north of Gridley to Sutter County (McGie 1982:36). The western boundary of this land grant bisects the Plan Area from north-south. Subsequently, the grant was purchased by Thomas O. Larkin in 1847. Larkin had amassed a large fortune as a trader and merchant in Monterey, and while he was an alien and not eligible for land grants, he used his wealth to systematically buy these grants, which included others, such as the Cotati Grant and another in Carmel. Interestingly, Larkin was able to purchase the Boga Grant while being held by Mexican forces in Los Angeles (Gates 2002).

George W. Gridley was born in New York, and while he was a teenager, he moved to Galena, Ill to live with his uncle. In 1850 he took on the responsibility to drive a herd of sheep and cattle to California. Although he lost the entire herd, he settled on land, which would become the town of Gridley, where he became involved in the stock raising business. In 1852, he returned to Illinois where he purchased 3,000 head of sheep, however once again he sustained heavy losses and arrived in northern California with only 600 head. He expanded the operation to more

than 30,000 acres and at one time was the largest tax payer in Butte County, with land holdings extending from Nelson to Durham (McGie 1982:121 and Walker2008).

A post office was established in 1862 at George Gridley's Ranch (the Gridley Ranch); however the area did not experience substantial settlement activity until after 1870, when the California and Oregon Railroad established a station at Biggs. Upon the completion of a warehouse, George Gridley was successful in getting the railroad to construct a station at his ranch, adjacent to which the railroad established a park, which remains to this day. In 1870, the California and Oregon Railroad was purchased by the Central Pacific Railroad. Soon after, several additional buildings were added and formed the earliest buildings of the town. These included a home and store built by L.C. Stone, a Wells Fargo office, and Gridley Hotel built by James Mumby (McGie 1982).

While dry farming and the raising of livestock, primarily sheep, were the main agricultural activities throughout the 19th century, agriculture became diversified in the early 20th century with the construction of a system of canals that provided irrigation water via the Butte County Canal. The Butte County Canal diverted water from the lower Feather River beginning in 1905. The system changed its name to the Sutter-Butte Canal in 1950. In the 1920s prunes, almonds and olives led the new plantings in Butte County, and in 1921, farmers were planting pumpkins among orchard trees in the Gridley area. Pumpkins were shipped to canneries in the Gridley area and later the Gridlry Libby, McNeill and Libby plant enlarged its packing facilities, and the pumpkin pack became a large part of the Gridley cannery's annual production. In the 1930s, aided by aerial application of seed, rice also became a major crop in the Biggs/Gridley area. Currently, the agricultural lands surrounding Gridley remain some of the most productive land in the nation as Gridley agricultural remains the main economic base of the area.

Previous Cultural Resource Investigations

Numerous sources were contacted and consulted to gather information regarding the existing conditions and cultural resources that may be located within the Plan Area. A records search was conducted at the Northeast Information Center (NEIC) at California State University Chico in February 2008. This search included:

- a review of official records and maps, National Register of Historic Places – Listed properties and Determined Eligible Properties (1988, and Computer Listings 1966 through 2007 by the National Park Service);
- California Register of Historical Resources (State of California 2007);
- California Points of Historical Interest (State of California 1992);
- California Inventory of Historic Resource (State of California 1976);
- California Historical Landmarks (State of California 1996);
- Directory of Properties in the Historic Property Data File for Butte County (State of California 2007);
- Historic Spots in California (Hoover et al. 1990); and,
- Historic Butte County maps dated 1886, 1894, 1901, and 1913, and the Gridley USGS 15 minute quadrangle.

A small number of cultural resource inventories have been conducted within the vicinity of the General Plan Area, but have met with only limited success in identifying archaeological resources associated with the prehistoric and early historic-eras. Archival research, however, indicates a rich historic relationship between early agriculture, and development within the region and sites, features, and artifacts associated with these periods and activities may be located within the Plan Area.

Inventories conducted thus far have primarily been limited to those associated with telecommunications and development projects. These investigations are summarized in Table 4.10-1. The two telecommunications projects

(see Arrington and Bass [2006] and Nelson et al. [2000]), and were associated with rights-of-way within the Southern Pacific Railroad, which bisects the General Plan Area. Neither of these investigations resulted in the identification of cultural resources within the General Plan Area. Two studies conducted immediately south of the General Plan Area (Peak and Associates 1998 and Neuenschwander 2005), resulted in the identification of a single resource consisting of a Craftsman-style home with associated shed. The buildings were found not eligible for inclusion in the NRHP or CRHR

Table 4.10-1
Previous Cultural Resource Investigations Conducted Within and Near the Project Site

Report	Author / Date	NEIC No.
Investigations Within the Project Site		
Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	Arrington and Bass (2006)	7362
Cultural Resource Survey for the Level (3) Communications Long Haul Fiber Optics project, Segment WP04: Sacramento to Redding	Nelson et al (2000)	4658
Investigations Adjacent to the Project Site		
Cultural Resources Assessment of the Deniz Ranch Project, Located Adjacent to the City of Gridley Butte County, California	Neuenschwander (2005)	2005
Cultural Resources Assessment of the Rio Plumas Company Property, City of Gridley, Butte County, California	Peak and Associates (1998)	1998

Source: NWIC 2008, compiled by EDAW 2008

NATIVE AMERICAN CONSULTATION

The City of Gridley, in accordance with SB18, contacted NAHC to obtain a list of Native American representatives that should be consulted in preparation of the General Plan and sent letters to each representative listed by NAHC. A review of the Sacred Land Files by the NAHC did not reveal the presence of sensitive resources within the Plan Area.

To date the only response to requests for input has been from the Enterprise Rancheria of Oroville. In their letter, Enterprise Rancheria expressed their ability to provide assistance to the City in the form of providing monitors for construction project, provide input into the cultural significance of inadvertent finds, ensure compliance with State laws, and ensure the Native American human remains and associated grave items are treated with appropriate dignity.

4.10.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following assessment of impacts and proposed mitigation measures is based upon a review of previous work conducted within the Plan Area, and further work that will be required to identify and assess for significance prehistoric and historic-era resources that may be present.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of a unique archaeological resource or a historical resource as defined in Section 21083.2 of CEQA and Section 15064.5 of the State CEQA Guidelines, respectively;
- have the potential to cause a physical change, which would affect unique ethnic cultural values;
- restrict existing religious or sacred uses within the potential impact area; or,
- disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5 of the State CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings. Impacts related to the potential physical change in cultural resources that would affect unique ethnic values, existing religious or sacred uses were not identified. Therefore, no further analysis of these impacts is included in the impact analysis section below.

IMPACT ANALYSIS

IMPACT 4.10-1 **Destruction of or Damage to Known Cultural Resources.** *No cultural resources have been identified within the Plan Area; however this is most likely due to the paucity of investigations. The route of the California and Oregon Railroad, now owned by the UPRR, bisects the Plan Area, and historic maps indicate the presence of roads and structures within the Plan Area. None of these have been documented nor assessed for significance; therefore there is the potential for significant impacts on historic resources through project implementation. However, implementation of the policies and programs of the 2030 General Plan would require assessment for potential historic and cultural resources, resulting in a* ***less-than-significant*** *impact.*

No cultural resources have been identified within the Plan Area, although this may be due to a lack of investigations. The route of the California and Oregon Railroad (now owned by the UPRR) bisects the Plan Area, and historic maps indicate the presence of roads and structures within the Plan Area. None of these have been documented, nor assessed for significance. In the absence of information on cultural resources, and in the absence of detailed information on historical resources, there is a potential for significant impacts on historic and cultural resources in the Plan Area due to implementation of the proposed project.

The following proposed policies and programs in the 2030 General Plan address potential destruction or damage to known cultural resources:

Relevant Policies and Programs of the 2030 General Plan

- **Conservation Policy 4.1**: Archaeological and paleontological resources shall be protected permanently from urban development, wherever possible.
- **Conservation Policy 4.2**: New developments shall analyze potential impacts, and shall be designed to avoid adverse impacts to any known archaeological and paleontological resources, wherever possible.
- **Conservation Policy 4.3**: The City will use cultural resource databases to determine the likely presence of resources and the appropriate level of cultural resources analysis required for new developments.
- **Conservation Policy 4.4**: The City will require presence of a professional archaeologist to monitor all ground-disturbing activities for improvements to the City's wastewater treatment plant and other City-sanctioned earth disturbing activities within 150 meters of the Feather River.
- **Conservation Policy 4.5**: The City shall restrict the circulation of information concerning the location of cultural resources, in order to prevent potential site theft or vandalism.

- **Conservation Policy 4.6**: The City will encourage private property owners to preserve, maintain, adapt and reuse historic structures, while maintaining as much of the historic character as possible.

- **Conservation Policy 4.7**: Buildings and other resources that have historical or architectural value should be preserved, wherever feasible. Where this is not feasible, the resource shall be documented and the information retained in a secure, but publicly accessible location. The resource proposed for removal should be described and incorporated into historic and/or interpretive signage. The reuse and display of historic materials and artifacts from the resource is encouraged.

- **Conservation Implementation Strategy 4.1**: As new development projects are proposed that are subject to the California Environmental Quality Act, the City will require cultural resource analysis, as appropriate, based in part on information available from the Northeast Information Center of the California Historical Resources Information System (CHRIS) and, if necessary, consulting with a qualified professional archaeologist or architectural historian, as appropriate. The City will require analysis and mitigation, as appropriate, consistent with Section 15064.5 of the State CEQA guidelines. In the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the City. If Native American human remains are discovered, the City will work with local Native American representatives to ensure that the remains and associated artifacts are treated in a respectful and dignified manner, in accordance with State law.

Conclusion

Adherence to the above policies and implementation strategies would reduce this impact to a **less-than-significant** level, because new development would be assessed for the presence of cultural resources. If significant archaeological resources are present, where feasible they would be protected. Significant structures would likewise be preserved to the extent feasible. In the event that previously unidentified resources or human remains are identified during project implementation, all work will stop in the vicinity of the find, and the contractor will notify the City. Archaeological deposits will be assessed for significance, and Native American human remains will be treated in a respectful and dignified manner in accordance with State law.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

IMPACT 4.10-2 **Destruction of or Damage to As-Yet-Undiscovered Cultural Resources.** *Development within the Plan Area would involve grading and excavation to a depth of several meters, which could disturb or damage any as-yet-undiscovered archaeological resources or possibly human remains in subsurface contexts. It is still possible that archaeological or architectural resources have been covered by later deposits that could be removed, exposing the cultural deposits during project-related construction activities. Although the potential exists for cultural resources or human remains to be located in the Plan Area, implementation of the policies and programs specified in the 2030 General Plan would reduce this impact to a* ***less-than-significant*** *level.*

Development within the Plan Area would involve grading and excavation to a depth of several meters, which could disturb or damage any as-yet-undiscovered archaeological resources or possibly human remains in subsurface contexts. It is still possible that archaeological or architectural resources have been covered by later deposits that could be removed, exposing the cultural deposits during project-related construction activities. Prehistoric archeological indicators can include: obsidian and chert flakes and flaked stone tools, ground stone implements (grinding slabs, mortars and pestles), and locally darkened midden soils containing some of the previously listed items plus fragments of burned and unburned faunal bone and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations, privy pits, wells, and dumps. The following

proposed policies and programs in the 2030 General Plan address potential destruction or damage to known cultural resources:

Relevant Policies and Programs of the 2030 General Plan

- **Conservation Policy 4.1**: Archaeological and paleontological resources shall be protected permanently from urban development, wherever possible.
- **Conservation Policy 4.2**: New developments shall analyze potential impacts, and shall be designed to avoid adverse impacts to any known archaeological and paleontological resources, wherever possible.
- **Conservation Policy 4.3**: The City will use cultural resource databases to determine the likely presence of resources and the appropriate level of cultural resources analysis required for new developments.
- **Conservation Policy 4.4**: The City will require presence of a professional archaeologist to monitor all ground-disturbing activities for improvements to the City's wastewater treatment plant and other City-sanctioned earth disturbing activities within 150 meters of the Feather River.
- **Conservation Policy 4.5**: The City shall restrict the circulation of information concerning the location of cultural resources, in order to prevent potential site theft or vandalism.
- **Conservation Policy 4.6**: The City will encourage private property owners to preserve, maintain, adapt and reuse historic structures, while maintaining as much of the historic character as possible.
- **Conservation Policy 4.7**: Buildings and other resources that have historical or architectural value should be preserved, wherever feasible. Where this is not feasible, the resource shall be documented and the information retained in a secure, but publicly accessible location. The resource proposed for removal should be described and incorporated into historic and/or interpretive signage. The reuse and display of historic materials and artifacts from the resource is encouraged.
- **Conservation Implementation Strategy 4.1**: As new development projects are proposed that are subject to the California Environmental Quality Act, the City will require cultural resource analysis, as appropriate, based in part on information available from the Northeast Information Center of the California Historical Resources Information System (CHRIS) and, if necessary, consulting with a qualified professional archaeologist or architectural historian, as appropriate. The City will require analysis and mitigation, as appropriate, consistent with Section 15064.5 of the State CEQA guidelines. In the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the City. If Native American human remains are discovered, the City will work with local Native American representatives to ensure that the remains and associated artifacts are treated in a respectful and dignified manner, in accordance with State law.

Conclusion

Adherence to the above policies and implementation strategies would reduce impacts on undiscovered archaeological resources to a **less-than-significant** level, because the City will require analysis and mitigation, as appropriate, consistent with Section 15064.5 of the State CEQA guidelines. In the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the City. The City shall obtain the services of a qualified archaeological professional to assess the significance of the find. If the resource is found to be significant an appropriate plan will be drafted to mitigate impacts.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

IMPACT 4.10-3 ***Unintentional Discovery of Human Remains.*** *While not likely, there is the possibility that project-related ground disturbing activities may encounter human remains. This impact is considered to be* ***potentially significant.***

While not likely, there is the possibility that project-related ground disturbing activities may encounter human remains.

The following proposed policies and programs in the 2030 General Plan address potential destruction or damage to known cultural resources, including human remains:

Relevant Policies and Programs of the 2030 General Plan

- **Conservation Policy 4.1**: Archaeological and paleontological resources shall be protected permanently from urban development, wherever possible.
- **Conservation Policy 4.2**: New developments shall analyze potential impacts, and shall be designed to avoid adverse impacts to any known archaeological and paleontological resources, wherever possible.
- **Conservation Policy 4.3**: The City will use cultural resource databases to determine the likely presence of resources and the appropriate level of cultural resources analysis required for new developments.
- **Conservation Policy 4.4**: The City will require presence of a professional archaeologist to monitor all ground-disturbing activities for improvements to the City's wastewater treatment plant and other City-sanctioned earth disturbing activities within 150 meters of the Feather River.
- **Conservation Policy 4.5**: The City shall restrict the circulation of information concerning the location of cultural resources, in order to prevent potential site theft or vandalism.
- **Conservation Implementation Strategy 4.1**: As new development projects are proposed that are subject to the California Environmental Quality Act, the City will require cultural resource analysis, as appropriate, based in part on information available from the Northeast Information Center of the California Historical Resources Information System (CHRIS) and, if necessary, consulting with a qualified professional archaeologist or architectural historian, as appropriate. The City will require analysis and mitigation, as appropriate, consistent with Section 15064.5 of the State CEQA guidelines. In the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the City. If Native American human remains are discovered, the City will work with local Native American representatives to ensure that the remains and associated artifacts are treated in a respectful and dignified manner, in accordance with State law.

Conclusion

This impact is considered to be **less than significant** because the City will require analysis and mitigation, as appropriate, consistent with Section 15064.5 of the State CEQA guidelines. In the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the City. If Native American human remains are discovered, the City will work with local Native American representatives to ensure that the remains and associated artifacts are treated in a respectful and dignified manner, in accordance with State law.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

4.10.3 Residual Significant Impacts

All impacts related to historic and cultural resources would be less than significant. No mitigation beyond the 2030 General Plan policies and programs is required, and **no residual significant impacts** would exist.

4.11 VISUAL RESOURCES

This section includes an explanation of the various criteria and methods used to evaluate the significance and quality of visual resources in and viewable from the City of Gridley, a description of the existing visual resources, and an evaluation of how implementation of the 2030 General Plan would affect views of visual resources. This section describes the existing environmental conditions at the time the notice of preparation (NOP) was filed pursuant to Section 15125 of the State CEQA Guidelines.

4.11.1 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws pertaining to aesthetics are applicable.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Scenic Highway Program

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. For designated highways, Caltrans requires that local jurisdictions implement a monitoring program that reviews and enforces scenic-corridor protection measures to preserve scenic views. The local agency is required to report to Caltrans once every 5 years on the success and continued enforcement of the protection measures. Caltrans requires developers of projects located adjacent to a state scenic highway to consult with the agency to determine whether the project would constitute a minor, moderate, or major intrusion to the scenic quality of the corridor. A minor intrusion is one that either is complementary to the landscape or is recognized for its cultural or historical significance (e.g., widely dispersed buildings with visual screenings). A moderate intrusion is one that is integrated into the landscape and does not degrade or obstruct scenic views (e.g., orderly and well-landscaped developments with or without roadway screening). A major intrusion is one that dominates the landscape and degrades or obstructs views (e.g., dense and continuous development that dominates the view).

There are not any officially designated scenic highways in or near the City of Gridley. This issue will not be analyzed further in this DEIR.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Butte County General Plan

- **Policy 6.4.a.** Protect valuable scenic areas and parks for enjoyment by residents and visitors.
- **Policy 6.4.c.** Encourage compatible land use patterns in scenic corridors and adjacent to scenic waterways, rivers, and creeks

4.11.2 ENVIRONMENTAL SETTING

In the City of Gridley, agricultural land uses and urban development dominate the visual environment. Primary visual resources viewable from the city into surrounding areas include extension of agricultural landscapes, the Sutter Buttes, and oak- and grass-covered Sierra foothills.

Agricultural land uses dominate the areas surrounding the City of Gridley. The most prominent regional scenic resource viewable from the city is the Sutter Buttes, which are located approximately 6 miles to the southwest and

extend close to 1,800 feet above the City of Gridley (Gridley's elevation is approximately 90 feet above sea level and the Sutter Buttes extend upwards to elevations over 1,900 feet). In addition, the areas surrounding the Sutter Buttes are relatively flat in elevation thereby making the Sutter Buttes a unique and dominant visual feature in the Sacramento Valley.

The Sierra Foothills is also a prominent background visual resource located east of the city. Oak woodlands and grasslands stretch over the hillsides and are primarily undeveloped. In particular, the majority of ridgelines created by the Sierra Foothills are currently in their natural form. Similarly, the Coast Range is a distant background visual resource viewable to the west of the city. The topography between the City of Gridley and the Coast Range is primarily flat, which results in the Coast Range standing out visually in the distant background of most views.

Urban growth occurring in the City of Gridley has caused certain visual resources to be visually obscured; however, views of the Sutter Buttes and Sierra Foothills remain as relatively intact viewsheds. Urban development in the City of Gridley creates an existing, prominent source of daytime glare. In addition, prominent sources of nighttime lighting primarily originate from urban communities located along State Route 99 (SR-99) and Highway 70 because of the dominant agricultural nature of surrounding areas.

4.11.3 Environmental Impacts and Mitigation Measures

Methodology

This visual impact analysis evaluates the visual changes that would occur with implementation of the 2030 General Plan using the standards of quality, consistency, and symmetry typically used for a visual assessment. The visual impacts were compared against the thresholds of significance discussed below. The visual impacts of the 2030 General Plan were evaluated by comparing existing land uses with buildout of designated land uses under the 2030 General Plan.

Thresholds of Significance

Based on Appendix G of the State CEQA Guidelines, an impact related to aesthetic resources is considered significant if the proposed project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Impact Analysis

IMPACT 4.11-1 **Adverse Impacts on Scenic Vistas and Visual Resources.** *Prominent views in the City of Gridley include primarily the Sutter Buttes but also expanses of agricultural lands. Views of the Sutter Buttes are considered a scenic vista in Gridley, and views of the Sutter Buttes could be partially or totally blocked by future urban land uses in Gridley. Further, new urban development in the Planned Growth Area would permanently alter the foreground and middle ground views from vehicles traveling along SR 99. The 2030 General Plan identifies areas that would be converted from existing agriculture to urban land uses. Because the 2030 General Plan envisions development of urban land uses that could partially or wholly block views of the Sutter Buttes, this impact would be* ***significant****.*

The City of Gridley encompasses numerous unique views: views of the Sutter Buttes and expanses of agricultural lands surrounding the city. Views of the Sutter Buttes are considered a unique view and considered a scenic vista because the Sutter Buttes are the one scenic resource viewable from a distance and from all areas in the city.

Implementation of the 2030 General Plan would result in construction of urban land uses adjacent to and surrounding SR 99, which is a popular travel route through northern California. Urban development could include large buildings, berms, and other infrastructure (e.g., roadways) that could partially or wholly block views of the Sutter Buttes from specific areas in the city.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes the following policy intended to preserve the unique views in the City of Gridley:

- **Conservation Policy 9.1**: The City will consider views of the Sutter Buttes in the orientation of new roadways and trails, and maintain visual connections, where feasible.

- **Design Policy 8.2:** Streets should be located and oriented to define the edges of neighborhoods and oriented so that major views terminate in parks, natural landmarks (such as the Sutter Buttes), or civic landmarks to greatest extent feasible.

Conclusion

The 2030 General Plan would provide general guidelines for design of future urban development projects; however, it does not specifically identify the design elements that would be implemented (e.g., landscape earthforms, building architecture, façade treatments, lighting fixtures) or the effectiveness of the design elements in reducing the visual impacts of new urban development. A policy in the 2030 General Plan requires urban development to implement features that would reduce the potential impacts on views of the Sutter Buttes (a citywide scenic vista);

However, the urban development under the 2030 General Plan could permanently alter views, partially or wholly, of the Sutter Buttes. Therefore, this impact would be **significant**.

Mitigation Measure

No feasible mitigation is available to reduce this impact; the proposed project's purpose is to provide a framework governing development of urban uses in the City of Gridley and its Plan Area.

Significance after Mitigation

Implementation of policies in the 2030 General Plan would ensure that subsequent projects are designed with design concepts and elements that would lessen significant impacts associated with preserving scenic views. However, development of new urban land uses would permanently change views throughout the City of Gridley and views of scenic vistas. No feasible mitigation measures or policies are available that could fully preserve the existing views of scenic vistas while allowing development of new urban land uses under the 2030 General Plan. Therefore, this impact would remain **significant and unavoidable**.

IMPACT 4.11-2 **Degradation of Visual Character.** *Implementation of the 2030 General Plan would substantially alter the visual character of the City of Gridley through conversion of agricultural and open space lands to developed urban uses. Assessment of visual quality is a subjective matter, and reasonable people can disagree as to whether such an alteration would also be considered a substantial degradation of the visual character. For this analysis, a conservative approach was taken to analyzing the potential for degradation of the visual character in Gridley. This impact would be* ***significant****.*

Agricultural landscapes and open spaces are the primary aesthetic resources in and surrounding the City of Gridley. Specific to the Planned Growth Area, agricultural landscapes are the prominent scenic resource.

With implementation of the 2030 General Plan, visual conditions of new urban development in the city, particularly the Planned Growth Area, would be similar to existing views of urban settings found in Gridley and along SR 99 (e.g., the city of Biggs, the city of Live Oak). Further, implementation of new urban development under the 2030 General Plan would extend the existing urban development boundaries farther outward. Open space, especially in an urbanizing setting, is valued for its visual quality. In areas surrounding the City of Gridley, agricultural lands are equally valued for their visual quality.

Conclusion

In general, the policies of the General Plan are intended to improve the character of the urban development; no feasible policies or programs could maintain the existing visual resources (e.g., agricultural lands, open spaces) while permitting development of new urban land uses.

The existing agricultural and open space land uses surrounding the City of Gridley are considered by some individuals to be a valuable visual resource. Individuals may consider the conversion of agricultural land uses and open spaces to urban development as a loss of an aesthetically pleasing and valuable viewshed. Agricultural lands and open space are valuable aesthetic resources, and these resources would continue to diminish with implementation of the 2030 General Plan. This impact would be **significant**.

Mitigation Measure

No feasible mitigation is available to reduce this impact; the proposed project's purpose is to provide a framework governing development of urban uses in the City of Gridley and its Plan Area.

Significance after Mitigation

Although the 2030 General Plan includes policies and programs that are intended to improve the character of future urban development, there is no mechanism to allow implementation of development projects while avoiding the conversion of the local viewsheds from agricultural land uses and open spaces to urban development. Therefore, this impact would remain **significant and unavoidable**.

IMPACT 4.11-3 **Increase in Nighttime Lighting and Glare.** *New urban development projects would require nighttime lighting and could construct facilities with reflective surfaces that could inadvertently cast light and glare toward motorists on SR 99 and roadways under day and nighttime conditions. However, the degree of darkness experienced in the existing City of Gridley boundary would not substantially diminish as a result of implementing the 2030 General Plan and would effectively retain existing views of stars and other features of the night sky. New urban development under the 2030 General Plan would increase the amount of nighttime light and glare and would introduce a new source of nighttime lighting in an existing rural area. This impact would be* ***significant****.*

The existing urban core of the City of Gridley currently generates significant sources of light, glare, and light that trespasses into the night sky. The majority of new urban development under the 2030 General Plan would be located as an extension of existing urban core. However, the 2030 General Plan identifies new urban development in the Planned Growth Area, which is currently a predominantly agricultural area. With urban development of the Planned Growth Area, new sources of nighttime light and glare (e.g., lighting of roadways, parks, schools, and other facilities) would be located in an area currently void of significant sources of nighttime lighting. The Gridley Municipal Code addresses light spillage (see Section 17.38.090 of the Municipal Code), prohibiting light spillage of any subject property onto adjacent properties.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes the following policy and implementation programs that are intended to reduce impacts from nighttime lighting and glare in the City of Gridley:

- **Conservation Policy 10.1**: The City will support and encourage practices that reduce light pollution and glare, and preserve views of the night sky.
- **Conservation Policy 10.2**: The City will require the use of fixtures that direct light toward target areas and shield it from spillage in new development and as existing fixtures are upgraded or replaced.
- **Conservation Implementation Strategy 10.1**: Amend the Municipal Code to reduce glare associated with new development through such measures as:
  - Exterior building materials on nonresidential structures shall be composed of a minimum 50% low-reflectance, non-polished finishes.
  - Bare metallic surfaces (e.g., pipes, vents, light fixtures) shall be painted to minimize reflectance.

Conclusion

A substantial increase in the amount of nighttime light and glare would result from development of urban land uses in the Plan Area as compared to existing conditions, potentially obscuring views of stars and other features of the night sky. In addition, nighttime lighting in new urban development areas, or the presence of reflective surfaces on buildings in these areas (e.g., reflective window glazing), could result in light and glare shining onto motorists traveling along SR 99 and area roadways in day and nighttime conditions. Policies of the 2030 General Plan and requirements of the Gridley Municipal Code focus on reducing impacts that could result from lighting sources and glare. However, urban development under the 2030 General Plan would continue to require substantial new lighting and could result in construction of buildings with reflective surfaces that could cast glare toward motorists on local roadways. Specifically, the 2030 General Plan identifies the Planned Growth Area in an agricultural area currently void of substantial lighting sources. Development of urban land uses identified in the 2030 General Plan would introduce substantial new light sources adjacent to existing urban communities but in an existing rural area, which would cause light trespass into the night sky and would create a new source of skyglow and could obscure views of stars and other features of the night sky. This impact would be **significant**.

Mitigation Measure

No feasible mitigation is available to reduce this impact.

Significance after Mitigation

With implementation of policies in the 2030 General Plan, potential light and glare impacts of future development projects would be minimized to the maximum extent practicable. Although implementation of policies in the 2030 General Plan would reduce impacts related to light and glare, new urban development under the plan would permanently add nighttime lighting into an existing rural area that is relatively void of nighttime lighting. No mitigation measures beyond the policies and programs of the General Plan are feasible that would fully preserve existing nighttime views while at the same time allowing urban development. Therefore, this impact would be **significant and unavoidable**.

4.11.4 Residual Significant Impacts

Implementation of policies in the 2030 General Plan would ensure that new urban development projects are designed with design concepts and elements that would lessen significant impacts associated with preserving

scenic views and visual resources. However, development of urban land uses projects would permanently change views throughout the City of Gridley and citywide scenic vistas (i.e., Sutter Buttes, agricultural landscapes). No feasible mitigation measures or policies are available that could fully preserve the existing visual qualities while allowing development of urban land uses under the Preferred Alternative. Therefore, Impact 4.11-1 would remain **significant and unavoidable**.

Because of the location of future urban development under the 2030 General Plan, no feasible mitigation is available to address impacts on aesthetic resources associated with the conversion of agricultural and open space land uses to urban development. Design, architectural, development, and landscaping standards would be included as part of future development projects and would ensure that future urban development remains within aesthetic guidelines established in policies of the 2030 General Plan; however, there is no mechanism to allow implementation of development projects while avoiding the conversion of the local viewsheds from agricultural land uses and open spaces to urban development. Therefore, Impact 4.11-2 would remain **significant and unavoidable**.

With implementation of the proposed policies and programs in the 2030 General Plan, the potential light and glare impacts of future development projects would be minimized to the maximum extent practicable. Although implementation of 2030 General Plan policies would reduce impacts related to light and glare, new urban development under the plan would permanently add nighttime lighting into a rural area that is relatively void of nighttime lighting. No other mitigation measures are feasible that would fully preserve existing nighttime views while at the same time allowing urban development. Therefore, Impact 4.11-3 would remain **significant and unavoidable**.

4.12 ENERGY

This section describes the supply and use of energy in Gridley, as well as local actions to conserve energy and use it more efficiently. Gridley obtains energy from a variety of nonrenewable and renewable sources. Today, establishing methods and a framework for increasing use and development of renewable energy sources is a growing priority because of increasing quantification of pollution impacts related to energy use. Energy costs, uses, and sources have important economic implications. Energy generation and use can have localized effects on habitat and ecological functions and quality-of-life issues affecting communities.

The State CEQA Guidelines recommend a discussion of local and regional energy supplies and energy use patterns, along with analysis of project effects on local and regional energy supplies (CEQA Guidelines, Appendix F).

4.12.2 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

U.S. Congress

Beginning in the late 1990s, Congress introduced a tax subsidy for the production of renewable wind-generated electricity. The availability, expiration, and potential extension of the Production Tax Credit causes the boom and bust production of energy that typifies development of wind energy generation in the United States.

Congress also periodically directs federal agencies to use increasing amounts of renewable energy or otherwise aid private companies in developing wind energy. One example is the U.S. Department of Energy's Wind Powering America initiative, which, among other tasks, has created Wind Working Groups in each state with a wind resource.

National Energy Act

The National Energy Act of 1978 was a legislative response by the U.S. Congress to the 1973 energy crisis. It includes the following statutes:

- Public Utility Regulatory Policies Act (PURPA) (Public Law 95-617)
- Energy Tax Act (Public Law 95-318)
- National Energy Conservation Policy Act (NECPA) (Public Law 95-619)
- Power Plant and Industrial Fuel Use Act (Public Law 95-620)
- Natural Gas Policy Act (Public Law 95-621)

Some of the more notable legislative acts are discussed below.

Public Utility Regulatory Policies Act

PURPA was passed by Congress in 1978 as part of the National Energy Act to promote greater use of renewable energy. This law created a market for nonutility electric power producers to permit independent power producers to connect to their lines and to pay for the electricity that was delivered. Although PURPA is a federal law, implementation was left to the states and a variety of regulatory regimes developed, although in many states virtually nothing was done.

Energy Tax Act

The Energy Tax Act (Public Law 95-318) was also passed by Congress in 1978 as part of the National Energy Act. It was a response to the 1973 oil crisis and promoted fuel efficiency and renewable energy through taxes and tax credits.

National Energy Conservation Policy Act

NECPA (Public Law 95-619) is a U.S. statute signed into law in 1978 as part of the National Energy Act. NECPA requires utilities to provide residential consumers with energy conservation audits and other services to encourage slower growth of electricity demand. NECPA was amended in 1985 by the Energy Policy and Conservation Act Amendments of 1985 (Public Law 99-58).

U.S. Department of Energy

The U.S. Department of Energy is responsible for energy policy and nuclear safety. Its purview includes the nation's nuclear weapons program, nuclear reactor production for the U.S. Navy, energy conservation, energy-related research, radioactive waste disposal, and domestic energy production. Many of these activities are funded through the Department's system of national laboratories.

Federal Energy Management Program

The U.S. Department of Energy's Federal Energy Management Program works to reduce the cost and environmental impact of the federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites (U.S. Department of Energy 2006).

Energy Policy Act

The Energy Policy Act of 1992, executive orders, and presidential directives require federal agencies to meet a number of energy and water management goals, among other requirements. For example, federal agencies are called upon to reduce their energy use by 35% by 2010 in comparison to 1985 levels. Federal agencies rely on effective coordination and sound guidance to help meet this requirement. The Federal Energy Management Program reports agencies' progress annually, manages interagency working groups, and offers policy guidance and direction (U.S. Department of Energy 2006).

The Energy Policy Act of 2005 (U.S. House of Representatives HR 6), was signed into law by President Bush on August 8, 2005. Subtitle A of HR 6, Federal Programs, reestablishes a number of federal agency goals and contains relevant, amended portions of NECPA.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act (P.L. 110-140, H.R. 6) is an omnibus energy policy law that consists mainly of provisions designed to increase energy efficiency and the availability of renewable energy. This report describes the key provisions of the enacted law, summarizes the legislative action on H.R. 6, and provides a summary of the provisions under each of the titles in the law.

The highlights of key provisions include: Corporate Average Fuel Economy (CAFE) standard of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020; Renewable Fuels Standard (RFS); Energy Efficiency Equipment Standards (standards for lighting and for residential and commercial appliance equipment; and, Repeal of Oil and Gas Tax Incentives to offset the estimated cost to implement the CAFE standards.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) regulates and oversees energy industries in the economic, environmental, and safety interests of the American public. FERC is the federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, and oil pipeline rates. FERC also reviews and authorizes liquefied natural gas terminals, interstate natural gas pipelines, and nonfederal hydropower projects. Production of electricity is overseen by the states; however, FERC has jurisdiction over certain matters (FERC 2006).

United States Department of Transportation

The U.S. Department of Transportation administers laws and regulations related to transportation, a major use of energy in the Gridley Plan Area and the state.

Safe, Accountable, Flexible, Efficient Transportation Equity Act:

Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU), the U. S. Department of Transportation, Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) require that Metropolitan Planning Organizations (MPOs) prepare and submit a metropolitan transportation plan. In regions that are designated federal air quality non-attainment areas, these plans must be updated at least every four years. These plans must conform to the State Implementation Plan (SIP) for air quality (see the Air Quality of this section for more detail) and must consider key planning factors in the local context such as economic vitality, safety, security, accessibility and mobility of people and freight, environmental protection, transportation system integration, system efficiency, and preservation of existing transportation system. Butte County Association of Governments (BCAG) is the MPO for the Gridley Plan Area.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Assembly Bill 32, California Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (See Stats. 2006, ch. 488, enacting Health & Safety Code, Sections 38500 – 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Land use development projects generate GHG emissions from multiple sectors (e.g., transportation, electricity, waste) both on- and off-site. For example, electricity demand generated by a proposed project would generate GHG emissions at an off-site source of electricity generation and a project would generate GHG associated with vehicle trips.

GHG emissions are closely tied to energy sources and uses. California's "Climate Change Proposed Scoping Plan" (Proposed Scoping Plan), which is the State's plan to achieve GHG reductions in California required by AB 32, identifies energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems, renewable portfolio standard for electricity production, and land use/transportation planning to reduce GHGs from transportation as areas targeted for GHG reductions to achieve

the state's legislative mandate. For a more detailed discussion of AB 32 and its implications for the proposed project, please refer to Section 4.14, "Climate Change."

Senate Bill 1078, Renewable Portfolio Standards Act of 2002

California's Renewable Portfolio Standards, established in 2002 by Senate Bill (SB) 1078 (Chapter 516, Statutes of 2002), requires electricity providers to procure an annual increase of at least 1% of their electricity supplies from renewable resources so as to achieve a 20% renewable mix by no later than 2017. More recently, Executive Order S-14-08 set a target of 33% renewable energy by 2020 (CPUC 2009). Additional legislation amended the Renewable Portfolio Standards Act of which clarifies hydroelectric facilities role as a renewable energy resource. Assembly Bill 3048 amended Section 399.12(c)(1)(B) of the Public Utilities Code by clarifying "a conduit hydroelectric facility of 30 megawatts or less that commenced operation before January 1, 2006, is an eligible renewable energy resource. A conduit hydroelectric facility of 30 megawatts or less that commences operation after December 31, 2005, is an eligible renewable energy resource so long as it does not cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow."

California Energy Commission

Established in 1974 by the Warren-Alquist Act (Public Resources Code Section 25000 et seq.), CEC is the state's primary energy policy and planning agency. The commission has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 MW or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for and directing the state response to an energy emergency.

California offered generous tax subsidies in the early 1980s for renewable power development. The state also ordered utilities to not only buy electricity from independent power generators but also directed utilities to set a price and offer standard contracts. California's subsidies and the standard offer contracts launched the commercial wind industry in the country. By the end of 1985, approximately 1,500 MW of wind energy capacity had been installed and wind turbines throughout California were producing 2 terawatt-hours per year (U.S. Department of Energy 2006).

Wind industry investments have already provided both economic and employment benefits to California. With the RPS requiring 20% renewable generation by 2017, these benefits will continue to grow. In 2003, the CEC released a report on renewable resource development summarizing technical potential and projected development from 2003 to 2017 (CEC 2005d). The goal was to provide some preliminary statewide estimates for increasing renewable generation based on new resource assessments. The renewable resource report also summarizes accelerated renewable energy needs to meet the statewide Energy Action Plan RPS goal of 20% by 2010, although it does not account for infrastructure improvements or operational enhancements needed to increase the use of renewable resources.

State Alternative Fuels Plan

AB 1007 (Pavley, Chapter 371, Statutes of 2005) required the California Energy Commission to prepare a state plan to increase the use of alternative fuels in California. The Energy Commission prepared the plan in partnership with the California Air Resources Board and in consultation with the other state, federal, and local agencies. The Alternatives Fuels Plan outlines strategies and actions to increase the use of alternative non-petroleum fuels in a manner that minimizes costs and maximizes the economic benefits. The Plan assessed various scenarios of fuel portfolios against state goals to reduce petroleum consumption, increase alternative fuels use, reduce greenhouse gas emissions, and increase in-state production of biofuels.

California Public Utilities Commission

The CPUC has authority to set electric rates, regulate natural gas utility service, protect consumers, promote energy efficiency, and ensure electric system reliability (CPUC 2006). The CPUC–regulated electricity market in California serves 10.48 million customers with 32,347 miles of transmission lines and 239,112 miles of distribution lines for a total economic value of $17.8 billion. The CPUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

California Power Authority

The California Power Authority (CPA) provides taxable municipal bond financing for the construction of new generation projects to meet the state's energy needs and to maintain healthy electricity reserves. The CPA is authorized to issue up to $5 billion in revenue bond financing for renewable, peaking, and base load generation projects, as well as conservation and energy efficiency measures.

California Transportation Commission

The California Transportation Commission (CTC) was established in 1978 by Assembly Bill 402 (Chapter 1106, Statutes of 1977) out of a growing concern for a single, unified California transportation policy. The Commission is responsible for the programming and allocating of funds for the construction of highway, passenger rail and transit improvements throughout California. Background on CTC and the regional transportation planning process is included in this chapter of the EIR due to the fact that transportation is the largest single energy use in the state.

Regional Transportation Plans

The Government Code requires that the regional transportation planning process be integrated with the state transportation planning process, and that development of state and regional transportation plans is a prerequisite for receipt of federal transportation funds. A regional transportation plan must be submitted every four years to the California Transportation Commission (CTC) and to the California Department of Transportation (Caltrans). Butte County Association of Governments (BCAG) is the MPO for the Gridley Plan Area charged with drafting and updating regional transportation plans.

Regional and Local Plans, Policies, Regulations, and Ordinances

There are no regional or local policies or regulations pertaining directly to energy development in the City of Gridley. The City has adopted the new, energy-efficient Statewide Building Code (Title 24).

4.12.2 Environmental Setting

Existing Energy Sources

The generating capacity of a unit of energy is expressed in megawatts (MW) or kilowatts (kW). One MW provides enough energy to power 1,000 average California homes per day. Net generation refers to the gross amount of energy produced by a unit minus the amount of energy the unit consumes. Generation is typically measured in megawatt-hours (MWh), kilowatt-hours (kWh), or gigawatt-hours (GWh).

The following energy sources are utilized in the City of Gridley:

- Hydroelectric
- Biomass and waste
- Geothermal

- Solar
- Wind
- Coal
- Natural gas
- Nuclear

The following sections describe these existing sources of energy.

Electricity

Over the past 10 years, electricity generation in California has undergone a transition. Historically, California has relied heavily on oil- and gas-fired plants to generate electricity. Spurred by regulatory measures and tax incentives, California's electrical system has become more reliant on renewable energy sources, including cogeneration, wind energy, solar energy, geothermal energy (described separately below), biomass conversion, transformation plants, and small hydroelectric plants. Unlike petroleum production, generation of electricity is usually not tied to the location of the fuel source and can be delivered great distances via the electrical grid.

The City, unlike most local jurisdictions, has its own electrical utility. Electricity purchased from the Northern California Power Agency (NCPA) by the City of Gridley is generated and transmitted by a statewide network of power plants and transmission lines. The City of Gridley runs its own power company, Gridley Municipal Utilities, which distributes electricity purchased from the federal government to residents in the City limits (Butte County 2007). Electricity is supplied to the City through an interconnection with PG&E's 60,000 volt transmission line at Gridley's Electric Substation located along Fairview Drive. The Gridley Electric Utility is responsible for purchasing power for the City which includes overseeing the City's share of the NCPA generation projects and the Federal Western Area Power Administration's Central Valley Project allocation (City of Gridley 2009).

The City of Gridley's electricity is generated by numerous energy resources including hydroelectric, coal, natural gas, and nuclear. Electricity generated by hydroelectric facilities accounts for the majority (59%) of the City's energy resource followed by coal (15%) and natural gas (14%).

Hydroelectric Power Plants

Over the last 80 years hydroelectricity has become the county's leading energy producer. The eastern portion of the county developed rapidly with new hydroelectric plants, and additional smaller facilities are still being proposed. The benefits of combining water supply and energy production into one facility have made hydroelectricity a very desirable power supply in the county. The importance of hydroelectric power generation is indicated by the existence of 17 hydroelectric facilities in Butte County.

Energy produced through the operation of hydroelectric facilities is a very important resource in Butte County. A majority of the significant waterways in the county are used in some capacity for hydroelectricity. Although hydropower has a long history in the region, in the past few years, Butte County has experienced a marked increase in hydroelectric project development, expansion, and improvement. This increase is motivated in part by the marketability of electricity, and also by the comparatively small depletion of natural resources incurred by the technology. PG&E has proposed a number of small hydroelectric projects at existing facility sites. This type of development is primarily due to the unavailability of new building sites in the county. Although the capacity of Butte County for large-scale hydroelectric facilities is considered to be fully developed, there remains considerable potential for small-scale hydroelectric development at existing facilities.

Solar Facilities

In January 2006, the California Public Utilities Commission (CPUC) approved the California Solar Initiative, authorizing the state to invest $3.2 billion in small-scale solar electric power systems over 11 years. This

legislation established the foundation for the Million Solar Roofs Act, whereby the state proposed to construct one million solar electric roofs, or 3,000 MW of solar electric power. The amount of money committed and the scope of this program makes California the largest solar investor of any state in the nation. In Butte County, solar energy is an expanding source of energy production both for residential and non-residential users.

Solar energy is a relatively new, though expanding source of energy production within Butte County. While the county's climate is amenable to the production of solar energy, only recently has it become economically feasible on both a large and small scale. The county has seen the greatest growth of solar energy use in residential applications in recent years, although use within public facilities (such as the Butte County Center array, Butte College, the Sewage Commission – Oroville Region [SCOR] and that at the Chico Wastewater Treatment Plant) has demonstrated the feasibility of the technology for larger scale applications.

There has been significant growth in the use of solar technology in Butte County since 2002. Although most solar development has been for small-scale residential use, commercial and government uses have also increased. The largest commercial/government increases include a private 570-kilowatt system; a one-megawatt system for the Butte County Government Facilities, a 480-kilowatt system for South Feather River Power, a 0.52 KW system at SCOR, a 1.06 MW system at Butte College, a one megawatt system at the City of Chico water treatment plant, and a 168-kilowatt facility for the City of Oroville. As improvements in technology continue, increasing numbers of solar energy projects will likely be developed in Butte County.

Fossil Fuels

Oil, gas, and coal deposits are non-renewable sources of energy and also known as fossil fuels. Due to past exploitation of these resources, opportunities for new oil, gas or coal-fueled energy development have largely been depleted. For some time now, these forms of energy generation have been considered "conventional" because of their widespread use. However, due to the lack of quality oil and gas resources in the county, and the impending depletion of those that do exist, extraction of these energy sources will not be the basis of future economic enterprises in Butte County.

There are no productive oil or coal developments in Butte County. Due to a lack of commercially viable reserves, it is not expected that coal or oil development will contribute largely to future energy production in Butte County.

Natural Gas Resources

California's supplies of natural gas come from in-state production, Southwestern United States, Canada, and the Rocky Mountain Region, and are delivered to California via an interstate natural gas pipeline system. Once natural gas arrives in California, it is distributed by the natural gas utility companies. The three major utilities - Southern California Gas Company, San Diego Gas & Electric, and Pacific Gas and Electric Company - collectively serve 98 percent of the state's natural gas customers. The remaining 2 percent are served by municipal and smaller or out-of-state investor-owned utilities.[1]

Although there are three actively-producing gas fields in the county, with eleven active wells, the potential for further gas extraction in the future is limited due to the depletion of this resource. Six actively-producing gas fields were once found in Butte County in the sedimentary valleys east of the Sacramento River. Now, the only producing gas fields are the Durham gas field located in the vicinity of Durham; Perkins Lake Gas field, located about 3 miles west of the Durham Gas field; and the Wild Goose Gas field, located on the southern edge of the county. The Durham Field has five wells, three of which are in production. However, the majority of natural gas wells in Butte County are considered "abandoned" (i.e., filled with cement and are no longer operable) and have been depleted of most of their economically extractable reserves.

[1] California Energy Commission, *Overview of Natural Gas in California,* online: http://energyalmanac.ca.gov/naturalgas/overview.html

Alternative Energy and Renewable Energy Resources

Transformation projects (also known as resource recovery projects or "waste-to-energy" development) convert agricultural and municipal wastes, respectively, to fuel or electricity. The primary reason for most transformation projects is to dispose of wastes, and the energy produced is a useful byproduct to offset disposal costs. As an example, landfill gas recovery systems and methane fermentation projects both produce methane gas, which can be burned in a gas turbine to generate electricity. Methane gas can also be recovered from sewage treatment plants and converted to electricity.

Butte County agricultural operations produce large volumes of agricultural waste, much of which is disposed of by open burning. Transformation plants (e.g., biomass facility) are an alternative method of disposing of these wastes. There are several types of biomass conversion processes that use a variety of fuels. These facilities are typically located near their primary fuel source to minimize the transportation of fuel to the conversion site. Another essential siting requirement is proximity to electrical transmission facilities with available capacity. Types of biomass conversion processes include:

- Direct Combustion where conventional steam boilers are used to burn dry woody fuel or agricultural waste. The efficiency range for this type of cogeneration is 21 to 25 percent. This is the most common method used.

- Methane Fermentation converts animal wastes from agricultural operations such as dairies and feedlots to a biogas that is burned like a natural gas. The wastes are anaerobically broken down to form the gas, leaving carbon dioxide as a major byproduct.

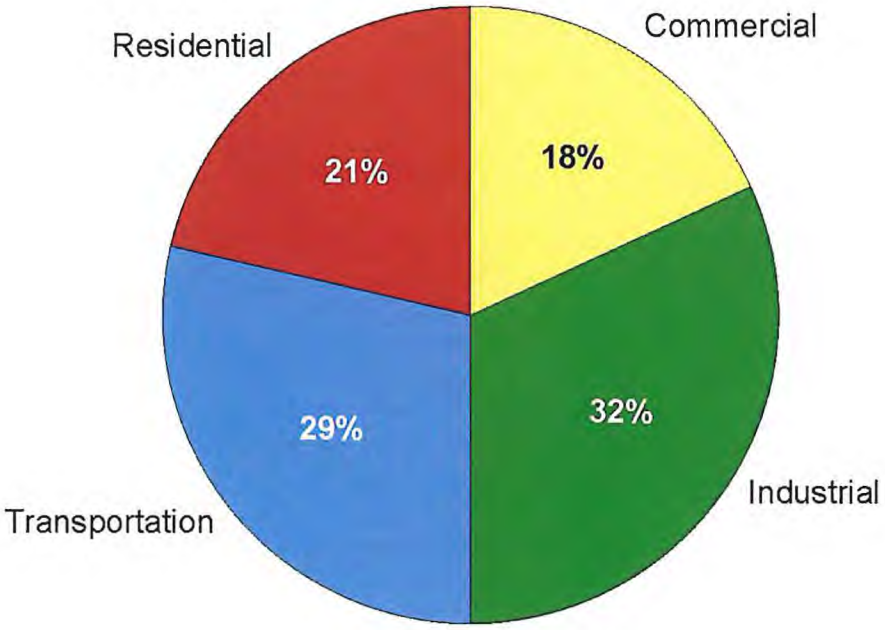
- Gasification involves partial oxidation of biomass (usually wood) to produce biogas. Although this process results in a lower conversion efficiency, existing gas and oil fired boilers can be easily retrofitted to accommodate the gasification system. This type of biomass conversion would be suitable for special applications, particularly in remote areas where other forms of electrical power are not available.

Biomass conversion as a source of energy production is defined as the controlled combustion of biochemically derived materials (such as plant matter and wastes, or non-recyclable pulp or paper) for the production of electricity or heat. Butte County has one biomass conversion facility and is the only cogeneration plant in the county. The Pacific Oroville Power, Inc. plant burns wood waste through the direct combustion process to generate electricity which is then sold to PG&E. This facility generates 18.8 MW of electricity and uses wood fuel that comes from agricultural wastes and timber operations.

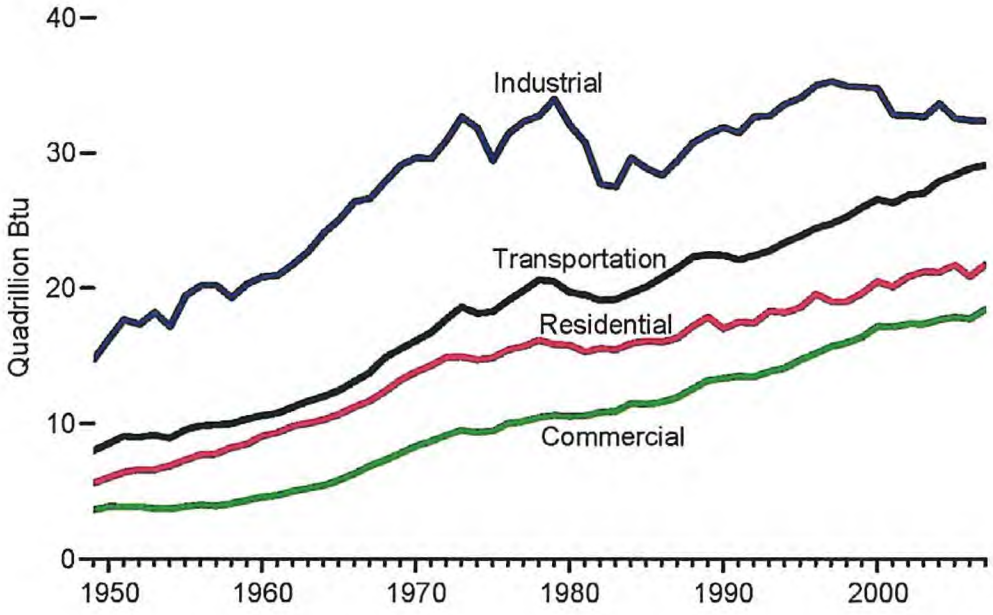
Existing Energy Users

California has focused on developing a diversity of energy sources and on increasing energy efficiency. As of 1994, petroleum provided more than half (51%) of the primary energy used in California (primary energy is energy that is used directly, for instance, as fuel in cars). Natural gas was second with about one-third (34% in 1994) followed by a mix of other sources including nuclear (6%), hydroelectric (5%), geothermal (3%), and coal (1%). California produces about 45% of the energy used here with the remainder imported from other states (45%) and foreign countries (10%). In terms of energy use, approximately half the energy (49% in 1994) goes to transportation, approximately a quarter (27%) for industrial use, and the remainder for commercial and residential uses (CEC 1997).

In the U.S., industrial uses account for the highest share of total energy consumption followed by transportation, residential, and commercial uses (see Exhibit 4.12-1). Overall, industrial uses in the U.S. consume nearly one-third of all energy resources followed closely by transportation uses. However, since the late 1940s, energy consumption by residential, commercial, and transportation uses has steadily increased. In contrast, energy consumption by industrial uses steadily increased from the late 1940s through the late 1970s and since then has been relatively stagnant (see Exhibit 4.12-2) (DOT 2007).



U.S. Energy Consumption by End-User in 2007 **Exhibit 4.12-1**



U.S. Historical Energy Consumption by End-User **Exhibit 4.12-2**

Butte County Energy Use

Butte County population growth and land use pattern trends will result in increased energy consumption in the future. The Butte County Association of Governments estimates there will be an additional 41,051 housing units and an additional 100,567 residents added within the county between 2009 and 2030.[2] The California Department of Finance anticipates that Butte County will add 114,094 residents between 2009 and 2030 (State of California, Department of Finance, Population Projections for California and Its Counties 2000-2050, Sacramento, California, July 2007). These new residents will increase the demand for electricity and gas in the county.

According to statistics prepared by the California Energy Commission (CEC), rural counties use 10 percent of all electricity in California. Similarly, rural residents use a larger amount of electricity per capita than urban dwellers do. Eight of the top 10 counties for energy usage by residential customers are characterized as rural because these counties often experience more extreme climate conditions which lead to higher cooling and heating costs. Also, many rural residents do not have natural gas service. Finally, rural residents pay for services in their electricity bill that urban consumers pay for in other bills. When rural residents are not connected to piped water systems, they must rely on water wells and electric pumps for water. Rural residents also must install more outside lighting because most of the time and the rural streets do not have street lights.

In general, higher density residential users consume less energy per dwelling unit due to the smaller spaces to be heated and cooled, fewer construction materials used, and increased opportunities for service by public transit, which consumes less fuel per passenger than single-occupant automobiles.

According to the types of energy used to heat residential dwellings in Butte County based on U.S. Census data from 2000, utility gas and electricity accounted for the majority of the type of energy consumed (78%).

Residential Land Uses

There are various factors that influence the type and amount of energy consumed in a residential structure. The most important are: the type of dwelling units; the size of the structure; the number of occupants and their habits; the weather conditions and time of year; the thermal integrity of the building (level of insulation and number and location of windows); the number of appliances (e.g., washing machine, clothes dryer, and swimming pool); and the type of appliances (e.g., gas versus electric heaters and ranges).

Typically, the most important factors influencing residential energy consumption are the size of the house, the type of house (detached single-family or multi-family structure) and the number of major appliances. A single-family home requires more energy for space heating than a multifamily unit, due to its bigger size and the amount of heat loss through external walls. It also requires more energy for operation of major appliances as it usually houses more occupants and was a more dominant source of home heating in Butte County, likely because of its relatively low cost and ample supply from local orchards.

Some residential energy needs can be fulfilled by either gas or electricity (e.g., space and hot water heating, cooking and clothes drying), while others are most likely dependent on electricity (e.g., lighting, radio and television). Space heating is by far the most energy consuming activity in residential structures. Even in moderate climates such as in California, space heating can account for more than one-third of residential energy consumption. Hot water heating is the second most energy consuming activity in a residence.

According to data from the CEC, electricity consumed by residential uses in Gridley between 1990 and 2007 fluctuated between a high of 15.0 million kWh and low of 9.2 million kWh per year. During the same time period, electricity consumed by residential uses accounted for between 33% and 44% of all energy consumed by end-

[2] Butte County Association of Governments. Butte Regional Growth Projections 2006 – 2030. Online, http://www.bcag.org/documents/demographics/pop_emp_projections/Final_Regional_Growth_Projections.pdf . Accessed May 15, 2009.

users (i.e., commercial, residential, industrial). Of particular note, the high electricity demand of 15 million kWh occurred during the most year (2007) and accounted for nearly 2 million kWh more than the previous year (CEC 2009).

Commercial Land Uses

Compared to residential uses, commercial activities consume more electricity than natural gas. Generally, the major use of electricity for all commercial buildings is for lighting, with air-conditioning as the second highest use for most building types. Grocery stores and supermarkets are exceptions to this rule since their electrical usage is dominated by large refrigeration operations. The use of natural gas in commercial buildings is usually limited to space heating and occasionally air-conditioning.

In the City of Gridley, commercial land uses consumed between 11.3 and 17.3 million kWh of electricity from 1990 to 2007. During the same time period, electricity consumed by commercial uses accounted for between 43% and 55% of all energy consumed by end-users (i.e., industrial, residential, commercial) (CEC 2009).

Industrial Land Uses

Industrial energy consumption is dependent upon the specific type of operation. Energy use within the general category of "industrial processes" includes a number of specific uses.

- A significant portion of industrial gas use is for the purpose of heating water to various temperatures.
- Wood processing and manufacturing industries are high electrical and natural gas users. In general, they use electricity for 60 percent of their energy needs and natural gas for the remaining 40 percent.
- Electricity runs motors, conveyor belts, chipping machines and manufacturing equipment. Natural gas is consumed for space heating and some specific industrial processes.
- In the stone and mineral extraction industry, electricity runs handling and crushing equipment. Drying and additional processing requires natural gas and/or fuel oils.
- The electricity portion of industrial process consumption includes a mixture of lighting, motor operation, and the operation of more sophisticated electronic equipment.

According to data from the CEC, electricity consumed by industrial uses in Gridley between 1990 and 2007 fluctuated between a high of 6.25 million kWh and low of 0.83 million kWh per year. During the same time period, electricity consumed by industrial uses accounted for between 2% and 20% of all energy consumed by end-users (i.e., commercial, residential, industrial) (CEC 2009).

4.12.3 Environmental Impacts and Mitigation Measures

Methodology

Energy consumption in Gridley is a direct product of land use patterns, employment patterns, individual habits, and various environmental factors. This impact analysis examines the effect of land use patterns envisioned in the 2030 General Plan on energy consumption and examines the increased energy demand and need for additional energy infrastructure to serve future population growth with implementation of the proposed 2030 General Plan.
Thresholds of Significance

Based on Appendix F of the State CEQA Guidelines, an energy impact is considered significant if the proposed project would:

- develop land uses and patterns causing wasteful, inefficient, and unnecessary consumption of energy or construct new or retrofitted buildings that would have excessive energy requirements for daily operation; or

- result in the need for new systems or substantial alterations to electrical, natural gas, or communication systems infrastructure.

IMPACT ANALYSIS

IMPACT 4.12-1 **Effects on Energy Consumption from Land Use Locations and Patterns.** *Buildout of the 2030 General Plan could affect energy usage if it were to propose land use patterns that increase dependency on single-occupant vehicles or other land use patterns or building that would cause wasteful, inefficient, and unnecessary consumption of energy. However, the proposed land use patterns and policies support multi-modal transportation opportunities, which would reduce transportation-related energy usage and the need for expanded infrastructure. The General Plan proposes policies and strategies that would reduce energy needed for cooling buildings, pumping water, and other relevant end uses. Therefore, this impact is considered* ***less than significant.***

Land use patterns can significantly affect energy consumption in either a positive or negative manner. The location, density, mix of land uses, and quality of the multi-modal transportation system is directly related to the amount of travel and transportation-related energy demands. For example, compact development can greatly reduce transportation-related energy demands by locating residences near shopping and work centers and providing multiple transportation opportunities (e.g., bike, foot).

Historic land use patterns in the City of Gridley have resulted in a relatively compact community. Gridley could support reductions in transportation-related energy consumption through land use planning that locates housing, jobs, and shopping close to one another and encourages transportation by bicycle and on foot. The 2030 General Plan focuses on multi-modal transportation opportunities and other energy-conserving techniques designed to reduce per-capita energy demand, as detailed below.

Relevant Policies and Implementation Strategies of the 2030 General Plan

Goals, policies, and implementation strategies in the 2030 General Plan would further assist the City of Gridley in reducing the amount of energy consumption caused by land use patterns. The 2030 General Plan update focused on proposed land use for an area directly north of the existing City called the "Planned Growth Area." Although narrative policies and strategies were revised throughout the General Plan related to communitywide growth and changes, changes to the Land Use Diagram and Circulation Diagram were focused on the roughly 1,200-acre Planned Growth Area. As can be observed from a review of Exhibit 3-3, Proposed Land Use, the City has proposed mixing land uses within the Planned Growth Area. Public uses (including schools as well as other public and quasi-public uses and facilities) are accommodated in close proximity to the homes they would serve. Mixed use commercial opportunities are provided central to new neighborhoods. Housing types and density would be mixed, with increases in density toward the center of new neighborhoods, closest to services.

The 2030 General Plan includes the following policies and implementation strategy promoting efficient land use that would reduce transportation-related energy uses.

- **Land Use Policy 1.4:** The City will give higher priority to development proposals within the City and existing Sphere of Influence over development proposals outside the City's Sphere of Influence.

- **Land Use Policy 1.5:** During this General Plan time horizon (through 2030), the City will focus new development in the existing City and Planned Growth Area, and away from Urban Reserve areas.

- **Land Use Policy 1.6:** The City will encourage infill development by analyzing infrastructure deficiencies, improving infrastructure in the existing City, creating fee programs that provide incentives for infill, and working with property owners to create equitable financing mechanism for infrastructure improvements in infill areas.

- **Land Use Policy 3.4:** In the Planned Growth Area, higher-activity land uses, such as apartments, schools, shops, small parks, offices, child care facilities, community or civic buildings, places of worship, parks, and related uses will be neighborhood-scaled and located in or next to Neighborhood Centers.

The 2030 General Plan also includes policies directly related to identifying energy demand or reducing energy consumption for specific land uses.

- **Land Use Policy 1.7:** The City will require projects proposed in the Industrial and Agricultural Industrial designations to provide an analysis of water, wastewater, drainage, and electricity demand. These developments may be conditioned to ensure the availability of existing and planned infrastructure capacity.

- **Land Use Implementation Strategy 7.4:** The City will undertake a planning process for the Gridley Industrial Park to identify specific actions to create a "green" or "eco" industrial park and the types of businesses the City can expected to attract to such a park. The City will evaluate opportunities for energy efficiency, on-site energy generation, low-impact development, water conservation, recycling, re-use of waste heat, the co-location of businesses that can support a "green" or "eco" industrial park, and other options.

  Through this planning process, the City will determine which actions to adopt, such as a specific plan or master plan with illustrated design guidelines, changes to the Zoning Ordinance, installation of infrastructure, financial incentives, applications for state or federal funding, and/or other actions.

  Another component of the planning process could be a marketing effort to identify industrial users interested in sustainability that could benefit by locating in the Gridley Industrial Park.

The 2030 General Plan includes policies intended to improve connectivity between land uses thereby reducing energy consumed by car trips.

- **Circulation Policy 5.1:** New streets shall be arranged in a grid or other highly connected pattern so that pedestrians, bicyclists, and drivers have multiple, direct routes to nearby destinations.

- **Circulation Policy 5.2:** New neighborhoods shall be highly connected internally, highly connected with adjacent new neighborhoods, and highly connected with adjacent existing neighborhoods.

- **Circulation Policy 5.7:** New developments shall accommodate safe and convenient transit, pedestrian, and bicycle connections to and from new employment areas, such as Agricultural Industrial designated lands in the Planned Growth Area

The 2030 General Plan includes policies intended to prioritize alternative modes of transportation thereby reducing energy consumed by car trips.

- **Design Policy 5.8:** In transportation planning and capital improvements planning for Downtown, the City will prioritize pedestrian and bicycle safety, convenience, and comfort.

The 2030 General Plan includes policies intended to encourage landscaping that requires minimum water thereby reducing energy needed to pump water.

- **Design Policy 7.5:** The City encourages the planting of California native trees and plants that are appropriate for the Gridley climate. The planting of non-native plants and trees that could become invasive is strongly discouraged.

- **Design Policy 7.6:** Native, low-water use ornamental plants and groundcover are encouraged as alternatives to turf grass.

- **Conservation Policy 2.2:** Native, drought tolerant landscaping will be used, to the maximum extent feasible, in new City parks and open space and for landscaping within new rights of way as well as within new developments, including commercial, industrial, and residential projects.

- **Conservation Policy 2.3:** The City will explore opportunities in existing City-owned parks, open space, rights-of-way, and other City properties to replace landscaping with native, drought tolerant landscaping.

- **Conservation Policy 2.4:** The City will require the use of water conservation technologies such as low-flow toilets, efficient clothes washers, and efficient water-using industrial equipment in all new construction, in accordance with State law.

The 2030 General Plan includes policies intended to encourage local generation and use of renewable energy.

- **Conservation Policy 6.1:** The City's Electrical Utility will expand local generation and use of renewable energy sources for electricity in Gridley and the share of renewable energy in the City's overall portfolio.

- **Conservation Policy 6.2:** The City will promote development and use of renewable energy, including not only hydroelectric power, but also solar and fuel derived from local agricultural products or agricultural waste.

- **Conservation Policy 6.3:** The City will explore opportunities to install shade structures and combined shade structures/active solar systems at public transit stops, public parking lots, parks, on public buildings, and elsewhere on public property.

- **Conservation Policy 6.4:** The City will allow flexibility in development standards, where necessary, to encourage construction of active solar systems or combination shade structures/active solar systems on private property.

- **Conservation Policy 6.5:** Developers and occupying residents and businesses that install and use active solar systems should have reduced electricity hook up fees and reduced electricity rates.

- **Conservation Policy 6.6:** The City will encourage property owners to connect active solar systems on-site to other buildings in the development and to the City's power grid.

- **Conservation Policy 6.7:** The City will encourage formation of financing districts in new and existing development, where feasible, to finance the installation of renewable energy infrastructure and energy efficiency improvements.

- **Conservation Policy 6.8:** The City will proactively pursue collaborative projects with regional, State, and federal agencies to produce renewable energy in Gridley.

The 2030 General Plan includes policies intended to encourage energy efficient site planning and building construction.

- **Conservation Policy 7.1:** Existing trees should be preserved along future streetscapes and planned development areas to provide immediate shade. Unhealthy trees and those that present a hazard can be removed.

- **Conservation Policy 7.2:** New developments should include deciduous trees and shrubs on the western and southern sides of buildings, to the maximum extent feasible, to reduce solar heat gain in the summer and allow for solar heat gain in the winter.

- **Conservation Policy 7.3:** Trees should be strategically planted to shade pavement areas and air conditioners.

- **Conservation Policy 7.4:** Proposed projects, plans, and property subdivisions should orient proposed detached single-family homes to provide access to warming winter sunlight and shade from the summer afternoon sun. The long axis of single-family homes should, in general, be oriented from east to west.

- **Conservation Policy 7.5:** Building plans should enhance natural ventilation through natural convection, push-pull ventilators, and other techniques, and should include effective use of daylight through high-performance glazing systems, skylights, light ducts, light shelves and other strategies.

- **Conservation Policy 7.6:** The City will encourage new homes and major residential renovations to comply with the guidelines for the California Energy Star Homes Program.

- **Conservation Policy 7.7:** The City will encourage certification of new residential, commercial, and industrial buildings through a green building standards program.

- **Conservation Policy 7.8:** New commercial, institutional, and industrial development should use light-colored paving materials for internal roads and parking.

- **Conservation Policy 7.9:** The City will continue to provide free energy efficiency audits of existing buildings and help facilitate the implementation of identified efficiency improvements.

- **Conservation Policy 7.10:** The City will encourage the retrofitting of existing buildings with energy efficient systems, energy-efficient appliances, insulation, energy-efficient doors and windows, and other elements that conserve resources.

The 2030 General Plan includes policies intended to increase energy efficiency in City operations.

- **Conservation Policy 8.1:** The City will conduct energy efficiency audits of all City-owned buildings to identify efficiency improvements.

- **Conservation Policy 8.2:** All new City-owned buildings and major remodels and additions should achieve a United States Green Building Council – LEED Certification or a similar rating program, as funding allows.

- **Conservation Policy 8.3:** The City will consider the installation of renewable energy systems on City buildings and properties and transition the City's fleet to hybrid vehicles.

- **Conservation Policy 8.4:** The City will explore the viability of LED streetlights to reduce energy consumption and provide more reliable and constant illumination.

- **Conservation Policy 8.5:** The City will provide City staff training and public outreach on methods to reduce energy consumption and available incentives for energy efficiency measures.

The 2030 General Plan includes policies intended to encourage centralized location of schools thereby reducing energy consumed by car trips.

- **Public Facilities Policy 9.3:** The City will encourage new schools in the Planned Growth Area to be located toward the center of new neighborhoods, and within walking or biking distance of homes within attendance boundaries.

- **Public Facilities Policy 9.4:** New developments shall be designed to provide safe and convenient pedestrian and bicycle access for school sites to and from the surrounding neighborhood.

As a component of the City's goal to provide efficient and reliable electricity service to Gridley residents and businesses, Public Facilities Implementation Strategy 4.1 identifies "[t]he City will consider any changes to the electrical infrastructure or electrical facilities planning are needed to encourage development and use in Gridley of renewable energy." In addition, Public Facilities Implementation Strategy 4.2 identifies the City "will examine whether reduced impact fees would be appropriate" for newly developing properties that include energy conservation techniques beyond those required by building codes.

Conclusion

Implementation of these policies in the 2030 General Plan would support increasing energy efficiency and would assure that implementation of the 2030 General Plan would not accommodate land uses and patterns that would cause wasteful, inefficient, and unnecessary consumption of energy. The General Plan does not anticipate development of new or retrofitted buildings that would have excessive energy requirements for daily operation. This impact is considered **less than significant**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

IMPACT 4.12-2 **Increased Energy Demand and Need for Additional Energy Infrastructure.** *Future population growth through buildout of the 2030 General Plan would increase the demand for energy and the need for additional energy resources to meet this demand. Policies and an implementation strategy of the General Plan, as well as existing regulations and project-level review would ensure infrastructure is developed prior to needs created by new development. This impact is considered* ***less than significant****.*

Increased demand for energy is a byproduct of all future land uses and development consistent with the 2030 General Plan. As growth in Gridley increases, energy demand also increases. Energy is consumed for heating, cooling, and electricity in homes and businesses; for public infrastructure and service operations; and for agriculture, industry, and commercial uses. It is estimated electricity demand in the City of Gridley will increase to 158,043 MWh/yr with full buildout of land uses envisioned in the 2030 General Plan. Total electricity usage in Gridley currently reaches 49,653 MWh/yr (CEC 2000). Historical summer month electricity usage in Gridley ranged from 4,000 to 4,500 MWh per month (133 to 150 MWh per day). Historical winter electricity usage ranged from 2,500 to 3,000 MWh per month (83 to 100 MWh per day) (Burr 2008).

Peak demand indicates the maximum load on the electrical system. The peak demand on Gridley's electrical system during 2005 and 2006 was 9.7 MW. During the most recent years there were a few days (no more than 5) of 10 MW loads on Gridley's electrical system. As an example, during the heat storm of July 2006, the peak reached 10.4 MW. The average peak in non-summer months (October to May) ranges from 4.5 to 5 MW (Burr 2008).

According to recent analysis of Gridley's electrical system, the Gridley Electric Utility has adequate infrastructure to serve the current City area. In addition, Gridley's electrical substation typically operates at 36 percent of capacity, although peak demand can use up to 88 percent of capacity (Burr 2008). However, individual development projects proposed pursuant to the General Plan will be required to assess project impacts during the

environmental review process to ensure that Gridley Electric Utility has sufficient electricity capacity to meet demand.

This increased energy demand will require constructing infrastructure to serve end-users in Gridley. A review of the City's infrastructure adequacy (i.e., power outages) to provide electricity service in the city identified several minor power outages since May 2007 with one power outage lasting over 15 hours. The review concluded the City's Electric Utility has adequate infrastructure to serve the current City area because the substation typically operates at 36 percent of capacity even though peak demand can use up to 88 percent of capacity (Burr 2008).

As growth occurs in the City, new development will require additional electric infrastructure including new distribution lines and transformers. New residential projects are typically required to construct self-contained distributions systems that connect to one of the three existing circuits. Infill development opportunities typically connect to the existing distribution system. Review of the City's infrastructure determined the electricity infrastructure has adequate capacity to serve the immediate existing sphere of influence as it builds out. However, the review also determined construction of new distribution facilities would be necessary to serve new electricity loads demanded by new development. As a result, review of City infrastructure concluded there will likely be a need for a new substation with increased capacity to accommodate growth in the existing Sphere of Influence (Burr 2008).

It should be noted that the City's electricity distribution system was being reviewed by the Gridley Electric Utility, as of February 2008, to assess system infrastructure needs and to propose a plan of action based on findings. Although the City's Electric Utility identified no known problems, the Utility has a long-term goal to shorten outages and prevent problems when and where possible (Burr 2008).

The demand for natural gas could increase to as much as 5,516,585 therms/yr with full buildout of land uses envisioned in the 2030 General Plan (URBEMIS 2007). Total natural gas usage in Gridley currently reaches 2,217,867 therms/yr (CCAR 2009). PG&E would be involved with new developments that are proposed to construct additional natural gas infrastructure as necessary to meet demand. Individual development projects proposed pursuant to the General Plan will be required to assess project impacts during the environmental review process to ensure that PG&E has sufficient natural gas supplies to meet demand. Gas mains and distribution pipelines would be required in order to serve the needs of new development. The size, location, and types of facilities required to serve development is not knowable at this time, but would be determined in the context of development proposals.

Relevant Policies and Implementation Strategies of the 2030 General Plan

Goals, policies, and implementation strategies in the 2030 General Plan would further assist the City of Gridley in providing efficient and reliable electricity service. The 2030 General Plan includes the following policies and implementation strategy related to electrical infrastructure improvements.

- **Public Facilities Policy 4.2:** The City will monitor the electricity infrastructure in existing developed portions of the City and explore options for infrastructure improvements, as needed and as funding is available.

- **Public Facilities Policy 4.3:** The City will consider options for the location, financing, and facilities sharing for a new electrical substation.

- **Public Facilities Implementation Strategy 4.1:** The City Electric Utility and Department will monitor the adequacy of infrastructure serving the City and Sphere of Influence, including changes to the City's Sphere of Influence made following the 2030 General Plan update. The City will plan for long-range infrastructure needs, including a new substation to serve planned growth under the General Plan. The City will review the distribution system to assess system infrastructure needs and to propose a plan of action to the City based on findings. The City will consider preparing and/or updating an electricity master plan to identify needed

improvements, phasing, and financing, if appropriate. The City will consider any changes to the electrical infrastructure or electrical facilities planning are needed to encourage development and use in Gridley of renewable energy.

Conclusion

New development is required to pay impact fees to the City, which contribute to funding for electrical infrastructure, particularly the eventual construction of a new substation. Although these impact fees would not guarantee the substation would be constructed prior to a time of need, policies and an implementation strategy of the General Plan would ensure the substation is constructed and operational prior to new development needs, Natural gas, electricity, and other required energy related infrastructure will be required to serve the needs of new growth. The provision of this infrastructure is guided by state and federal law, as well as proposed policies and strategies of the 2030 General Plan. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

4.12.4 Residual Significant Impacts

All impacts related to energy would be less than significant. **No residual significant impacts** would exist.

4.13 HAZARDS AND HAZARDOUS MATERIALS

This section contains a discussion of human-caused hazards that may potentially have an effect on the City of Gridley, including hazardous and toxic materials (such as facilities regulated by the U.S. Environmental Protection Agency [EPA], hazardous waste and disposal, toxic releases, leaking underground storage tanks [USTs], and brownfields). This section describes the existing conditions of these hazards in the City of Gridley, and analyzes impacts related to these hazards with respect to the proposed project.

Service levels by fire personnel and other emergency responders are addressed in Section 4.9, "Public Services, Utilities, and Service Systems" of this DEIR. Potential hazards and associated impacts related to toxic air contaminant emissions are discussed in Section 4.3; "Air Quality"; potential impacts from geologic hazards are discussed in Section 4.7, "Geology and Soils"; and potential impacts on groundwater and flooding are discussed in Section 4.5, "Hydrology and Water Resources."

4.13.1 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the U.S. Environmental Protection Agency (EPA), under the authority of the Resource Conservation and Recovery Act (RCRA). The RCRA established an all-encompassing federal regulatory program for hazardous substances that is administered by EPA. Under the RCRA, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances. The RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments of 1984, which specifically prohibits the use of certain techniques for the disposal of various hazardous substances. The Federal Emergency Planning and Community Right to Know Act of 1986 imposes hazardous-materials planning requirements to help protect local communities in the event of accidental release of hazardous substances. EPA has delegated much of the RCRA requirements to the California Department of Toxic Substances Control (DTSC).

Hazardous Materials Transport

The U.S. Department of Transportation (USDOT) regulates transportation of hazardous materials between states. The USDOT Federal Railroad Administration (FRA) enforces the Hazardous Materials Regulations, which are promulgated by the Pipeline and Hazardous Materials Safety Administration for rail transportation. These regulations include requirements that railroads and other transporters of hazardous materials, as well as shippers, have and adhere to security plans and also train their employees involved in offering, accepting, or transporting hazmat on both safety and security matters.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) created a trust fund to provide broad federal authority for releases or threatened release of hazardous substance that could endanger public health or the environment.

Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 created the Superfund hazardous substance cleanup program (CERCLA, P.L. 96-510, enacted December 11, 1980). It was enlarged and reauthorized by the Superfund Amendments and Reauthorization Act of 1986 (SARA, P.L. 99-499). The U.S. Environmental Protection Agency (EPA) compiles a list of national priorities among the known releases or

threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories, known as the National Priorities List. These locations are commonly referred to as "Superfund sites."

Worker Safety Requirements

The U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

Regulation of Polychlorinated Biphenyls and Lead-Based Paint

The Toxic Substances Control Act (TSCA) of 1976 (Title 15 of the U.S. Code [USC], Section 2605) banned the manufacture, processing, distribution, and use of polychlorinated biphenyls (PCBs) in totally enclosed systems. PCBs are considered hazardous materials because of their toxicity. They have been shown to cause cancer in animals, along with effects on the immune, reproductive, nervous, and endocrine systems, and studies have shown evidence of similar effects in humans (EPA 2004). The EPA Region 9 PCB Program regulates remediation of PCBs in several states, including California. Title 40 of the Code of Federal Regulations, Section 761.30(a)(1)(vi)(A) states that all owners of electrical transformers containing PCBs must register their transformers with EPA. Specified electrical equipment manufactured between July 1, 1978 and July 1, 1998 that does not contain PCBs must be marked by the manufacturer with the statement "No PCBs" (Section 761.40[g]). Transformers and other items manufactured before July 1, 1978 and containing PCBs, must be marked as such.

The Residential Lead-Based Paint Hazard Reduction Act of 1992 amended TSCA to include Title IV, Lead Exposure Reduction. EPA regulates renovation activities which could create lead-based paint hazards in target housing and child-occupied facilities, and has established standards for lead-based paint hazards and lead dust cleanup levels in most pre-1978 housing and child-occupied facilities.

Clean Air Act

The federal Clean Air Act (CAA) was enacted in 1970. The most recent major amendments made by Congress were in 1990. The CAA required EPA to establish primary and secondary national ambient air quality standards. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). Section 112 of the CAA defines hazardous air pollutants and sets threshold limits. Additional information about CAA is contained in Section 4.3, "Air Quality."

State Plans, Policies, Regulations, and Laws

The state regulations that govern hazardous materials are equal to or more stringent than federal regulations. California has been granted primary oversight responsibility by EPA to administer and enforce hazardous waste management programs. State regulations have detailed planning and management requirements to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous wastes are discussed below. In addition, DTSC, the State Water Resources Control Board (SWRCB), and the Integrated Waste Management Act also regulate the generation of hazardous materials, also described below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act (Section 25500 et seq. of the California Health and Safety Code), also known as the Business Plan Act, defines hazardous materials as raw or unused materials that are part of a process or manufacturing step.

Although hazardous materials are not strictly defined as hazardous wastes, the health concerns involved are similar, and facility descriptions, materials inventories, and emergency response plans are required. Reports pursuant to this act are filed with Butte County.

Hazardous Waste Control Act

The Hazardous Waste Control Act is implemented by regulations contained in Title 26 of the California Code of Regulations that describe requirements for the proper management of hazardous wastes. The act created the state hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The program includes hazardous waste criteria for:

- identification and classification;
- generation and transportation;
- design and permitting of recycling, treatment, storage, and disposal facilities;
- treatment standards;
- operation of facilities and staff training; and
- closure of facilities and liability requirements.

The Hazardous Waste Control Act and Title 26 regulations list more than 800 potentially hazardous materials and establish criteria for identifying, packaging, and disposing of such wastes. Under these regulations, the generator of hazardous waste material must complete a manifest that accompanies the material from the point of generation to transportation to the ultimate disposal location, with copies of the manifest filed with DTSC.

Hazardous Materials Transport

Some state agencies have the responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies, which include the California Highway Patrol (CHP), the California Department of Transportation (Caltrans), and DTSC.

Regulations governing hazardous materials transport are included in the California Vehicle Code (Title 13 of the California Code of Regulations, the State Fire Marshal Regulations (Title 19 of the California Code of Regulations), and Title 22 of the California Code of Regulations.

Transport of hazardous materials can only be conducted under a registration issued by DTSC. ID numbers are issued by DTSC or USEPA for hazardous waste transporters and treatment, storage and disposal facilities for hazardous materials. These numbers used to identify the hazardous waste handler and to track waste from point of origin to final disposal. All material transport takes place under manifest, and compliance with Title 22 requires that transporters take immediate action to protect human health and the environment in the event of spill, release, or mishap.

Emergency Services Act

Under the Emergency Services Act (California Government Code Section 8850 et seq.), the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Quick response to incidents involving hazardous materials or hazardous waste is a key part of the plan. The Governor's Office of Emergency Services administers the plan, coordinating the responses of other agencies, including EPA, the California Highway Patrol, RWQCBs, air quality management districts, and county disaster response offices.

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

Proposition 65, a California ballot measure passed in November 1986, requires the governor to publish at least annually a list of chemicals known to the state to cause cancer or reproductive toxicity. Proposition 65 is administered under the California Office of Environmental Health Hazard Assessment.

Hazardous Waste and Substances Sites List

The Hazardous Waste and Substances Sites List (Cortese list) is a planning document required by California Government Code Section 65962.5. DTSC is required to compile the list, which consists of potentially contaminated sites in the state. It is used by state agencies, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites.

Underground Storage Tank Program

The California Department of Public Health (formerly the California Department of Health Services) and the SWRCB list hazardous sites of USTs listed for remedial action because of unauthorized release of toxic substances. Leak prevention, cleanup, enforcement, and tank testing certification are the elements of the UST Program, which is administered by the SWRCB.

California Integrated Waste Management Act

This act requires the development and implementation of household hazardous-waste disposal plans. The CIWMB oversees compliance with this act and enforces operational plans for solid-waste facilities.

Unified Program

The California Environmental Protection Agency (Cal/EPA) grants to qualifying local agencies oversight and permitting responsibility for certain state programs pertaining to hazardous waste and hazardous materials. This is achieved through the Unified Program, created by state legislation in 1993 to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following emergency and management programs:

- Hazardous materials release response plans and inventories (business plans)
- California Accidental Release Prevention Program (CalARP)
- UST Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control and Countermeasure plans
- Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs
- California Uniform Fire Code: Hazardous material management plans and hazardous material inventory statements

Cleanup of Contaminated Sites

The State of California has a number of different regulatory structures governing cleanup of contaminated sites,. Many of these programs are regulated by DTSC, including RCRA corrective actions, State Superfund sites, brownfields programs and voluntary cleanups. The State Water Resources Control Board (through Regional Water Quality Control Boards and some local agencies) regulates releases with the potential to affect water resources, under programs such as the Leaking Underground Storage Tanks program and the Spills, Leaks,

Investigations, and Cleanups program. Regulatory authority for these programs may be delegated by the federal government (as with RCRA corrective actions directed by DTSC) or may be found in the California Health and Safety Code. These regulations vary in their specifics, but require the reporting, investigation, and remediation of sites where releases of hazardous materials have occurred, followed by appropriate disposal of any hazardous materials. These programs govern a range of pollutants, such as solvents, petroleum fuels, heavy metals, and pesticides) in surface water, groundwater, soil, sediment, and air.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for protecting and maintaining privately owned wildlands, providing emergency services, and responding to wildland fires throughout California. The Gridley CAL FIRE Fire Station is located at 47 East Gridley Road in the City of Gridley. The City of Gridley contracts with CAL FIRE for fire protection (Gridley Area Chamber of Commerce 2008).

California Emergency Response Plan

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the California Emergency Management Agency (Cal EMA), which coordinates the responses of other agencies, including Cal/EPA, CHP, California Department of Fish and Game, Central Valley RWQCB, and the Butte County Office of Environmental Management.

Regional and Local Plans, Policies, Regulations, and Ordinances

Hazardous Waste

The Butte County Department of Public Health, Environmental Health Division is the certified unified program agency (CUPA) for all cities and unincorporated areas in Butte County. The CUPA was created by the California Legislature to minimize the number of business inspections and fees. As CUPA, the County Department of Public Health is responsible for the following tasks and programs:

- Staff members of the Department's Environmental Health Division conduct the permitting and inspection of businesses that handle quantities of hazardous materials or hazardous waste greater than or equal to 55 gallons, 500 pounds, or 200 cubic feet of a compressed gas at any time.

- In conjunction with the Hazardous Materials Business Plan Program, staff members inspect businesses for compliance with the Hazardous Waste Control Act and respond to complaints of illegal disposal of hazardous waste. The County Department of Public Health, Environmental Health Division also inspects businesses that treat hazardous wastes, pursuant to permit by rule, conditional authorization, or conditional exemption.

- Hazardous materials management plans address emergency response to incidents involving businesses handling hazardous materials in excess of 55 gallons or 500 pounds, or 200 cubic feet of gas. Plans include an inventory of hazardous materials that is updated annually. Hazardous materials may be new or waste materials that are toxic, reactive, ignitable, or corrosive. Hazardous waste is subject to storage time limits, disposal requirements, and labeling requirements on containers.

- Most hazardous waste may be stored for only 90 days, but there are exceptions for small-quantity generators under certain circumstances. Hazardous wastes are reported on the annual inventory of hazardous materials as part of the hazardous materials management plan.

Fire Districts

In addition to CAL FIRE (see "California Department of Forestry and Fire Protection" above), the Butte County Fire Department provides fire protection services to the City of Gridley from three fire stations located at 47 East Gridley Road, 685 Kentucky Street, and 3207 Rutherford Road.

Butte County Office of Emergency Management

The Butte County Office of Emergency Management (OEM) is responsible for coordination of emergency response among local agencies, including county, city, and special districts. To this end, OEM was responsible for the development of the Butte County Multi-Jurisdictional All-Hazard Pre-Disaster Mitigation Plan (MHMP), and is responsible for its continued review and update. The MHMP is the representation of the commitment of the County and participating jurisdictions to reduce risks from natural and other hazards, and serves as a guide for decision-makers as they commit resources to reducing the effects of natural and other hazards.

Butte County General Plan

The existing Butte County General Plan does not contain any goals or policies related to hazardous materials issues.

City of Gridley General Plan

The existing Gridley General Plan does not contain any goals or policies related to hazardous materials issues.

Municipal Code

Title 8 of the Gridley Municipal Code (Health and Safety) addresses several issues related to hazards and hazardous materials. Chapter 8.04 addresses solid waste management, Chapter 8.08 addresses abatement of weeds, Chapter 8.12 addresses burning of leaves and waste, and Chapter 8.20 addresses emergency planning. In accordance with Chapter 8.08, the Fire Department routinely inspects and, as necessary, has removed plants that, when dry, a fire menace to adjacent improved property.

4.13.2 Environmental Setting

Definitions of Terms

For purposes of this section, the term "hazardous materials" refers to both hazardous substances and hazardous wastes. A "hazardous material" is defined by federal regulations as "a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce" (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> Hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that:

> ...because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [, or]

pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Land Uses and Conditions in the Project Area

Site Reconnaissance and Records Searches

At the time of the notice of preparation (NOP) for this DEIR, land uses in the General Plan Area primarily consist of existing urban uses and in the Planned Growth Area primarily consist of active agricultural lands. To determine the potential for hazardous materials contamination on or near the General Plan and Planned Growth Areas, regulatory databases regarding hazardous materials were searched. Details of the search results are provided below by the regulatory agency.

Hazardous and Toxic Materials—EPA-Regulated Facilities

According to the U.S. Environmental Protection Agency (EPA), there are 17 facilities currently regulated by EPA located in the City of Gridley (EPA 2008). Of these facilities, 15 facilities handle hazardous wastes and one facility has a report of a toxic release (i.e., Tri Valley Growers). EPA-regulated facilities are subject to State and federal laws governing the handling, storage, and disposal of hazardous materials and hazardous wastes, including those described in Section 4.13.1. Any releases from these facilities must be addressed in accordance with State and federal regulations.

Hazardous and Toxic Materials—DTSC-Regulated Facilities

According to the California Department of Toxic Substances Control (DTSC), there are no federal superfund sites listed on the EPA's National Priorities List (NPL), state response sites, voluntary cleanup sites, school cleanup sites, permitted sites, or corrective action sites located in the City of Gridley (DTSC 2008). However, DTSC's database identifies 29 Leaking Underground Fuel Tank (LUFT) cleanup sites and one Spills, Leaks, Investigation, and Cleanups (SLIC) site in the General Plan Area of the 2030 General Plan. A LUFT site is an undergoing cleanup due to an unauthorized release from an underground storage tank (UST) system. A UST is a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. The SLIC program investigates and regulates non-permitted discharges. These sites are subject to oversight, investigation, and cleanup under State law, as described in Section 4.13.1

Transportation of Hazardous and Toxic Materials

Although considerations for land use hazards associated with transport of cargo are not specifically required by state planning legislation, they are addressed in the California Health and Safety Code. For this reason, it is important that an assessment of potential hazards be made and that state regulations regarding hazardous cargo be monitored.

Highways and railroads represent risks associated with accidents resulting in potential releases of hazardous materials that could injure persons or damage structures on nearby lands. Land use hazards associated with transport of hazardous cargo exist in the City of Gridley because State Route (SR) 99 and Union Pacific Railroad (UPRR) are considered major transportation routes that pass through the area, and a wide range of hazardous cargo is regularly transported along these routes. Types of hazardous cargo regularly transported out of, into, and through Gridley by freeway or railroad include flammable liquids, corrosive materials, compressed and/or poisonous gases, explosives, flammable solids, and irritating materials. A high-pressure natural gas transmission line also traverses the Plan Area, following the SR 99 right-of-way. The California Public Utilities Commission regulates the siting and operation of natural gas transmission lines.

Some potential exists, for example, for spills of flammable liquids after a highway or railway mishap, subsequent ignition of the liberated contents, and possible human casualties and/or property damage in the path of the burning liquid. Burning spillage can also drain into nearby streams and drainage facilities (e.g., roadside storm drains), spreading fire and increasing the area of contamination. Although little or no hazardous waste is currently transported through Butte County via rail, historically there has been considerable transport of hazardous materials by rail, and a number of investigations have documented contamination (Butte County 2008).

SR 99, which runs through the eastern portion of the City and Planned Growth Area, accommodates approximately 23,000 daily vehicle trips south of Spruce Street and 15,200 daily vehicle trips north of Spruce Street (Caltrans 2007a). To the north, SR 99 connects with Biggs, Chico, and the northern Sacramento Valley. Heavy (i.e., four axles or larger) truck traffic makes up approximately 9.0% of the total traffic on SR 99 in the Gridley area (Caltrans 2007b).

UPRR railroad tracks extend through the center of Gridley and Planned Growth Area. This rail line supports approximately 19-21 train trips per day based on information from noise survey data collected by EDAW on May 20 and 21, 2008 for this EIR. According to statistics for the UPRR railroad line from the Federal Railroad Administration, Office of Safety Analysis, rail accidents over the UPRR system as a whole have been decreasing over time (1,808 incidents in 1999 and 1,136 incidents in 2007). The UPRR railroad line operates 32,426 miles of track as of 2005 and reported 1,136 train accidents in 2007, with four accidents resulting in a release of hazardous material (Wikipedia 2008, Federal Railroad Administration 2008). These statistics indicate that the annual likelihood of a railroad accident along any given mile of UPRR railroad would be approximately 3.5%, or a frequency of approximately one accident every 29 years. Although the likelihood for railway accidents is present, the 2007 statistics indicate that injury and death related to these accidents are extremely rare; with fatalities occurring in approximately 3.1% of the recorded accidents (Federal Railroad Administration 2008).

The Federal Railroad Administration (FRA) continuously monitors trail accidents and investigates serious train accidents, such as derailments and collisions, to determine their cause, compliance with the existing safety laws and regulations, and new or amended regulations are needed. There have been no such accidents in the Gridley area between 2002 and 2009 (Federal Railroad Administration 2009).

Wildfire Risk Areas

Areas at risk for extreme wildfires are designated by CAL FIRE as those lands where dense vegetation with severe burning potential prevails.

The term "wildfire" refers to fires that usually result from the ignition of dry grass, brush, or timber. Wildfires commonly occur in areas that are characterized by steep, heavily vegetated hillsides, which make suppression of the fire difficult. Wildfires play an important role in the ecology of many natural habitats; however, as urban development moves into areas susceptible to wildfire hazards, risks to human safety and property increase.

To describe an area where urban development has been located in proximity to open space, or wildland areas, the term urban-wildland interface is commonly used. The most common type of urban-wildland interface results when development occurs immediately adjacent to wildland vegetation. Other interface conditions can be created when urban development is intermixed with wildland vegetation or when pockets of wildland vegetation occur inside developed areas. Fires that occur within the urban-wildland interface areas affect natural resources as well as life and property.

According to data from CAL FIRE, based on the proximity of population density to those areas most likely to be at risk due to prevailing physical and climatic conditions, the City of Gridley and immediate surrounding areas are designated as a moderate or high threat for fire hazards (Butte County 2008).

4.13.3 Environmental Impacts and Mitigation Measures

Methodology

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from implementation of the 2030 General Plan, and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. As discussed in Section 4.13.1, "Regulatory Framework," compliance with applicable federal, state, and regional and local health and safety laws and regulations by residents and businesses in the city would generally protect the health and safety of the public. State and local agencies are required to enforce applicable requirements. In determining the level of significance, the analysis assumes that development in the city would comply with relevant federal, state, and local ordinances and regulations.

The general types of businesses and the range and types of uses that are expected to be located in the city can be identified; however, the specific businesses are unknown at this time. Businesses such as gasoline service stations and dry cleaners are some of the most common retail operations which typically use hazardous materials (motor fuels and solvents, respectively), but other possible commercial and industrial uses could potentially use a range of oils and lubricants, solvents, fertilizers, pesticides and herbicides, and other chemicals and materials in liquid, solid, or gas form. Future development in the Planned Growth Area could involve a variety of land uses, including residences, commercial uses, industrial uses, community uses, office space, and public services facilities (i.e., educational and institutional uses). As a result, this analysis assumes and evaluates a broad range of potential uses that could handle hazardous materials, and a broad range of potential hazardous materials which could be used.

This analysis is limited to a qualitative evaluation of impacts associated with the potential presence of hazardous materials or hazards in the City of Gridley and Planned Growth Area, and an evaluation of the extent to which the General Plan would allow industrial uses and other uses which commonly employ or generate hazardous materials or waste in their production processes. A preliminary review of environmental risk databases was conducted, but this analysis did not include any sampling, site specific review, laboratory analysis, or inspection of buildings or site surfaces. A Phase I site assessment would be required for specific projects pursuant to California Government Code Section 65962.5, and if this assessment indicates the presence or likely presence of contamination, Phase II soil/groundwater testing and remediation could be required before development on a site-specific basis. These activities would be conducted during subsequent environmental reviews.

Thresholds of Significance

Based on Appendix G of the State CEQA Guidelines, a hazards and hazardous materials impact is considered significant if the proposed project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- impair implementation of or physically interfere with an adopted emergency-response plan or emergency-evacuation plan; or,

- expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

There are not any airports or private airstrips located within 15 miles of the City of Gridley. Therefore, potential safety hazards related to operation of airports or private airstrip are not evaluated further in this EIR.

The 2030 General Plan primarily focuses on new development occurring in the Planned Growth Area. Existing schools serving residents of the city are all located in the City boundary. There are no existing schools located in the Planned Growth Area. In addition, the 2030 General Plan does not identify specific locations for future schools to serve students in the Planned Growth Area. Therefore, analysis of potential emission or handling of hazardous materials within one-quarter mile of an existing or proposed school is not evaluated further in this EIR.

IMPACT ANALYSIS

IMPACT 4.13-1 **Routine Transport, Use, or Disposal of Hazardous Materials.** *Future population growth through buildout of the 2030 General Plan would result in an increase in the routine transport, use, and/or disposal of hazardous materials, which could result in exposure of such materials to the public through either routine use or accidental release. Implementation of proposed 2030 General Plan policies, in combination with existing federal and state regulations, would reduce the potential impacts related to the routine transportation of hazardous materials. This impact would be* ***less than significant****.*

Land uses and development consistent with the 2030 General Plan would allow development of new residential, commercial, and industrial uses, particularly in the Planned Growth Area. New residential development would result in increased use, storage, and disposal of household hazardous materials within the city. New commercial and industrial development would also result in increased use, storage, and/or disposal of hazardous materials during routine operations. Of particular concern are facilities with USTs or other methods of storage that could be impaired during a seismic event or could otherwise accidentally leak into the soil, water, or air. Specific examples of such facilities include gas stations, automotive repair shops, and dry cleaners. In addition, groundwater could become contaminated from these impairments.

The amount of hazardous materials transported through the city on arterials, regional highways, the Union Pacific railroad (UP railroad), and state routes (i.e., SR 99) is likely to increase as a result from new development allowed by the 2030 General Plan. Transportation of hazardous materials on area roadways is regulated by CHP and Caltrans, and use of these materials is regulated by DTSC, as outlined in Title 22 of the CCR. USDOT (through the Hazardous Materials Transportation Act), and other regulatory agencies provide standards designed to avoid releases including provisions regarding securing materials and container design. Facilities that would use hazardous materials on-site after the project is constructed would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases.

Relevant Policies and Programs of the 2030 General Plan

The following 2030 General Plan policies would address the routine transport of hazardous materials within the city:

- **Safety Policy 3.1:** The City will require that hazardous materials are used, stored, transported, and disposed in a safe manner and in compliance with local, State, and federal safety standards.

- **Safety Policy 3.5:** The City will limit the transport of hazardous materials to designated routes, consistent with County, state, and federal requirements.

Conclusion

The proposed project is required by law to implement and comply with existing hazardous material regulations. The above 2030 General Plan policies also require consideration of hazardous materials issues with respect to the land use planning process. Implementation of current State and federal regulations, as well as the policies and programs of the 2030 General Plan would not prevent all potential releases of hazardous materials but would serve to minimize both the frequency and the magnitude if such a release occurs. In combination with existing federal and state regulations, these policies would also reduce the potential impacts of the routine transportation of hazardous materials on roadways in the city. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond existing hazardous material regulations and the 2030 General Plan policies and programs is required.

IMPACT 4.13-2 **Interference with an Adopted Emergency-Response Plan.** *Implementation of the proposed 2030 General Plan would create additional traffic and residences requiring evacuation in case of an emergency. Implementation of proposed policies would ensure conformance with countywide emergency-response programs and continued cooperation with emergency-response service providers. This impact would be* ***less than significant.***

An efficient roadway and circulation system is vital for the evacuation of residents and the mobility of fire suppression, emergency response, and law enforcement vehicles. Implementation of the 2030 General Plan under the Preferred Plan would create additional traffic and develop new residences requiring evacuation in case of an emergency.

Butte County maintains an Office of Emergency Management (OEM) to coordinate interagency and intergovernmental comprehensive emergency management planning, operations, and disaster assistance claims management in the county. OEM works with State and local agencies to develop effective emergency response systems in the county and acts as the requesting and coordinating agency when situations require the involvement of State and other outside agencies. The Butte County Fire Department operates county-wide dispatch services, coordinates major emergency response in Butte County as the Office of Emergency Service's mutual aid coordinator, and provides training for career and volunteer firefighters for the overall purpose to protect lives and property of Butte County residents, including Gridley residents, from the effects of natural or human-caused disasters (Butte County 2007).

Relevant Policies and Programs of the 2030 General Plan

The following 2030 General Plan policies would ensure conformance with local emergency-response programs and continued cooperation with emergency-response service providers:

- **Safety Policy 5.2:** The City will ensure the adequacy of disaster response and coordination with Butte County and the ability of individuals to survive disasters.
- **Safety Policy 5.3:** The City will ensure that populations requiring special assistance are included in disaster planning and preparedness.
- **Safety Policy 5.4:** The City will identify and maintain, in consultation with the Butte County Office of Emergency Services, evacuation routes and operational plans for relevant local hazards.
- **Policy SAFE-4.4:** The City will promote public education and awareness regarding what to do, where to go, and how to evacuate in the event of a catastrophic disaster, such as wildfires, earthquakes, or toxic material spills.

Conclusion

Implementation of these General Plan policies would ensure that future development would not interfere with emergency response plans. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond existing regulations and the 2030 General Plan policies and programs is required.

IMPACT 4.13-3 **Exposure of Structures to Urban and Wildland Fires.** *Implementation of the 2030 General Plan could expose areas of the city to risks related to both urban and wildland fires. Compliance with California Building Code regulations, City of Gridley Fire Code requirements, and other state fire safety requirements would minimize wildland fire risks. In addition, proposed 2030 General Plan policies would ensure that people and structures would not be exposed to significant risk of loss of injury involving wildland fires. This impact would be* ***less than significant****.*

Areas at risk for extreme wildfires are designated by CAL FIRE as those lands where dense vegetation with severe burning potential prevails. As stated previously, according to data from CAL FIRE and based on the proximity of population density to those areas most likely to be at risk due to prevailing physical and climatic conditions, the City of Gridley and immediate surrounding areas are designated as a moderate or high threat for fire hazards (Butte County 2007).

The City's Fire Department provides fire protection services to the City of Gridley. New development would be required by law to incorporate California Building Code, City of Gridley Fire Code requirements, and other applicable state fire safety requirements. As noted previously, in accordance with Chapter 8.08 of the Gridley Municipal Code, the Fire Department routinely inspects and, as necessary, has removed plants that, when dry, a fire menace to adjacent improved property.

Relevant Policies and Programs of the 2030 General Plan

The following 2030 General Plan policies and existing regulations would ensure that people and structures would not be exposed to significant risk of loss of injury involving fires:

- **Safety Policy 4.1:** The City will require setbacks, ignition resistant building materials, or other measures to reduce exposure to potential wildfires in areas designated for natural open space preservation, based on California Department of Forestry and Fire Protection recommendations and Maintenance of Defensible Space Measures, as appropriate.

- **Safety Policy 4.2:** The City will consult with fire protection service providers in reviewing development proposals. Development proposals will include City conditions that respond to concerns of fire protection service providers.

Conclusion

Implementation of these General Plan policies and programs and existing regulations would ensure that people or structures would not be exposed to a significant risk of loss of injury involving fires. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond the 2030 General Plan policies and programs is required.

IMPACT 4.13-4 **Public Health Hazards from Project Development on a Known Hazardous Materials Site Compiled Pursuant to Government Code Section 65962.5.** *Several sites within the City of Gridley and the Planned Growth Area are listed on the Cortese List as known hazardous materials sites. Implementation of the proposed project could expose construction workers to hazardous materials from these sites during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place. This impact would be* ***less than significant.***

Review of Cal/EPA databases (available at http://www.calepa.ca.gov/SiteCleanup/CorteseList/default.htm, accessed October 23, 2008) indicates that a number of sites within the City of Gridley and the Planned Growth Area are listed on the Cortese List developed according to Government Code Section 65962.5. Activities at these sites may have resulted in contamination of soil and groundwater. During construction activities and demolition, construction workers could come into contact with and be exposed to hazardous materials present in on-site soils or groundwater. Further, the presence of contamination in on-site soils or groundwater could create a significant environmental or health hazard if left in place.

Relevant Policies and Programs of the 2030 General Plan

The following 2030 General Plan policies would address Cortese-listed sites within the city:

- **Safety Policy 3.1:** The City will require that hazardous materials are used, stored, transported, and disposed in a safe manner and in compliance with local, State, and federal safety standards.

- **Safety Implementation Strategy 2.1:** The City will maintain and update a list of hazardous sites, buildings, and uses in the Sphere of Influence or use databases that track the location of hazardous materials sites, buildings, and similar features. The City will use updated lists to evaluate and condition development, as necessary, to protect environmental and public health.

Conclusion

The above 2030 General Plan policies and current regulations would not prevent exposure to hazardous materials, but would use existing facility information to identify areas of hazardous materials use. In combination with existing federal and state regulations pertaining to hazardous site cleanup, these policies would also reduce the potential impacts of development on listed hazardous materials sites in the city under the 2030 General Plan. This impact would be **less than significant**.

Mitigation Measure

No mitigation beyond existing regulations and the 2030 General Plan policies and programs is required.

4.13.4 Residual Significant Impacts

All impacts related to hazards and hazardous materials would be less than significant. No mitigation beyond the 2030 General Plan policies is required, and no residual significant impacts would exist.

4.14 CLIMATE CHANGE

This section includes a discussion of existing climate conditions, climate change, and greenhouse gas (GHG) emissions sources in California and Butte County; a summary of applicable regulations; and a description of potential impacts of the proposed General Plan related to climate change.

4.14.1 REGULATORY SETTING

GREENHOUSE GAS EMISSIONS

Federal Plans, Policies, Regulations, and Laws

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the Federal Clean Air Act (CAA). The Supreme Court of the United States ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. However, there are no federal regulations or policies regarding GHG emissions applicable to the proposed project at the time of this writing.

State Plans, Policies, Regulations, and Laws

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Statutes

Assembly Bill 1493 (2002)

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that ARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, in 2004 ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37% lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24% between 2009 and 2016.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961 as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in*

Her Official Capacity as Executive Director of the California Air Resources Board, et al.). The auto-makers' suit in the U.S. District Court for the Eastern District of California, contended California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various federal laws, regulations, and policies.

On December 12, 2007, the Court found that if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard), these regulations would be consistent with and have the force of federal law, thus, rejecting the automakers' claim. This authorization to implement more stringent standards in California was requested in the form of a CAA Section 209, subsection (b) waiver in 2005. Since that time, EPA failed to act on granting California authorization to implement the standards. Governor Schwarzenegger and Attorney General Edmund G. Brown filed suit against EPA for the delay. In December 2007, EPA Administrator Stephen Johnson denied California's request for the waiver to implement AB 1493. Johnson cited the need for a national approach to reducing GHG emissions, the lack of a "need to meet compelling and extraordinary conditions", and the emissions reductions that would be achieved through the Energy Independence and Security Act of 2007 as the reasoning for the denial (Office of the White House 2009).

The state of California filed suit against EPA for its decision to deny the CAA waiver. The recent change in administration has directed EPA to reexamine its position for denial of California's CAA waiver and for its past opposition to GHG emissions regulation. It appears likely that California will receive the waiver, notwithstanding the previous denial by EPA.

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020. Governor Schwarzenegger plans to propose legislative language that will codify the new higher standard (Office of the Governor 2008).

Assembly Bill 32 (2006), California Global Warming Solutions Act

In September 2006, Governor Schwarzenegger signed AB 32 (Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006, which enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires reduction of statewide GHG emissions to 1990 levels by 2020 (an approximately 25% reduction in existing statewide GHG emissions). This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control GHG emissions from vehicles under the authorization of AB 32.

AB 32 requires ARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Proposed Scoping Plan

In October of 2008, ARB published its *Climate Change Proposed Scoping Plan* (*Proposed Scoping Plan*), which is the State's plan to achieve GHG reductions in California required by AB 32 (ARB 2008). The *Proposed*

Scoping Plan contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO_2e, or approximately 30% from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10%, from 2002-2004 average emissions). The *Proposed Scoping Plan* also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reductions are recommended from improving emission standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e), implementation of the Low-Carbon Fuel Standard (15.0 MMT CO_2e, discussed below), energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e), and a renewable portfolio standard for electricity production (21.3 MMT CO_2e). ARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the *Proposed Scoping Plan* does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. (Meanwhile, ARB is also developing an additional protocol for community emissions.) ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The *Proposed Scoping Plan* states that the ultimate GHG reduction assignment to local government operations is to be determined (ARB 2008). With regard to land use planning, the *Proposed Scoping Plan* expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below. The *Proposed Scoping Plan* was approved by the ARB on December 11, 2008.

Senate Bill 1368 (2006)

Senate Bill (SB) 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for base-load generation from investor-owned utilities by February 1, 2007. Similarly, the California Energy Commission (CEC) was tasked with establishing a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a base-load, combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, be generated from plants that meet the standards set by CPUC and CEC. In January 2007, CPUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for base-load generation entered into by investor-owned utilities have emissions no greater than a combined-cycle gas turbine plant (i.e., 1,100 lb of CO_2 per megawatt-hour). A "new long-term commitment" refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing base-load power plants. In May 2007, CEC approved regulations that prohibit the state's publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by CPUC of 1,100 lb of CO_2 per megawatt-hour.

Senate Bill 97 (2007)

SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research to prepare, develop, and transmit to the California Resources Agency by July 1, 2009, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA. The California Natural Resources Agency is required to certify and adopt those guidelines by January 1, 2010. On April 13, 2009, the California Office of Planning and Research submitted to the Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines for GHG emissions, as required by SB 97. These proposed CEQA Guideline amendments would provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in draft CEQA documents. The Natural Resources Agency will conduct formal rulemaking in 2009, prior to certifying and adopting the amendments, as required by SB 97.

This bill also removes, both retroactively and prospectively, as legitimate causes of action in litigation any claim of inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 (Proposition 1B) or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1E). This provision will be repealed by operation of law on January 1, 2010; at that time such projects, if any remain unapproved, will no longer enjoy protection against litigation claims based on failure to adequately address issues related to climate change. This bill would protect only a handful of public agencies from CEQA challenges on certain types of projects for a few years' time.

Senate Bill 375 (2008)

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or County land use policies (including General Plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Executive Orders

Executive Order S-20-04 (2004)

Governor Schwarzenegger signed Executive Order S-20-04, the California Green Building Initiative, on December 14, 2004, establishing the state's priority for energy and resource–efficient high-performance buildings. The executive order sets a goal of reducing energy use in state-owned and private commercial buildings by 20% in 2015, using nonresidential Title 20 and Title 24 standards adopted in 2003 as the baseline. The California Green Building Initiative also encourages retrofitting, construction, and operation of private commercial buildings in compliance with the state's Green Building Action Plan.

Executive Order S-3-05 (2005)

Executive Order S-3-05, which was signed by Governor Schwarzenegger on June 1, 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established targets for total GHG emissions. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and legislature describing progress made toward reaching the emission targets; impacts of global warming on California's resources; and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the Secretary of the California Environmental Protection Agency created the California Climate Action Team, made up of members of various state agencies and commissions. The California Climate

Action Team released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses and actions by local governments and communities, as well as through state incentive and regulatory programs.

Executive Order S-1-07 (2007)

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at over 40% of statewide emissions. It establishes a goal that carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10% by 2020. This order also directed ARB to determine if this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early action measure pursuant to meeting the mandates in AB 32.

Regional and Local Plans, Policies, Regulations, and Ordinances

There are currently no regional or local policies, regulations, or laws specifically pertaining to GHG emissions.

Attributing Greenhouse Gas Emissions and Land Use Linkages

Land use decisions and development projects are not their own GHG emissions sectors. In other words, land use development projects can generate GHG emissions from several sectors (e.g., transportation, electricity, waste) described in more detail below. Therefore, land use decisions and development projects can affect the generation of GHG emission from multiple sectors that result from their implementation. Development projects can result in direct or indirect GHG emissions that would occur on- or off-site. For example, electricity consumed in structures within a project would indirectly cause GHGs to be emitted at a utility provider. The people who reside in and the visitors to a development project would drive vehicles that generate off-site GHG emissions, which are associated with the transportation sector.

The following sections describe the major GHG emission sectors that can and cannot be affected by local government actions. In addition, a description of the existing state of climate change science is provided for informational purposes.

GHG Emission Sectors

The *Proposed Scoping Plan* identifies the main GHG emission sectors that account for the majority of GHG emissions generated within California. A brief description of each of the GHG emission sectors is provided below.

Transportation: This sector represents the GHG emissions associated with on-road motor vehicles, recreational vehicles, aviation, ships, and rail.

Electricity: This sector represents the GHG emissions associated with use and production of electrical energy. Approximately 25% of electricity consumed in California is imported, thus, GHG emissions associated with out-of-state electricity production are also included as part of this sector.

Industry: This sector represents the GHG emissions associated with industrial land uses (e.g., manufacturing plants, refineries). Industrial sources are predominately comprised of stationary sources (e.g., boilers, engines) associated with process emissions.

Commercial and Residential: Commercial and residential GHG emission sources include area sources such as landscape maintenance equipment, fireplaces, and natural gas consumption for space and water heating.

Agriculture: This sector represents the GHG emissions associated with agricultural processes. Agricultural sources of GHG emissions include off-road farm equipment, irrigation pumps, residue burning, livestock, and fertilizer volatilization.

High Global Warming Potential: This sector represents the generation of high GWP GHGs. Examples of high GWP GHG sources include refrigerants (e.g., hydrofluorocarbons [HFCs], chlorofluorocarbons [CFCs]) and electrical insulation (e.g., sulfur hexafluoride). Although these GHGs are typically generated in much smaller quantities than CO_2, their high GWP results in considerable CO_2e.

Recycling and Waste: This sector represents the GHG emissions associated with waste management facilities and landfills.

State-Wide Reduction of GHG Emission Sources

The GHG emission sectors described above would experience varying degrees of state regulation and would be reduced overall on a state-wide level. As discussed above, legislation already in effect will achieve state-wide reductions of GHG emissions associated with electricity production, industry, VMT, and motor vehicles.

Local Government Reduction of GHG Emission Sources

Projects implemented on a local level could generate GHG emissions associated with each of the emission sectors described above; however, the ability of local governments to reduce those GHG emissions would vary by sector. As discussed above, certain GHG emission sectors will be regulated by the implementation of state-wide emission reduction programs (e.g., vehicle emissions standards, renewable energy portfolios). For example, land use regulation, which is a power reserved to local governments (here, the City), is known to influence VMT, which influences GHG emissions associated with the transportation sector (Ewing 2001). However, local government does not have control over vehicle emissions technology or fuel economy standards. Both of these parameters are important components for achieving the emission reductions mandates set in AB 32.

Local governments, such as the City, will play a role in achieving the emission reduction goals mandated in AB 32. The ability to influence land use decisions and reduce VMT, provide services to its population (e.g., recycling service, waste management, and waste water treatment), and provide public education and incentives (e.g. energy conservation, agricultural practices) to its citizens are options for local governments to reduce GHG emissions generated in their jurisdictions.

4.14.2 Environmental Setting

Climate

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens 2003). Butte County is located in a climatic zone characterized as dry-summer subtropical or Mediterranean in the Köppen climate classification system. The Köppen system's classifications are based primarily on annual and monthly averages of temperature and precipitation.

The Northern Sacramento Valley Air Basin (NSVAB), which includes the City of Gridley, is relatively flat, bordered by mountains to the east, west, and north. The climate is characterized by hot, dry summers and cool, rainy winters. Periods of dense and persistent low-level fog that are most prevalent between storms are characteristic of winter weather in the NSVAB. The extreme summer aridity of the Mediterranean climate is caused by sinking air of subtropical high-pressure regions. The ocean has less influence in the NSVAB than in the coastal areas, giving the interior Mediterranean climate more seasonal temperature variation (Ahrens 2003).

Most precipitation in the area results from air masses that move in from the Pacific Ocean during the winter months. These storms usually move from the west or northwest. More than half the total annual precipitation falls during the winter rainy season (November–February); the average winter temperature is a moderate 49°F. During the summer, daily temperatures range from 50°F to more than 100°F.

ATTRIBUTING CLIMATE CHANGE—GREENHOUSE GASES

Greenhouse Gases

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. The absorbed radiation is then emitted from the earth, not as high-frequency solar radiation, but lower frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency (longer wavelength) radiation. Most solar radiation passes through GHGs; however, infrared radiation is selectively absorbed by GHGs. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is extremely unlikely that global climate change over the past 50 years can be explained without the contribution from human activities (Intergovernmental Panel on Climate Change [IPCC] 2007).

According to overwhelming scientific consensus, climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is currently emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46% of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say that the quantity is enormous, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate.

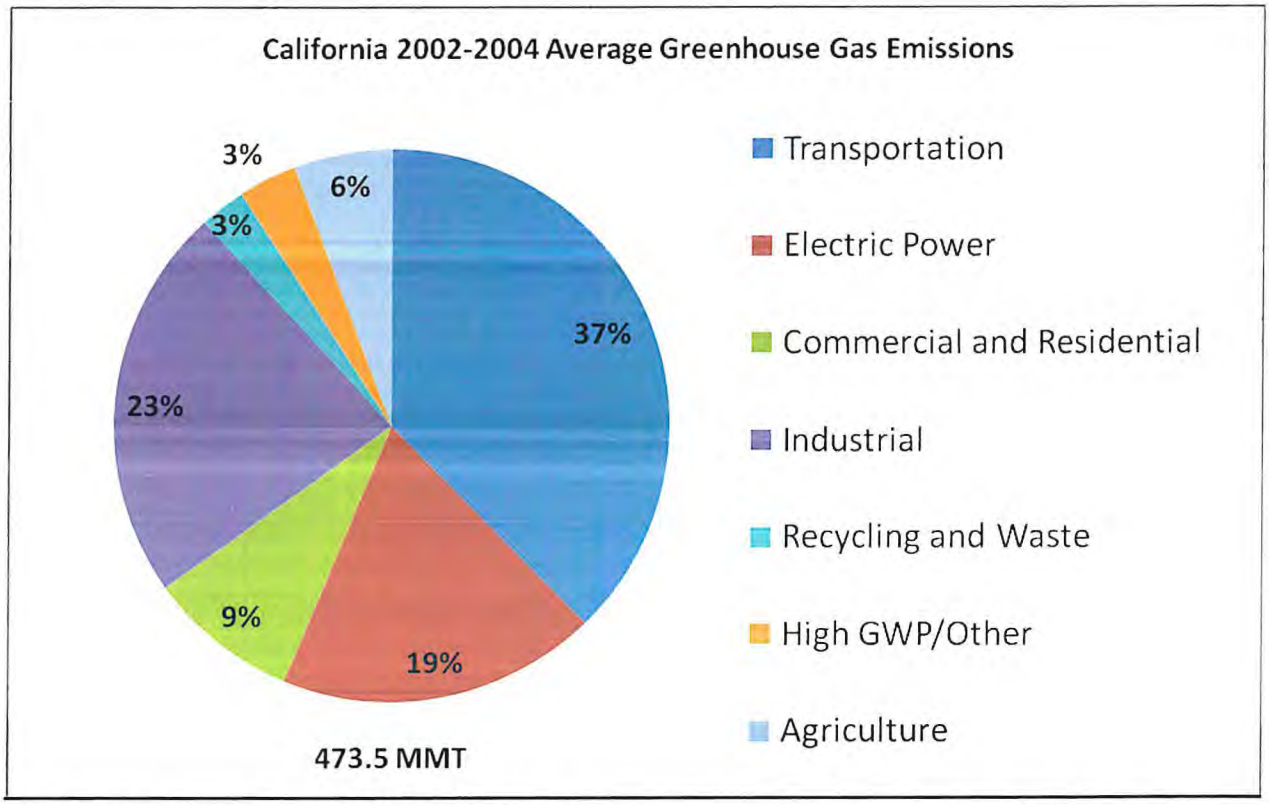
Greenhouse Gas Emissions Sources and Inventory

California

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural sectors (ARB 2009f). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2009f). See Figure 4.14-1 for California's GHG emissions inventory sectors.

Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

California is the 12th to 16th largest emitter of CO_2 in the world (CEC 2006a). California produced 484 million gross metric tons of CO_2 equivalent (CO_2e) in 2004 (ARB 2009x). CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, "Calculation References," of the General Reporting Protocol of the California Climate Action Registry (CCAR 2009), 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 21 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. Expressing emissions in CO_2e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.



Notes: GWP = global warming potential; MMT = Million metric tons.

Source: ARB 2008

California's Greenhouse Gas Emissions by Economic Sector (2002-2004 Average) **Exhibit 4.14-1**

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 38% of total GHG emissions in the state (ARB 2008). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (22%) and the industrial sector (20%) (ARB 2008).

CLIMATE CHANGE VULNERABILITIES AND ADAPTATION

Global average ambient concentrations of CO_2 have increased dramatically since preindustrial times, from approximately 280 parts per million (ppm) to approximately 353 ppm in 1990 and approximately 380 ppm in 2000. Global average temperature has risen approximately 0.76°C since 1850; if global CO_2 emissions were to be curbed today, it would continue to rise an additional 0.5°C by the end of this century. This phenomenon is caused by the inertia of the climate system and time scale of the main sequestration mechanism in the carbon cycle—the ocean. In other words, global climate is committed to an additional 0.5°C of warming associated with human activities that have already occurred. Because GHG emissions associated with fossil fuel combustion, population growth, technological advances, and current standards of living will continue to occur, a more likely range of scenarios for global average temperature rise would be 1.8–4.0°C by the end of the century, depending on the global emissions scenario that ultimately occurs. (For example, the IPCC's B1 scenario—low population growth, clean technologies, and low emissions—is the best-case scenario; its A2 scenario—high population growth, fossil-fuel dependence, and high emissions—is the worst-case scenario; and its A1B scenario is a moderate scenario.)

Impacts associated with the incremental increase in global temperature have already begun to occur. Such impacts are projected to occur in numerous forms: sea level rise, reduction in the extent of polar and sea ice, changes to ecosystems, changes in precipitation patterns, reduced snowpack, agricultural disruption, increased intensity and frequency of storms and temperature extremes, increased risk of floods and wildfires, increased frequency and severity of drought, effects on human health from vectorborne disease, species extinction, and acidification of the ocean.

It is accepted that some level of climate change impacts will occur as a result of human-caused climate change. However, international treaties on the subject of climate change attempt to avoid "dangerous" climate change—in other words, to manage the risk of foreseeable impacts to a "tolerable" level of climate change that would avoid most catastrophic impacts. For this to occur, CO_2 concentrations should be stabilized at 350–400 ppm, with an associated global average temperature increase of no more than 2°C–2.4°C above preindustrial times. Timing is also a key issue, because of the very long lifetimes of GHGs. To avoid "dangerous" climate change, global CO_2 emissions would be required to peak during the 2000–2015 period (IPCC 2007).

Climate change has the potential to affect environmental conditions in California through a variety of mechanisms. Resource areas other than air quality and atmospheric temperature could be indirectly affected by the accumulation of GHG emissions. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state. According to the CEC (2006b), the snowpack portion of the water supply could potentially decline by 30–90% by the end of the 21st century. A study cited in a report by the California Department of Water Resources (DWR) projects that approximately 50% of the statewide snowpack will be lost by the end of the century (Knowles and Cayan 2002). Although current forecasts are uncertain, it is evident that this phenomenon could lead to significant challenges in securing an adequate water supply for a growing population. An increase in precipitation falling as rain rather than snow could also lead to increased potential for floods because water that would normally be held in the Sierra Nevada snowpack until spring could flow into the Central Valley concurrently with winter storm events. This scenario would place more pressure on California's levee/flood control system (DWR 2006).

Another mechanism for indirect impacts on the environment in California is sea level rise. Sea level rose world wide approximately 7 inches during the last century (CEC 2006b), and it is predicted to rise an additional 7–22 inches by 2100, depending on the future levels of GHG emissions (IPCC 2007). However, the Governor-appointed Delta Vision Blue Ribbon Task Force has recommended the State plan for a scenario of 16 inches of sea level rise by 2050, and 55 inches by 2100 (California Natural Resources Agency 2008). Resultant effects of sea level rise could include increased coastal flooding, saltwater intrusion (especially a concern in the low-lying

Sacramento–San Joaquin River Delta, where pumps delivering potable water could be threatened), and disruption of wetlands (CEC 2006b). Some low-lying populated areas throughout the Central Valley and Sacramento-San Joaquin River Delta inundated by sea level rise could experience population displacement and economic disruption.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available. Additional concerns associated with climate change are a reduction in the snowpack, leading to less overall water storage in the mountains, the largest "reservoir" in the state, and increased risk of wildfire caused by changes in rainfall patterns and plant communities.

Impacts on California and Gridley

Historical Trends and Future Predictions

Temperature

IPCC stated that Earth's climate has warmed since the preindustrial era and that it is very likely that at least some of this change is attributable to the activities of humans (IPCC 2007). Global average near-surface air temperatures and ocean surface temperatures increased by 0.74°C ± 0.18°C (1.33°F ± 0.32°F) during the 20th century (IPCC 2007). Climate change projections can be developed on a regional basis using techniques to downscale from the results of global models (although increased uncertainty results from the downscaling). Based on the results of a variety of regional climate models, it is reasonably foreseeable that some increase in annual average temperatures will occur in California during the next 100 years. Although a temperature increase is expected, the amount and timing of the increase is uncertain. In general, predictions put an increase in the range of 2 to 5°C (3.6 to 9°F) over the next 50–100 years (IPCC 2007, Kim et al. 2002, Snyder et al. 2002, Dettinger 2005a).

Indirect effects of increased temperature include changes in precipitation patterns, runoff, snowpack, sea level, water supply, agriculture, wildfire, extreme events (e.g., flooding and drought), biological resources, and public health in California. Effects on precipitation and snowpack would affect runoff and surface water, and would have potential to affect the physical conditions of the Delta. These topic areas are also discussed below.

An increase in annual average temperature is a reasonably foreseeable effect of future climate change, but this environmental change alone is independent of the proposed project. Indirect effects associated with warmer temperatures are evaluated further in the following sections.

Precipitation

Former State Climatologist James Goodridge compiled an extensive collection of longer-term precipitation records from throughout California. These data sets were used to evaluate whether there has been a changing trend in precipitation in the State over the past century (DWR 2006). Long-term runoff records in selected watersheds in the State were also examined. Based on a linear regression of the data, the long-term historical trend for statewide average annual precipitation appears to be relatively flat (no increase or decrease) over the entire record. However, it appears that there might be an upward trend in precipitation toward the latter portion of the record.

When these same precipitation data are sorted into three regions—Northern, Central, and Southern California—trends show that precipitation in the northern portion of the State appears to have increased slightly from 1890 to 2002, and precipitation in the central and southern portions of the state show slightly decreasing trends. All changes were in the range of 1–3 inches annually (DWR 2006).

Although existing data indicate some level of change in precipitation trends in California, more analysis is likely needed to determine whether changes in California's regional annual precipitation totals have occurred as the result of climate change or other factors (DWR 2006).

Increased variability in precipitation and extreme heat events in California presents increased risk of drought, which in turn, presents increased risk of wildfire hazards. However, Gridley is bounded by agricultural land that is actively farmed or fallow, and is not directly adjacent to any wild lands. Though indirect impacts of climate change may increase risk of wildfire in northern California, the General Plan Update would not be anticipated to site sensitive receptors in harm's way with respect to wildfire.

Similarly, increased variability of precipitation and extreme storm events in California presents increased risk of flooding. The Plan Area is located outside of the 100-year floodplain currently defined by the Federal Emergency Management Agency, and is not shown within the 200-year floodplain shown on the Best Available Maps from the California Department of Water Resources. Increased flood events that could occur as a result of climate change could place increased pressure on the current levee system and could cause a wider seasonal variation in flow volumes. This presents the potential to affect future flood elevations in the Sacramento Valley, including the Plan Area.

Snowpack

California's annual snowpack, on average, has the greatest accumulations from November though the end of March. The snowpack typically melts from April though July. California's reservoir managers (including State Water Project [SWP] and Central Valley Project [CVP] facilities) use snowmelt to help fill reservoirs once the threat of large winter and early spring storms and related flooding risks have passed.

An analysis of the effect of rising temperatures on snowpack conducted by DWR (2006) shows that a 3°C (5.4°F) rise in average annual temperature would likely cause snowlines to rise approximately 1,500 feet. This would result in an annual loss of approximately 5 maf of water storage in snowpack. Released and/or purchased waters stored in upstream reservoirs, will largely depend on regional annual average precipitation accumulations. Greater management of upstream reservoirs would be required to account for seasonal variations in precipitation type and intensity, and to maintain the same level of flood protection currently enjoyed. Furthermore, rainfall and winter snowpack in the Sierra Nevada provide Butte County with significant surface water flows and associated groundwater recharge as surface water traverses the county (Butte County 2005). Reduced groundwater recharge from smaller snowpack has the potential to reduce the available water supply in Gridley's aquifer, eventually effecting the City's water supply.

Runoff

Runoff is directly affected by changes in precipitation and snowpack. Changes in both the amount of runoff and the seasonality of the hydrologic cycle have the potential to greatly affect the heavily managed water systems of the western U.S. Hydrology in the Delta is highly dependent on the interaction between Sierra Nevada snowpack, runoff, and management of reservoirs. Runoff patterns in the Delta depend not just on how climatic conditions might change, but also on a wide range of human actions and management decisions.

Water Supply

Much uncertainty also exists with respect to how climate change will affect future demand on water supply (DWR 2006). Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in reservoir inflows (Kiparsky and Gleick 2005, Cayan et al. 2006).

It is foreseeable that the SWP and CVP would experience delivery reliability issues as a result of effects on the hydrologic cycle associated with climate change and Delta pumping restrictions (Anderson 2008, DWR 2007).

Most water scarcity would be felt by agricultural users in Southern California, however, it is expected that Southern California urban users will also experience some scarcity. As required by law, Delta water quality standards must be met prior to occurrence of any south-of-Delta water deliveries.

Currently, water use in the Plan Area is from groundwater wells, and not from the SWP or CVP. The proposed project would not shift to a Municipal and Industrial pattern of water diversion, but would require an increase in groundwater diversion to serve a larger population, occurring steadily throughout the year, including both wet and dry seasons. As discussed above, climate change may reduce the effectiveness of groundwater recharge. This impact is discussed below in Impact 4.14-2.

To the extent that available data and projections suggest that climate change will intensify existing wet and dry patterns, resulting in more precipitation during the wet season and less during the dry season, the 2030 General Plan, which will rely on groundwater for potable water supply, could be less affected by these changes than the current agricultural water use regime. However, there is a great deal of uncertainty in respect to impacts of climate change on future water availability in California in terms of whether and where effect will occur as well as regarding the timing and severity of any such potential effect, making it impossible to draw a conclusion regarding significance without substantial speculation.

Sea Level

One of the major areas of concern related to global climate change is sea level rise. Worldwide average sea level appears to have risen about 0.4 to 0.7 foot over the past century based on data collected from tide gauges around the globe, coupled with satellite measurements taken over approximately the last 15 years (IPCC 2007). Various gauge stations along the coast of California show an increase similar to the global trends. Data specific to the San Francisco tide gauge near the Golden Gate Bridge shows that the 19-year mean tide level (the mean tide level based on 19-year data sets) has increased by approximately 0.5 foot over the past 100 years. Rising average sea level over the past century has been attributed primarily to warming of the world's oceans and the related thermal expansion of ocean waters, and the addition of water to the world's oceans from the melting of land-based polar ice (IPCC 2007).

Various global climate models have projected a rise in worldwide average sea level of 0.6–1.9 feet by 2099 (IPCC 2007). Although these projections are on a global scale, the rate of relative sea level rise experienced at many locations along California's coast is relatively consistent with the worldwide average rate of rise observed over the past century. Therefore, it is reasonable to expect that changes in worldwide average sea level through this century will also be experienced by California's coast (DWR 2006). For example, the Governor-appointed Delta Vision Blue Ribbon Task Force has recommended the State plan for a scenario of 16 inches of sea level rise by 2050, and 55 inches by 2100 (California Natural Resources Agency 2008).

A consistent rise in sea level has been recorded worldwide over the last 100 years. Recorded rises in sea level along the California coast correlate well with the worldwide data. Based on the results of various global climate change models, sea level rise is expected to continue. Based on the consistency in past trends, the consistency of future projections, and the correlation between data collected globally and data specific to California, it is reasonably foreseeable that some amount of sea level rise will occur along the California coast over the next 100 years. Although sea level rise is expected to occur, the amount and timing of the increase is uncertain.

Agriculture

Climate change may reduce the agricultural suitability of lands purchased as mitigations, thus reducing efficacy of actions proposed under the 2030 General Plan. However, while effects may occur, adaptation could allow farmers and ranchers to minimize any potential negative effect on agricultural incomes. Because the potential effects of global climate change on agricultural production are highly speculative at this time, it is not possible to reach a conclusion regarding significance.

Key Findings

Given the uncertainty associated with projecting the change in hydrology that would occur as a result of the variables described above, it would be too speculative to determine the reasonably foreseeable direct effects of climate change on physical hydrologic conditions in the Study Area.

For California's water quality, the largest effect of sea level rise would likely be in the Delta (DWR 2005). Increased intrusion of salt water from the ocean to the Delta could degrade the quality of the fresh water that is pumped out for municipal, industrial, and agricultural purposes. This could lead to increased releases of water from upstream reservoirs or reduced pumping from the Delta to maintain compliance with water quality standards. Increased demand for stored surface water could affect other surface water supplies within the applicable watershed, however, because Gridley does not rely on water pumped from the Delta, and until specific changes in demands occur, the effect on regional supplies remains speculative.

While climate change-induced sea level rise is reasonably certain, even the middle- to upper-range projections would not affect the Plan Area directly, because the Plan Area is well above sea level (i.e., elevation of approximately 90 feet). Projected sea-water rise associated with global climate change is in the range of 0.6–1.9 feet or up to 55 inches (4.6 feet) by the year 2099 (IPCC 2007, California Natural Resources Agency 2008).

In addition, current water quality conditions in regional surface waters depend in large part on human activities, and this would continue into the future. The effects of climate change on water quality could be alleviated by, exacerbated by, or overwhelmed by effects directly related to localized human actions.

Impacts that would occur on the proposed project that would result from climate change will be evaluated further in Impact 4.14-2, below.

4.14.3 Environmental Impacts and Mitigation Measures

Methodology

There is no available adopted or widely accepted methodology for evaluating GHG emissions from new development. In the case of the General Plan, CO_2 emissions associated construction and operations were modeled using the Urban Emissions (URBEMIS) 2007 computer model, Version 9.2.4. Indirect GHG emissions from increased electricity consumption and water consumption were estimated using methodologies from CCAR and assumptions from the CEC. See Appendix B for detailed GHG calculations and inputs.

It is important to note that CO_2 emissions consistent with buildout of the General Plan may not necessarily be considered "new" emissions, given that the Plan itself does not create "new" emitters (e.g., people) of GHGs. In other words, the General Plan does not create people, but accommodates movement from one location to another. Therefore, the General Plan would need to accommodate population in a way that allows for a lower *rate* of GHG generation to achieve the state's goals for GHG emissions, as described in the text of AB 32. The required rates are described below.

Thresholds of Significance

An impact related to global climate change is considered significant if the proposed project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

With regard to emissions of GHGs, no air district in California, including Butte County Air Quality Management District (BCAQMD) has adopted a significance threshold for analyzing project-generated emissions from plans or a methodology for analyzing impacts related to global warming as of the writing of this document. However, by adopting AB 32, the California Legislature has indicated that global climate change is a serious environmental issue and has identified GHG reduction goals.

To meet the goals of AB 32, California would need to generate fewer GHGs than current levels. It is recognized, however, that for most development projects there is no simple metric available to determine whether the individual project would substantially increase or decrease overall emission levels of GHGs.

The legislation dealing with climate change in California (as well as international treaties and agreements on the subject) identifies goals for the rate of emissions of GHGs, relative to specific benchmark years. In the case of California, AB 32 requires 1990 GHG emission levels to be achieved by the year 2020, or about a 28% reduction from current emissions levels (ARB 2008). Neither state legislation nor executive order suggests that California intends to limit population growth to reduce the state's GHG emission levels. Therefore, the intent is to accommodate population growth in California, but achieve a lower *rate* of GHGs despite this larger population. In other words, California jurisdictions must become more GHG-efficient.

With a statewide context for GHG emissions reductions established, GHG efficiency can be viewed independently from the jurisdiction in which the plan is located. In order to provide a meaningful basis to assess the GHG-related effects of a plan, the mass emission from land use-related sectors can be normalized. Dividing mass emissions by the population and or amount of employment allows an assessment of GHG efficiency of a project. Normalizing this projected 2020 mass of emissions from land use-related emissions sectors by unit related to what the general plan itself is accommodating (e.g., population and employment) allows decision makers to consider the GHG efficiency of a project and evaluate the project's consistency with AB 32 targets. Limiting the analysis to the land use-related sectors helps to maintain focus on what the lead agency is approving – in this case, long-range physical development of the community, with an emphasis on management of land use change.

For the purposes of this analysis, the sum of the number of jobs and the number of residents at a point in time is termed the "service population" (SP). GHG efficiency metrics were developed for the emissions rates at the state level that would accommodate estimated population and employment growth, and the emission rates needed to accommodate growth while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020). These emission rates show how GHG efficient new development and existing development must be in order to achieve AB 32 targets for land use-related sectors.

When analyzing long-range plans, such as general plans, it is important to note that the planning horizon will often surpass the 2020 timeframe for implementation of AB 32. Executive Order S-3-05 establishes a more aggressive emissions reduction goal for the year 2050 of 80 percent below 1990 emissions levels. The year 2020 should be viewed as a milestone year, and the general plan should not preclude the community from a trajectory toward the 2050 goal. However, the 2020 timeframe is examined in this threshold evaluation because doing so for the 2050 timeframe (with respect to population, employment, and GHG emissions projections) would be speculative at the time of the writing of this document. Advances in technology and policy decisions at the state level will be needed to meet the aggressive 2050 goals. It is beyond the scope of the analysis tools available at this time to examine reasonable emissions reductions that can be achieved through CEQA analysis in the year 2050.

To meet the requirements of AB 32 in the emissions sectors that are related to land use (e.g., on-road passenger and heavy-duty motor vehicles, commercial and residential area sources [i.e., natural gas], electricity generation/consumption, waste water treatment, and water consumption), 2020 projected population and employment would need to fit within the 1990 mass emissions limits. Table 4.14-1 summarizes 1990, present (2002–2004 average baseline), and projected 2020 GHG emissions from relevant emissions sectors from land use development projects. AB 32 has established the 1990 emissions limit as the legislative context. The 1990 emissions limit from these sectors is treated as 280 MMT CO_2e.

Table 4.14-1
California's Greenhouse Gas Emissions Inventory, 1990 Emissions Limit, Base Year, and 2020 Projections from Land Use-Related Sectors

Sector	1990 Emissions (MMT CO_2e/yr)	2002-2004 Average (MMT CO_2e /yr)	2020 Emissions Projections (MMT CO_2e/yr)
Transportation	**137.992**	**168.657**	**209.101**
On-Road Passenger Vehicles	108.945	133.947	160.783
On-Road Heavy Duty	29.047	34.710	48.318
Electric Power	**95.385**	**88.970**	**107.401**
In-State Generation	33.808	32.152	55.039
Imported Electricity	61.577	56.818	52.362
Commercial and Residential	**44.220**	**41.579**	**47.970**
Residential Fuel Use	29.657	28.515	32.100
Commercial Fuel Use	13.462	11.704	13.755
Commercial Combined Heat and Power	1.101	1.360	2.115
Recycling and Waste[1]	**2.833**	**3.390**	**4.190**
Domestic Waste Water Treatment	2.833	3.390	4.190
Total Gross Emissions	**280.430**	**302.596**	**368.662**

Notes: MMT CO_2e /yr = million metric tons of carbon dioxide equivalent emissions per year.
[1] Landfills not included.
Please refer to Appendix C for detailed calculations.
Sources: Data compiled by EDAW 2009, ARB 2009f.

Table 4.14-2
California Greenhouse Gas Emissions, Population Projections, and Greenhouse Gas Efficiency Thresholds

	1990	2002-2004 Average	2020
Population	29,758,213	36,199,342	44,135,923
Employment	14,294,100	16,413,400	20,194,661
California Service Population (Population + Employment)	44,052,313	52,612,742	64,330,584
Projected GHG emissions(metric tons CO_2e)/capita[1]	9.42	8.36	8.35
Projected GHG emissions (metric tons CO_2e)/SP[1]	6.37	5.75	5.73
AB 32 Goal GHG emissions (1990 metric tons CO_2e)/capita[1]	9.42	7.75	**6.35**
AB 32 Goal GHG emissions (1990 metric tons CO_2e)/SP[1]	6.37	5.33	**4.36**

Notes: AB = Assembly Bill; CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; SP = service population.
[1] Greenhouse gas efficiency levels were calculated using only the "land use-related" sectors of ARB's emissions inventory.
Please refer to Appendix C for detailed calculations.
Sources: Data compiled by EDAW 2009, ARB 2009f, DOF 2009, EDD 2009.

Table 4.14-2 summarizes projected population and employment estimates for the State, and allocates the GHG emissions limit (i.e., 280 MMT CO_2e) from Table 4.14-1 to the projected population and projected SP. If a general plan demonstrates that it could meet the GHG efficiency metrics proposed in this section, (either 6.4 metric tons (MT) CO_2e/capita or 4.4 MT CO_2e/SP) the amount of GHG emissions associated with the general plan would not be expected to conflict with any applicable plan, policy or regulation of an agency adopted for the

purpose of reducing the emissions of GHGs, and would thereby be less than significant. In other words, the general plan would accommodate growth in a manner that would not hinder the State's ability to achieve AB 32 targets, and thus, would be less than significant for GHG emissions and their contribution to climate change.

The AB 32 Scoping Plan is ARB's plan for meeting the state's GHG legislative mandate, and is hereby treated as the agency-adopted plan for reducing GHG emissions. While the Scoping Plan does not specifically identify GHG emission reductions from the CEQA process for meeting AB 32-derived emission limits, the Scoping Plan acknowledges that "other strategies to mitigate climate change ... should also be explored." The Scoping Plan also acknowledges that "Some of the measures in the plan may deliver more emission reductions than we expect; others less...and new ideas and strategies will emerge."

IMPACT ANALYSIS

IMPACT 4.14-1 **Increases in Greenhouse Gas Emissions.** *Project-generated GHG emissions would not be anticipated to conflict with the goals of AB 32 (i.e., an agency-adopted regulation for the purpose of reducing GHG emissions) due to the General Plan Update's inclusion of policies and strategies designed to reduce GHG emissions. However, the buildout of the proposed General Plan Update would result in GHG emissions that would increase considerably compared with existing levels. Thus, the project's GHG emissions would generate GHG emissions that are cumulatively considerable. For this reason, this impact would be* ***significant.***

Effects of the General Plan on Greenhouse Gas Emissions

Long-term growth anticipated under the 2030 General Plan would generate direct emissions of GHGs from area and mobile sources, and indirect stationary-source GHG emissions associated with offsite electricity production.

Mobile-source emissions of GHGs would include vehicle trips associated with employee commutes, errands, recreation, and other trips in passenger vehicles of future residents of and visitors to the City. Such emissions would also include commercial trucking activity associated with moving goods to and from proposed commercial and industrial uses.

Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses, distribution of natural gas to heat spaces and water, and waste disposal. Increases in stationary-source emissions could occur at off-site utility providers that would supply electricity to the proposed uses within the City, including expanded wastewater treatment capacity to serve development anticipated under the General Plan.

GHG emissions would be predominantly in the form of CO_2. CO_2 emissions persist in the atmosphere for a much longer period of time than emissions of criteria air pollutants such as ozone and particulate matter less than or equal to 10 microns in diameter. Although emissions of other GHGs, such as CH_4 and N_2O, are important with respect to global climate change, emissions levels of other GHGs are less dependent on the land use and circulation patterns associated with the General Plan than are levels of CO_2.

Because the General Plan mostly addresses physical development patterns throughout the City, mobile sources (vehicle trips) would be the primary source of GHG emissions associated with the Plan. Transportation is also the largest source of GHG emissions in California, representing approximately 38% of annual CO_2 emissions generated in the state (ARB 2008).

VMT is the most direct indicator of CO_2 emissions for most land use plans and development projects, and the General Plan is no exception. CO_2 emissions are the best indicator of total GHG emissions for most types of development projects and plans. Buildout of the General Plan is estimated to add approximately 36,104 new vehicle trips per day, and such trips would be the primary source of GHG emissions associated with Plan implementation.

Implementation of the General Plan would generate 179,143 MT (0.18 MMT) of CO_2 emissions annually for the lifetime of the Plan (Table 4.14-3). New growth anticipated under the General Plan would generate a finite quantity of approximately 19,000 MT of CO_2 for the duration of construction activities (Table 4.14-3). Construction activities associated with the General Plan Update would contribute emissions of GHGs to a much lesser extent than operational activities under the Plan.

Table 4.14-3
Summary of Modeled Project-Generated, Construction- and Operation-Related Emissions of Greenhouse Gases

Source	Emissions (MT/yr CO_2e)[1]	Percent of Total
GPU Construction-Related Emissions (to occur over a 20-year buildout period)	949	-
Total Unmitigated	**18,987 tons**	-
Existing (on-the-ground) GP - Analysis Year 2008		
Direct Operational Emissions		
Area Sources[2]	11,768	19
Mobile Sources[3]	39,775	65
Indirect Operational Emissions		
Stationary Sources (Electricity Generation)	9,593	16
Stationary Sources (Water Consumption)	60	0
Total Unmitigated Operational Emissions (Existing)	**61,195**	100
Total Operational GHG Emissions Efficiency (Existing)	**9.6 MT/capita/yr 6.6 MT/SP/yr**	-
Buildout of Existing GP - Analysis Year 2030		
Direct Operational Emissions		
Area Sources[2]	22,924	17
Mobile Sources[3]	93,417	68
Indirect Operational Emissions		
Stationary Sources (Electricity Generation)	21,516	16
Stationary Sources (Water Consumption)	92	0
Total Unmitigated Operational Emissions (Existing GP)	**137,950**	100
Total Operational GHG Emissions Efficiency (Existing GP)	**12.7 MT/capita/yr 8.2 MT/SP/yr**	-
Buildout of GP Update - Analysis Year 2030		
Direct Operational Emissions		
Area Sources[2]	29,271	16%
Mobile Sources[3]	119,203	67

Table 4.14-3
Summary of Modeled Project-Generated, Construction- and Operation-Related Emissions of Greenhouse Gases

Source	Emissions (MT/yr CO_2e)[1]	Percent of Total
Indirect Operational Emissions		
Stationary Sources (Electricity Generation)	30,533	17
Stationary Sources (Water Consumption)	136	0
Total Unmitigated Operational Emissions (GPU)	**179,143**	100
Total Operational GHG Emissions Efficiency (GPU)	**10.4 MT/capita/yr** **7.2 MT/SP/yr**	-
Net Increase in GHG Emissions Resulting from GPU (GPU – Existing On-the-Ground)	**117,948**	**0.8 MT/capita/yr** **0.6 MT/SP/yr**
Net Increase in GHG Emissions Relative to Existing GP (GPU – Buildout of Existing GP)[4]	**41,553**	**-2.3 MT/capita/yr** **-1.0 MT/SP/yr**

Notes: CO_2e = carbon dioxide equivalent; GP = General Plan; GPU = General Plan Update; MT/yr = metric tons per year; SP = service population.

[1] Emissions modeled using the URBEMIS 2007 (Version 9.2.4) computer model, based on trip generation rates obtained from the analysis prepared for the General Plan; proposed land uses identified in Chapter 3, "Project Description," and Section 4.4, "Transportation and Circulation," of this EIR; recommendations from the Butte County Air Quality Management District for URBEMIS model inputs; and default model assumptions where detailed information was not available.

[2] For this estimate, BCAQMD-recommended model assumptions were used for the number of residences that would contain hearth features.

[3] Trip generation rates were obtained from the traffic analysis for the respective land uses (data provided by KdAnderson in 2008).

[4] Negative values for MT/capita/yr and MT/SP/yr mean that the GPU would improve GHG efficiency relative to buildout of the existing GP (i.e., the no project alternative).

Totals may not add exactly due to rounding.

Refer to Appendix C for detailed assumptions and modeling output files.

Source: Data modeled by EDAW in 2009

The General Plan would enable Gridley to accommodate approximately 17,283 residents and 7,766 jobs. If the operational CO_2 emissions were distributed evenly on a per-unit basis, the proposed population of Gridley would generate CO_2 at an average rate of approximately 10.4 MT of CO_2e per person per year and 7.2 MT CO_2e per SP per year. As explained further below, the land use designations and policies in the General Plan Update would accommodate a larger share of nonvehicular trips for future and existing residents. Various land use, community design, air quality, and circulation policies noted below increase GHG-efficiency in the Plan Area. Due to the nature of general plan policy, the fact that the City's policies and strategies will be incorporated in a variety of land use change and City actions over a long period of time, and because the City cannot predict the degree to which policies and strategies will be incorporated into projects during the General Plan time horizon, the precise effect of these policies and strategies is not knowable as of the writing of this document.

According to the AB 32 Scoping Plan, to achieve the goal stated in AB 32 of 1990 emission levels by the year 2020, while accounting for population growth between now and 2020, California would need to reduce emissions by approximately 30%. To achieve 1990 emissions levels by 2020 from the emissions sectors related to land use, emissions would need to be reduced by approximately 24%. Though the 2030 General Plan would not meet the GHG/capita or GHG/SP metrics derived herein, Implementation Program 8.1 of the Safety Element would result in

preparation and implementation of a City-wide GHG reduction program that targets a minimum 24% emissions reduction by 2020 relative to the emissions shown in Table 4.14-3.

Stationary- and Mobile-Source Measures and Regulations

Stationary- and mobile-source GHG regulations on the horizon would assist in further lowering GHG emissions under the General Plan Update. It is not known at this time what reductions are achievable from other emission sources through state regulatory measures, such as the AB 32 Early Action Measures (adopted in July 2007). Also not known at this time is whether additional GHG reductions for mobile sources might be available through legislation such as AB 1493, which would create more stringent vehicle emission standards for GHGs. According to the AB 32 Scoping Plan, AB 1493 would be expected to result in approximately a 19.7% reduction in GHG emissions from on-road mobile sources (ARB 2008). If emissions reductions from AB 1493 were fully realized in California during buildout of the General Plan Update, emissions from the proposed project would be approximately 155,660 MT CO_2e/year; approximately 23,000 MT less than the scenario without AB 1493 regulation of mobile sources (see Table 4.14-3). However, the net increase in GHG emissions associated with the General Plan Update relative to existing (on-the-ground) conditions would still be approximately 94,465 MT CO_2e/year.

It is not yet clear what the net GHG emissions would actually be under the buildout of the 2030 General Plan, given the uncertainty of future legislative and regulatory actions. Finally, market, demographic, and economic factors could affect the density and mix of land uses actually constructed. Therefore, actual CO_2 emission rates as computed on a project-by-project basis could vary. Many factors that would be used to calculate the net change in GHG emissions attributable to individual projects within the 2030 General Plan are either unknown at this time or outside the control of the City.

Relevant Goals, Policies, and Implementation Strategies of the 2030 General Plan

The 2030 General Plan includes a variety of goals, policies, and implementation strategies aimed at addressing the threat of climate change. Appendix B to the General Plan summarizes the climate change-related policies and programs contained in the 2030 General Plan. The Appendix categorizes the policies and strategies by topic area, potential to reduce GHG emissions, emissions sector in which the reduction would occur, and the potential to help Gridley adapt to the foreseeable impacts of climate change. Specifically, Safety Element Implementation Program 8.1 directs the City to prepare a GHG reduction program that targets a minimum 24% reduction in GHG emissions from the levels in Table 4.14-3 by 2020. A 24% reduction represents the level of reduction needed at the state level to meet the 1990 emissions limit by 2020 from the relevant emissions sectors from land use (summarized in Table 4.14-1). Achievements from legislation (such as AB 1493) may also be credited toward the 24% reduction, since these were not accounted for in the quantification of emissions presented in Table 4.14-3.

Conclusion

Implementation of the policies and implementation strategies summarized in Appendix B to the General Plan designed to reduce GHG emissions, including Safety Element Implementation Program 8.1, would ensure consistency with the mandates of AB 32 (i.e., reduce statewide GHG emissions to 1990 levels by 2020). However, because of the large amount of development and potential for simultaneous construction of multiple sites, taken together with modeled emissions (presented in Table 4.14-3), implementation of the 2030 General Plan could result in or substantially contribute to GHG emissions. This substantial quantity of GHG emissions would be cumulatively considerable, and would contribute to the significant cumulative impact of climate change. As a result, this impact is considered **significant.**

Mitigation Measure

Individual projects that would be constructed under the General Plan Update shall implement Mitigation Measure 4.3-3 (described in Section 4.3, "Air Quality"), which requires design and operational measures to reduce

operational emissions of criteria air pollutants, would further reduce CO_2 emissions from the Plan's operation. Each individual project would also be required to implement site-level mitigation to reduce GHG emissions, as feasible.

No further feasible mitigation measures are available. The impact is considered **significant and unavoidable**.

IMPACT 4.14-2 **Impacts of Climate Change on Gridley.** *Climate change is expected to result in a variety of effects on the Plan Area: reduced agricultural production, changes to terrestrial and aquatic ecosystems, reduced hydroelectric energy production, increased energy demand, decreased water supply, increased risk of flooding and landslide, increased frequency and intensity of wildfire, and the inundation of low-lying areas caused by rising sea levels. Substantial negative effects on residents, resources, structures, and the economy could result. This impact would be* ***less than significant****.*

Effects of the Climate Change on the General Plan

As discussed previously in this section, human-induced increases in GHG concentrations in the atmosphere have led to increased global average temperatures (global warming) through the intensification of the greenhouse effect, and associated changes in local, regional, and global average climatic conditions.

Although there is a strong scientific consensus that global climate change is occurring and is influenced by human activity, there is less certainty as to the timing, severity, and potential consequences of the climate phenomena. Scientists have identified several ways in which global climate change could alter the physical environment in California (IPCC 2007, CEC 2006b, DWR 2006). These include:

- increased average temperatures;
- modifications to the timing, amount, and form (rain vs. snow) of precipitation;
- changes in the timing and amount of runoff;
- reduced water supply;
- deterioration of water quality; and,
- elevated sea level.

The changes listed above may translate into a variety of issues and concerns that may affect the Gridley area, including but not limited to:

- reduced agricultural production as a result of changing temperatures and precipitation patterns;
- changes in the composition, health, and distribution of terrestrial and aquatic ecosystems, particularly associated with increased saltwater intrusion into the Delta;
- reduced production of hydroelectric energy caused by changes in the timing and volume of runoff;
- increased energy demand associated with increased temperatures;
- increased air pollution and related effects on human health;
- decreased water supply, reliability, and quality;
- increased risk of flooding and landslide associated with changes to precipitation patterns;
- increased frequency and intensity of wildfire as result of changing precipitation patterns and temperatures; and,

- inundation of low-lying areas associated with rising sea levels.

Although uncertainty exists as to the precise levels of these impacts, there is consensus regarding the range that can be expected.

Although climate change is an issue of global scale and the impacts described above are likely to occur whether or not the General Plan Update is adopted, implementation of the Plan would influence the degree to which climate change affects Gridley's residents, ecosystems, and economy. Development associated with buildout of the 2030 General Plan could subject an increased number of persons and structures to potential hazards, such as water supply issues. Because the Plan Area is located sufficiently far above sea level, it is not anticipated that the proposed project would be affected by sea level rise. Because the land surrounding the Plan Area is largely agricultural, and the Planned Growth Area is not adjacent to wild lands, increased exposure to wildfire is not anticipated in the Plan Area. Additionally, environmental impacts resulting from implementation of the Plan (as identified in Sections 4.1 through 4.14 of this EIR) could combine with climate change–associated impacts to intensify such impacts and exacerbate hardships for the City.

Although the General Plan Update may increase Gridley's exposure to such risks and hardships, the Plan also includes a variety of policies and programs that would assist the City in avoiding, adapting to, and being resilient in the face of climate change–associated impacts.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan contains many goals, policies, and implementation strategies which have the potential to aid the City's adaptation to climate change. These policies include:

- **Conservation Policy 2.1:** The City will encourage the use of recycled water for appropriate use, including, but not limited to, outdoor irrigation, toilet flushing, fire hydrants, and commercial and industrial processes.

- **Conservation Policy 2.2:** Native, drought tolerant landscaping will be used, to the maximum extent feasible, in new City parks and open space and for landscaping within new rights of way as well as within new developments, including commercial, industrial, and residential projects.

- **Conservation Policy 2.3:** The City will explore opportunities in existing City-owned parks, open space, rights-of-way, and other City properties to replace landscaping with native, drought tolerant landscaping.

- **Conservation Policy 2.4:** The City will require the use of water conservation technologies such as low-flow toilets, efficient clothes washers, and efficient water-using industrial equipment in all new construction, in accordance with State law.

- **Conservation Policy 2.5:** The City will provide voluntary water audits to identify conservation opportunities and will explore provide financial incentives for adopting identified efficiency measures.

- **Conservation Policy 2.6**: The City will comprehensively assess water supply and demand and identify a range of local conservation measures to be implemented through an Urban Water Management Plan.

- **Conservation Implementation Strategy 2.3:** The City will analyze the feasibility of installation of recycled waters systems in new development. The City will consider whether up-front fees or ongoing rates can be reduced for properties that install and use recycled water. The City will consider revisions to the Public Works Construction Standards, as necessary, to allow installation of recycled water systems in new developments.

- **Conservation Policy 3.3:** The City will require that waterways and floodplains are maintained in their natural condition, wherever possible.

- **Conservation Policy 3.5:** New development shall incorporate natural drainage system design that includes infiltration and decentralized treatment to the greatest extent feasible.

- **Conservation Policy 3.6:** New development should incorporate low impact development (LID) strategies to the greatest extent feasible to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, and reduce pollutants close to their source.

- **Conservation Policy 3.7**: New development should minimize the amount of impervious surfaces such as driveways, streets, and parking lots in order to reduce stormwater, reduce pollutants in urban runoff, recharge groundwater, and reduce flooding.

- **Conservation Policy 3.8:** In new developments, impervious surfaces such as driveways, streets, and parking lots should be interspersed with vegetated areas that allow for filtering and infiltration of stormwater.

- **Conservation Policy 3.9:** New development should use permeable surfaces for hardscape, wherever feasible.

- **Conservation Implementation Strategy 3.1:** The City will update or adopt a new drainage master plan following adoption of the 2030 General Plan to implement drainage policies within the Planned Growth Area. The City will develop a fair-share approach to funding drainage improvements in the Planned Growth Area, but will also proactively identify state and federal grant programs that could be used to implement the City's natural drainage/low impact development approach. The City will engage with the Regional Water Quality Control Board and the State Water Resources Control Board to ensure that the appropriate regional and state water quality objectives are incorporated into the City's natural drainage approach. The City will consult with regional, state, and federal resource agencies to ensure ease of permitting for the City's natural drainage and low impact development approach for the Planned Growth Area. The City will consult with relevant agencies to develop a streamlined permit process that ensures the feasibility of the City's stormwater best management practices. In addition to proactive consultation with the relevant resource agencies, the City will also work with the Mosquito Abatement District to ensure community health interests and vector control measures are considered in the design of storm drainage systems.

- **Conservation Implementation Strategy 3.2:** The City will revise the Public Works Construction Standards, as necessary, to encourage use of natural drainage systems and low impact development principles. The City will establish standards and fee programs to require and/or provide incentives for methods to slow down and filter stormwater. The City will make revisions required to emphasize slowing down and dispersing stormwater, using existing and constructing new landscaped swales to convey stormwater runoff, encourage sheet flow to filter stormwater runoff, encourage use of landscaped infiltration basins in planter strips along roadways and in parking lots, and other best management practices, as appropriate. The City will revise its parking design standards, as necessary, to encourage consistency with the 2030 General Plan.

- **Conservation Implementation Strategy 3.3:** Following adoption of the 2030 General Plan, the City will adopt new landscaping standards, as necessary, to ensure consistency with policies in the Conservation Element. Among these revisions, the City will revise landscaping requirements to include drought-tolerant, low-maintenance plants.

- **Safety Policy 2.1:** The City will use the best available flood hazard information and mapping from regional, state, and federal agencies and use this information to inform land use and public facilities investment decisions.

- **Safety Policy 2.2:** The City will regulate development within floodplains in accordance with state and federal requirements.

- **Safety Policy 2.3:** New development shall provide an evaluation of potential flood hazards and demonstrate compliance with state and federal flood standards prior to approval.

- **Safety Implementation Strategy 2.1:** The City will update the General Plan, if necessary, using data to be made available by the Department of Water Resources and the Central Valley Flood Protection Board. The City will update the Land Use Element, Conservation and Open Space Element, Safety Element, and other elements, if necessary, to ensure adequate flood protection is provided for areas anticipated for urban development.

  Policies and implementation measures in the General Plan related to flood protection will integrate data from the State Plan of Flood Control. For flood-related revisions to the Safety Element, the City will consult with the Central Valley Flood Protection Board and local flood protection agencies serving the Gridley vicinity, consistent with State law.

  Following flood-related updates to the General Plan, the City will revise applicable development standards, including the Zoning Code, for consistency on flood protection policies. Subdivision approvals, development agreements, permits, and other City entitlements will incorporate these revised City policies and regulations. The City will regulate development per state and federal law and according to the presence of 200-year flood protection, or according to adequate progress towards providing 200-year flood protection.

  The City will cooperate with Sutter Butte Flood Control Agency, state, and federal agencies, if necessary, to fund on an equitable basis the maximum level of flood protection that is practical, with a goal of achieving at least 200-year flood protection.

- **Safety Policy 4.1:** The City will require setbacks, ignition resistant building materials, or other measures to reduce exposure to potential wildfires in areas designated for natural open space preservation, in coordination with California Department of Forestry and Fire Protection recommendations and Maintenance of Defensible Space Measures, as appropriate.

- **Public Facilities Policy 1.3:** The City will maintain, and update as appropriate, a water master plan to identify needed improvements to serve new and infill growth under the General Plan.

- **Public Facilities Policy 1.4:** The City should coordinate with irrigation districts that maintain canals in the Gridley area to identify cost-effective approaches for ensuring that urban development in Gridley does not adversely affect irrigation water supply and quality.

- **Public Facilities Policy 1.5:** The City will ensure reliable water supplies and provide prompt response to any disruption in water supply to the greatest extent feasible.

- **Public Facilities Policy 1.6:** The City should consider future conjunctive use of both groundwater and surface water, where feasible and where shown to be beneficial to Gridley residents.

- **Public Facilities Implementation Strategy 1.1:** During General Plan buildout, the City will monitor water quality and intervene, as necessary, to address water supply and quality issues. The City will remove wells from service and establish new well sites, if necessary. The City will upgrade treatment facilities, if necessary. The City will consider long-term public health, state and federal standards, and cost/benefits to residents in future investments in the water system. The City will proactively pursue grant programs to finance water supply improvements, and will coordinate with other local agencies and special districts, where necessary to address water quality or supply problems.

- **Public Facilities Implementation Strategy 1.2:** The City will direct extension of the City's water system to serve the Planned Growth Area, consistent with the policy direction in this General Plan. To assist with implementation, the City will consider drafting a water master plan to identify phased improvements to the

City's infrastructure, costs, and financing strategies for extending water infrastructure to the Planned Growth Area. The City will also consider including in this master plan updates to water infrastructure and facilities planning in the existing Sphere of Influence and the Planned Growth Area, covering the same topics. The City will identify water flow requirements including water flow rate (gallons per minute) and duration, which may vary throughout a community by building area and construction type. The water master plan will identify candidate well sites in the Planned Growth Area, as well as pumping, the location of water mains, fire hydrants, new storage tanks, and other components of the water infrastructure. The City will consider also priority upgrades in the existing City to maintain pressure or supply. The water master plan will be coordinated with capital improvements planning and development impact fee programs. Financing of the water system shall be on a per-capita or other fair-share basis, per State law. Smaller housing units with fewer bedrooms and faucets, homes with smaller yards, and other types of development that would have lower demand for water should contribute proportionally less in development impact fees, as appropriate.

- **Public Facilities Implementation Strategy 1.3:** The City will maintain a plan for emergency response to disruption in water supply. This plan will also review vulnerability of source and delivery and distribution systems to events, such as regional power outages and system failures. The City will maintain a notification plan for both personnel and residents in case of emergency.

- **Public Facilities Implementation Strategy 1.4:** During implementation of the 2030 General Plan (present to 2030), the City will consult with area irrigation districts and other water purveyors to examine any surface water supply options. Among other options, the City will consult with Butte Water District to investigate surplus water availability. State water law will dictate to a large degree the City's ability to obtain surface water supply and effectively create a conjunctive surface/groundwater water system. Implementing a conjunctive water system in Gridley could also be very expensive. In determining the feasibility of conjunctive use, the City will examine environmental and public health benefits and impacts and the long-term costs and benefits for residents of Gridley before implementing this program. Any future conjunctive use program should be consistent with policies in Gridley's Urban Water Management Plan, once developed (see the Conservation Element).

Conclusion

Implementation of the policies and strategies proposed in the 2030 General Plan would reduce the extent and severity of climate change–associated impacts on Gridley by proactively planning for changes in climate and conditions, and providing methods for adapting to these changes. This impact is considered **less than significant**.

4.14.4 Residual Significant Impacts

Implementation of the 2030 General Plan goals, policies, and implementation strategies described above and in Appendix B to the General Plan would reduce emissions of GHGs, but the degree of future impacts and applicability, feasibility, and success of future mitigation measures cannot be adequately known for each specific future project at this program level of analysis. Therefore, it cannot be determined whether these measures would reduce GHG levels to a less-than-significant level. As such, the City conservatively assumes that the project would result in a considerable net increase in GHGs, and thus would contribute considerably to the cumulative impact of climate change. This impact remains **significant and unavoidable**.

5 ALTERNATIVES TO THE PROPOSED PROJECT

5.1 INTRODUCTION

Section 15126.6(a) of the State CEQA Guidelines states the following:

> An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Section 15126.6(b) describes the purpose of the alternatives analysis as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines suggest that alternatives should be compared to the proposed project's environmental impacts and that the "no project" alternative be considered (State CEQA Guidelines Section 15126.6[e]). In defining "feasibility" (e.g., "... feasibly attain most of the basic objectives of the project ..."). State CEQA Guidelines Section 15126.6(f)(1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a) of the State CEQA Guidelines.

For the purposes of this EIR, the "project," as described in the various CEQA guidance summarized above, is the 2030 General Plan. Please see Section 3.3 in Chapter 3, "Project Description," for the objectives of the update to the *City of Gridley General Plan* (2030 General Plan).

5.2 ALTERNATIVES EVALUATED IN THIS EIR

Project alternatives are intended to reduce or eliminate the potentially significant adverse environmental effects of the 2030 General Plan, while attempting to meet most of the project objectives, as stated in Chapter 3, "Project Description."

An EIR is required to contain a discussion of a reasonable range of alternatives to the project, or to the location of the project, that could feasibly attain the basic objectives of the project (State CEQA Guidelines Section 15126.6[a]). The comparative merits of the alternatives should also be presented. In addition to the guidance described in Section 5.1 above, CEQA provides the following guidelines for considering alternatives to the project:

- If an alternative would cause one or more significant environmental effects in addition to those that would be caused by the project, the significant effects of the alternatives shall be discussed, but in less detail than the significant effects of the project. (State CEQA Guidelines Section 15126.6[d])

- The "no project" alternative shall be evaluated. If the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. (State CEQA Guidelines Section 15126.6[e])

- The range of alternatives required by an EIR is governed by the "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision-making and informed public participation. An EIR need not consider an alternative whose effect cannot be ascertained and whose implementation is remote and speculative. (State CEQA Guidelines Section 15126.6[f])

5.2.1 Previous General Plan Alternatives

The City considered a range of land use alternatives for the Planned Growth Area during preparation of the 2030 General Plan. This process touched on many environmental issues, although social and economic issues were also involved. The previous public discussion of 2030 General Plan alternatives is distinct from the alternatives analysis presented in this EIR, although there may be overlap with certain concepts presented earlier. Please refer to the 2030 General Plan, under separate cover, for a description of alternatives considered earlier in the General Plan update process.

5.2.2 General Plan EIR Alternatives

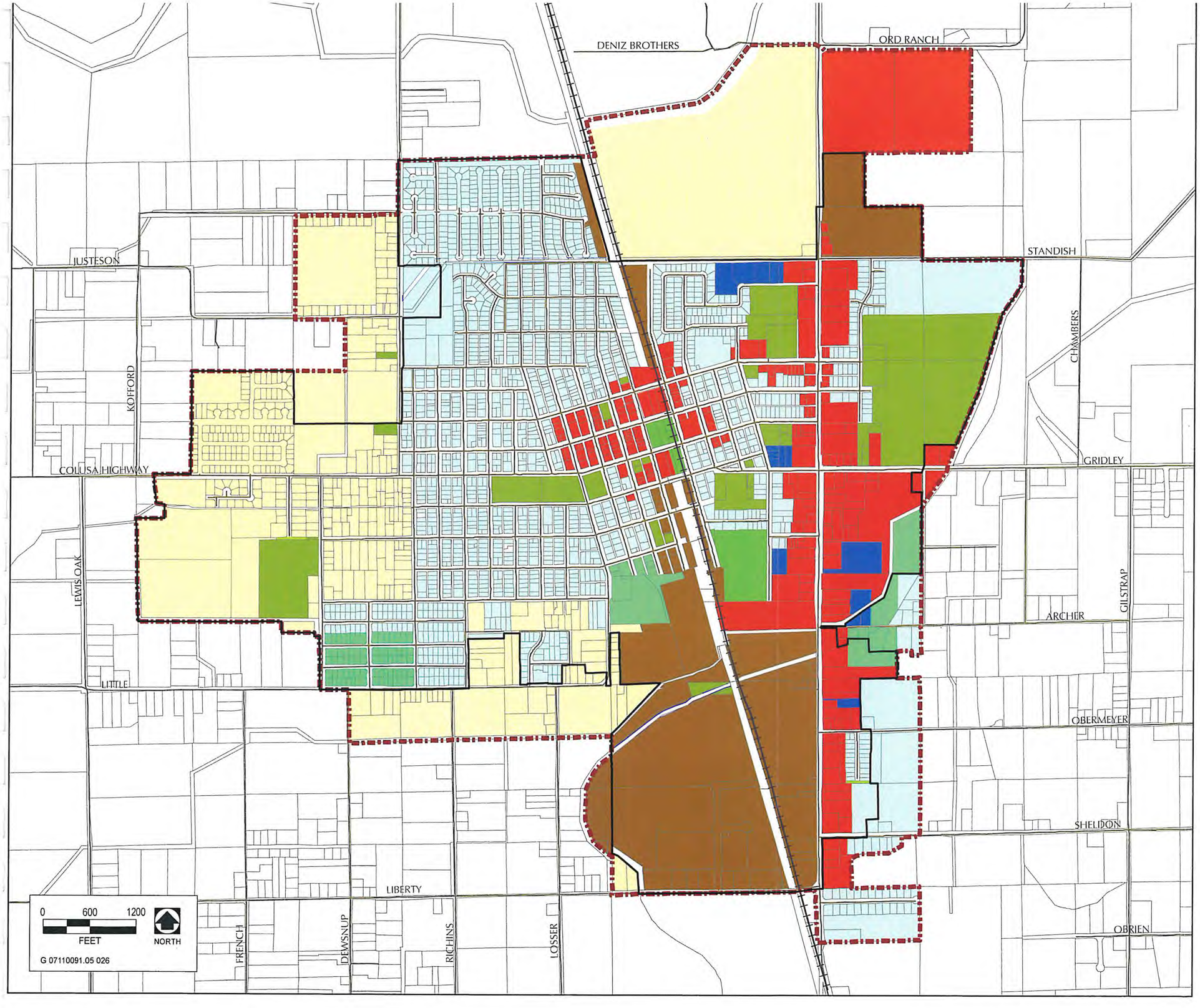
As mentioned, the previous General Plan alternatives discussion involved environmental and other issues. The focus for alternatives analysis in this EIR is distinct from the earlier General Plan land use alternatives process. For this EIR, the City elected to examine the impacts of three alternatives to compare with the 2030 General Plan:

- **Alternative 1. No Project: Buildout of the Existing General Plan.** This alternative assumes that the 2030 General Plan would not be implemented and that the City would build out as indicated by the existing (pre-update) General Plan (see Exhibit 5-1).

- **Alternative 2. Centralized Development with Urban Reserve.** Relative to the 2030 General Plan, this alternative assumes a reduced development footprint in the Area of Concern (AOC), and an urban reserve area west of the railroad line. This alternative proposes a single mixed-use neighborhood center in the Planned Growth Area. Alternative 2 leaves about 567 acres in the AOC without a future use designation. At buildout, Alternative 2 would have a lower level of development than would be allowed under the 2030 General Plan. Exhibit 5-2 illustrates Alternative 2.

- **Alternative 3. Centralized Development.** Relative to the 2030 General Plan, this alternative assumes that the only urban development north of the City would occur between the railroad line and SR 99. Alternative 3 includes two mixed-use neighborhood centers in the Planned Growth Area. Approximately 662 acres in the AOC have no future use designation in this alternative. At buildout, this alternative would result in a lower level of development than the 2030 General Plan. Exhibit 5-3 illustrates Alternative 3.

Exhibit 5-1
Alternative 1

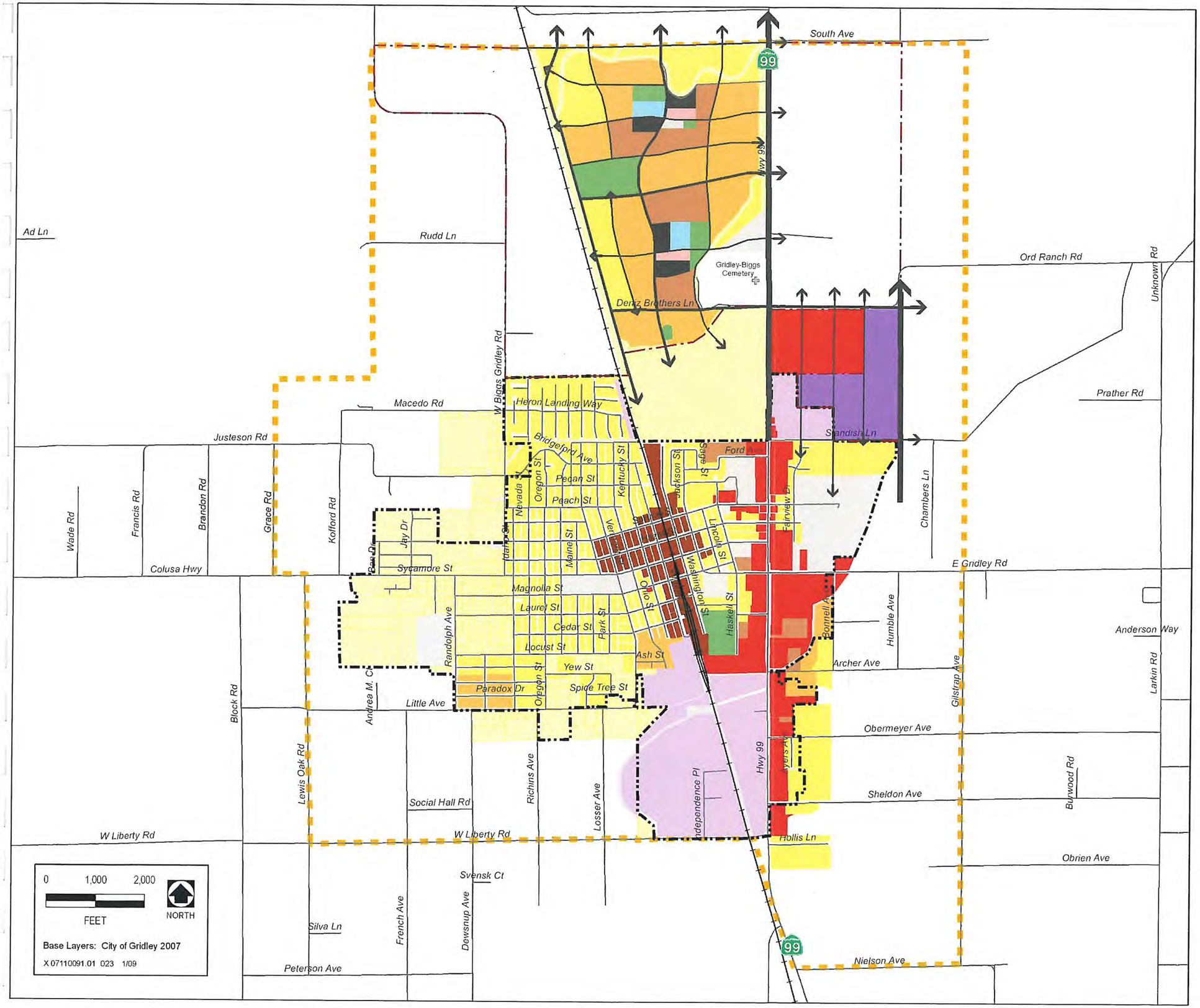


LEGEND

- Agriculture
- Commercial
- Industrial
- Parks
- Public
- Residential, High Density
- Residential, Low Density
- Residential, Medium Density
- ROW
- Right-of-Way, Water
- Residential, Suburban
- City Boundary
- Sphere of Influence
- Major Roads
- Railroad

Source: EDAW 2008

Exhibit 5-3
Alternative 3



LEGEND

- Study Area
- City Boundary
- Planned Growth Area

General Plan Land Use Designations

- Commercial (C)
- Neighborhood Center Mixed Use (NCMU)
- Downtown Mixed Use (DMU)
- Employment: Agricultural Processing/Light Industrial (AG/IN)
- Industrial (M)
- Park (PARK)
- Open Space: Buffer, Drainge, Bike/Ped (OS)
- Public (PUB)
- School (S)
- Residential, High Density (RHD2) (15-30 du/ac)
- Residential, High Density (RHD1) (9-15 du/ac)
- Residential, Medium Density (RMD) (5-8 du/ac)
- Residential, Low Density (RLD) (2-4 du/ac)
- Residential, Very Low Density (RVLD) (0.5-3 du/ac)
- Urban Reserve (UR)

- Collector Street
- Local Road
- Major Road/Highway 99
- Railroad

Source: EDAW 2008

City of Gridley
2030 GENERAL PLAN

5.3 ALTERNATIVES REJECTED FOR FURTHER EVALUATION

Several alternative locations to accommodate the projected growth were considered and rejected. Outward growth to the west and south of the City is constrained by small parcel sizes and difficult access to SR 99 because of the configuration of the highway and railroad lines in this area of the City. Similarly, outward growth to the east of the existing City is constrained by a proposed future bypass for SR 99 (approximately ½-mile east of the existing highway alignment), the presence of prime agricultural soils, and the Feather River. In addition, the cities of Gridley and Biggs and the Butte Local Agency Formation Commission (LAFCo) have previously designated the AOC as the expected growth area for the two cities, and identification of a future plan for this area was an objective of the proposed project.

As noted, previously, three General Plan land use alternatives for the Planned Growth Area were considered by the City Council and Planning Commission, but were rejected in favor of the preferred plan. The preferred plan was chosen based on its compact development pattern, highly connected transportation system, diversity of housing types, open space and park components, and the desire to include neighborhood-centered mixed-use areas, but direct most new commercial growth to the existing City. Although there may be similarities between the previously considered alternatives and those presented in this chapter, the alternatives were specifically reconstituted for the purposes of this EIR analysis. The City determined that a simple repeat of the earlier range of alternatives would not serve the decision makers or public as well as the present range. For example, some of the General Plan alternatives included more low density residential development compared to the 2030 General Plan. This is not helpful for comparison in an EIR since the purpose of an alternatives analysis is to *reduce* potentially significant environmental impacts compared to the impacts of the proposed project. Some aspects of the previous alternatives could have instead *increased* environmental impacts relative to the 2030 General Plan.

5.4 ALTERNATIVE 1. NO PROJECT: BUILDOUT OF THE EXISTING GENERAL PLAN

5.4.1 DESCRIPTION

The No Project Alternative assumes that the 2030 General Plan would not be implemented, and that the City would build out as indicated by the existing (pre-update) General Plan. The land use pattern of the existing General Plan allocates only a few parcels of land outside the existing city limits/sphere of influence for urban use. Commercial, residential, and industrial uses occupy much smaller areas compared to the proposed project. The expected population growth for the City of Gridley would be accommodated through some combination of intensification of development in the existing city limits, and development within the City's existing Sphere of Influence. Between 1,000 and 1,800 housing units could be constructed within the current City Limits and existing SOI on vacant land and agricultural properties designated for residential development, compared to a total of about 3,850 to 4,700 housing units in the existing city and Planned Growth Area under the preferred plan. About 1 million square feet of commercial development and 2.2 million square feet of industrial development would also be possible under this alternative, compared to 1 million to 1.3 million square feet of commercial and 3.2 million to 4 million square feet of industrial development in the preferred plan.

This alternative could potentially meet Objective 7 (Project Objectives are presented in Section 3.0, "Project Description," on page 3-3), preservation of agricultural and open space around the edges of the Gridley community. However, other objectives would not be met. This alternative would not provide policy guidelines for future development and conservation, provide a variety of housing types, focus commercial activity on downtown Gridley and the existing commercial area, or direct the development pattern of Gridley's portion of the Area of Concern (AOC). Most fundamentally, this alternative would not proactively plan and guide the long-term growth of the City through 2030. This alternative would not provide adequate sites to meet the City's obligations under state Housing Element law.

5.4.2 ENVIRONMENTAL EFFECTS

IMPACTS ON LAND USE, POPULATION, AND HOUSING

For the proposed project, impacts related to division of existing communities, conflict with other plans, or conflict with an adopted Habitat Conservation Plan (HCP) would all be less than significant. However, the proposed project substantially increases the level of development compared to buildout of the existing (pre-update) General Plan. The impact related to inducement of population growth is significant for the proposed project. This alternative, by contrast, would continue the existing (pre-update) General Plan and impacts related to population growth may be reduced compared to the proposed project.

Neither the proposed project nor Alternative 1 would cause significant impacts related to division of existing communities, conflict with other plans, or conflict with an adopted HCP. Impacts on Land Use, Population, and Housing would be less than for the proposed project. [Lesser]

IMPACTS ON AIR QUALITY

The 2030 General Plan would result in significant and unavoidable impacts related to short-term, construction-related emissions; Air Quality Plan consistency; long-term operational emissions of criteria air pollutants and precursors; and exposure to odors. Impacts related to long term, operational mobile-source emissions of CO and exposure of sensitive receptors to Toxic Air Contaminants would be less than significant.

Alternative 1 would result in designation of less land as residential, commercial, and industrial and, at buildout, would have a lower level of development than the 2030 General Plan. This would result in fewer emissions sources overall. However, even the smaller increase in urbanized land uses in Alternative 1 would result in substantial air quality impacts. An additional 1,000 to 1,800 residential units and would be developed in the City and its Sphere of Influence, along with 1 million square feet of commercial development and 2.2 million square feet of industrial development, would occur in this alternative. Thus, the significant and unavoidable impacts related to short-term construction emissions, consistency with air quality plans, long-term operational emissions of criteria air pollutants and precursors, and exposure to odors would all be less in Alternative 1 relative to the proposed project, but would not be reduced below the level of significance. [Similar]

IMPACTS RELATED TO NOISE

The 2030 General Plan would result in significant and unavoidable impacts related to transportation noise levels, because new sensitive receptors would be placed in proximity to existing and new roadway noise sources and the UPRR Main Line. Although policies and programs of the 2030 General Plan would require reduction of these noise impacts, traffic source noise levels would still create a substantial permanent increase over current ambient noise levels at the on-site existing noise-sensitive receptors which may not be able to be reduced by planning and design features. Other noise impacts, including exposure to construction noise exceeding City standards, exposure to stationary and area-source noise levels exceeding City Standards, and exposure to vibration, would all be less than significant based on compliance with existing regulations.

Although Alternative 1 would result in less new development than the proposed project, new sensitive receptors would still be constructed in proximity to the UPRR Main Line and major roadways. Although this impact would be less than with the proposed project, it would remain a significant and unavoidable impact. Similarly, although other noise impacts would be smaller based on the reduced development footprint of Alternative 1, these impacts would be less than significant with the proposed project. [Similar]

Impacts on Transportation and Circulation

In the proposed plan, the impact on traffic level of service (LOS) on SR 99 would be significant and unavoidable. The impact of the proposed plan on traffic LOS on local streets outside the City's boundary and sphere of influence is potentially significant and unavoidable, because the City lacks a mechanism to ensure necessary improvements are made to these roads. The impact of increased traffic volumes on local streets would also be significant. Impacts related to LOS on Gridley's roads and streets; construction of new city roads, streets, and traffic controls; additional vehicular and pedestrian traffic at existing Union Pacific Railroad (UPRR) crossings; and increased traffic at commercial areas would be significant, but reduced to a less-than-significant level following mitigation.

As in the proposed project, Alternative 1 would result in significant and unavoidable impacts to LOS on SR 99, and LOS on local streets outside the City's boundary and sphere of influence. The impact related to increased traffic volumes on local streets would be reduced, but would still be significant based on the increase in traffic volumes expected over existing conditions. The impact related to construction of new city roads, streets, and traffic controls would potentially be greater in Alternative 1 compared to the preferred plan; implementation of the proposed project would result in an update to the City's transportation fee structure, and this update is not required in Alternative 1. Other impacts, including LOS on Gridley's roads and streets; additional vehicular and pedestrian traffic at existing Union Pacific Railroad (UPRR) crossings; and increased traffic at commercial areas would be reduced in Alternative 1, but these impacts are less than significant following mitigation for the preferred plan, so no impacts would be reduced below the level of significance. Alternative 1 would not include an update to the City's transportation fee structure and the impact related to construction of new city roads, streets, and traffic controls would be greater in this alternative. Transportation impacts would be greater in Alternative 1 compared to the proposed project. [Greater]

Impacts on Hydrology and Water Resources

Impacts on Hydrology and Water Resources, including violation of water quality standards, erosion and sedimentation, construction-related water quality impacts, interference with groundwater recharge, dam failure, and the potential for flooding from increased stormwater runoff would be less-than-significant for the proposed project. The proposed project would not result in significant impacts related to hydrology and water resources.

Alternative 1 would designate less land for residential, commercial, and industrial uses and, at buildout, would have a lower level of development than the 2030 General Plan. However, Alternative 1 would not result in the implementation of additional policies to protect water quality, prevent flooding, and promote natural drainage systems, as would the 2030 General Plan. Therefore, Alternative 1 would result in a similar level of violation of water quality standards as the 2030 General Plan. [Similar]

Impacts on Biological Resources

In the proposed project, significant impacts related to loss of special status plants, disturbance of raptor nests and nests of migratory birds, loss or disturbance of Swainson's hawk foraging habitat or nest sites, loss of giant garter snake, loss and degradation of habitat for valley elderberry longhorn beetle (VELB), loss and degradation of sensitive natural communities, loss and degradation of federally protected wetlands, potential introduction and spread of invasive weeds would all be reduced to less than significant levels following mitigation.

Alternative 1 would result in a smaller area of urban development in the plan area than the proposed project, but this alternative would still result in urban development, in areas which are currently undeveloped but already designated for urban use. Impacts on biological resources would therefore be slightly reduced compared to the proposed project, although no significant impacts would be reduced below the level of significance. Project-level CEQA review of individual development projects in Alternative 1 would result in mitigation measures similar to those proposed in the proposed project to reduce significant impacts below the level of significance. Because no

impacts would be reduced below the level of significance by this alternative, impacts would be similar to those of the proposed project. [Similar]

Impacts on Geology, Soils, Minerals, and Paleontological Resources

Impacts in this issue area, including potential for exposure to seismic ground shaking, potential for seismic ground failure, soil erosion or topsoil loss, potential for unstable soils, construction in areas with expansive soils or areas with poor septic suitability, and possible damage to paleontological resources would all be less than significant for the proposed project.

Under Alternative 1, no additional land in the Planned Growth Area (1,225 acres) would be converted from agricultural uses or designated as new commercial, industrial, or residential uses than under the 2030 General Plan. Based on this reduction in acreage, fewer impacts from soil conditions or geologic hazards would occur under Alternative 1, but no impacts would be reduced below the level of significance. Because no significant impacts would be avoided for Alternative 1 compared to the proposed plan, impacts are similar. [Similar]

Impacts on Agricultural Resources

The proposed project would result in significant and unavoidable impacts related to conversion of important farmland to urban use and conflict with Williamson Act contracts.

Alternative 1 would result in a significantly smaller area of urban development compared to the proposed project, but important farmland would still be converted to urban use, resulting in a significant and unavoidable impact. None of the areas designated for urban use in Alternative 1 are under Williamson Act contracts, however, so this alternative would avoid a significant and unavoidable impact of the proposed project. This alternative would result in lesser agricultural resources impacts compared to the proposed project. [Lesser]

Impacts on Public Services and Utilities

The preferred plan would result in significant and unavoidable impacts related to the provision of water supply, wastewater treatment and disposal, construction of new stormwater drainage facilities or expansion of existing facilities, fire protection and emergency medical services, law enforcement services, landfill capacity and solid waste disposal, and parks and recreation services and facilities. The proposed project would have less-than-significant impacts to provision of electrical service, the public school system, The proposed project would result in no impact related to landfill capacity and solid waste disposal.

Although Alternative 1 would result in less urban development and fewer residents than the proposed project, the city has an existing deficit in parkland. Because Alternative 1 relies on the City's existing general plan designations, 5 acres of parkland per resident would not be provided in Alternative 1. This would be a significant impact. The City's wastewater conveyance and treatment system is operating near or at capacity. Policies and goals of the preferred plan would require additional review and verification of adequate wastewater capacity for new projects. In the absence of these requirements, capacity may not be available to serve additional growth in areas currently designated for urban development, a potentially significant impact. Other impacts would be similar in Alternative 1 compared to the proposed project. Impacts would be similar in this alternative compared to the proposed project. [Similar]

Impacts on Cultural Resources

The proposed project would result in a potentially significant impact related to destruction or damage of as-yet undiscovered cultural resources. This impact would be reduced to a less-than-significant level by mitigation measures.

Alternative 1 would result in a smaller area of urban development (the 1,224-acre Planned Growth Area would not be planned for development), but the potential for unknown cultural and historical resources is also present in the existing city, which is mostly unsurveyed, and this Alternative would not reduce this impact below the level of significance. Cultural resource impacts would be similar in Alternative 1 compared to the proposed project. [Similar]

IMPACTS ON VISUAL RESOURCES

The proposed project would result in significant and unavoidable impacts related to scenic vistas and visual resources, degradation of visual character, and increased nighttime lighting and daytime glare. Although Alternative 1 would result in a smaller area of urban development in the plan area, increased population and urban development would still result in significant impacts to visual resources. These impacts would be similar under Alternative 1 relative to the proposed project. [Similar]

IMPACTS ON ENERGY

The proposed project would result in less-than-significant impacts related to effects on energy consumption from land use locations and patterns, and from increased energy demand. Because Alternative 1 would add a smaller population to a relatively modest area at the fringe of the city, which is currently a concise, compact community, these impacts would be similar to those under the proposed project. [Similar]

IMPACTS RELATED TO HAZARDS AND HAZARDOUS MATERIALS

The proposed project would result in less-than-significant impacts related to routine transport, use, and disposal of hazardous materials; interference with an adopted emergency response plan; exposure of structures to urban or wildland fires; and public health hazards from development on a known hazardous materials site. Because Alternative 1 lacks goals and policies of the preferred plan which would reduce hazards from development on a known hazardous materials site, this impact would be potentially significant for Alternative 1. Impacts related to hazards and hazardous materials are greater for Alternative 1 compared to the proposed project. [Greater]

IMPACTS RELATED TO CLIMATE CHANGE

The proposed project would result in significant and unavoidable impacts related to increases in greenhouse gas emissions, and impacts of climate change on the Plan Area would be less than significant. Under Alternative 1, proposed goals, policies, and programs of the 2030 General Plan would not be put in place, and land use patterns intended to reduce vehicle miles traveled (VMT) would not occur. Impacts related to Climate Change would be greater in Alternative 1 compared to the proposed project. [Greater]

5.5 ALTERNATIVE 2. CENTRALIZED DEVELOPMENT WITH URBAN RESERVE

5.5.1 DESCRIPTION

Relative to the 2030 General Plan, this alternative assumes a reduced development footprint in the Planned Growth Area (663 acres compared to 1,224 acres in the proposed project), including an urban reserve area west of the railroad line. This alternative proposes a single mixed-use neighborhood center in the Planned Growth Area. Alternative 2 leaves about 567 acres in the AOC without a future use designation. At buildout, Alternative 2 would have a lower level of development than would be allowed under the 2030 General Plan. Between 2,750 and 3,400 housing units could be constructed within the existing city and Planned Growth Area on vacant land and agricultural properties designated for residential development, compared to a total of about 3,850 to 4,700 housing units in the existing city and Planned Growth Area under the preferred plan. The amount of land available for future commercial development would be similar in this alternative compared to the proposed project, but the

amount of land available for future industrial use would be reduced; about 2.2 million square feet of industrial development would be possible under this alternative, compared to 3.2 million to 4 million square feet of industrial development in the preferred plan.

This alternative could potentially meet many of the project objectives, including preservation of agricultural land, neighborhood orientation, bicycle and pedestrian connections, providing a variety of housing types, and compensation for service provision. However, this alternative would not provide new employment opportunities in Gridley (since no land is dedicated for agriculture-related industries), and would not direct the development pattern of Gridley's portion of the AOC as effectively as the proposed project, because about 567 acres of land in the AOC would remain without a land use designation in this alternative. Most fundamentally, this alternative might not provide enough land designated for urban development to proactively plan and guide the long-term growth of the City through 2030.

5.5.2 Environmental Effects

Impacts on Land Use

For the proposed project, impacts related to division of existing communities, conflict with other plans, or conflict with an adopted Habitat Conservation Plan (HCP) would all be less than significant. However, the proposed project offers a buildout potential larger than is required to meet the projected population increase for Gridley through 2030. The impact related to inducement of population growth is significant for the proposed project.

Alternative 2 would result in a similar pattern of urban development to that of the proposed project, although a smaller portion of the Planned Growth area is designated for urban development. Therefore, impacts related to division of existing communities, conflict with other plans, or conflict with an adopted HCP would be similar to those under the proposed project. The buildout potential for this alternative (2,700 to 3,400 housing units) would be larger than that required to meet the projected population increase for Gridley through 2030, so the impact related to inducement of population growth, although less than for the proposed project, would still be significant. Because no impacts would be reduced below the level of significance, impacts in this issue area would be similar for Alternative 2 compared to the proposed project. [Similar]

Impacts on Air Quality

The 2030 General Plan would result in significant and unavoidable impacts related to short-term, construction-related emissions; Air Quality Plan consistency; long-term operational emissions of criteria air pollutants and precursors; and exposure to odors. Impacts related to long term, operational mobile-source emissions of CO and exposure of sensitive receptors to Toxic Air Contaminants would be less than significant.

Alternative 2 would result in designation of less land as residential, commercial, and industrial and, at buildout, would have a lower level of development than the 2030 General Plan. This would result in fewer emissions sources overall. However, even the smaller increase in urbanized land uses in Alternative 2 would result in substantial air quality impacts. An additional 2,750 to 3,400 residential units and would be developed in the Plan Area, along with 1 million to 1.3 million square feet of commercial development and 2.2 million square feet of industrial development, would occur in this alternative. Thus, the significant and unavoidable impacts related to short-term construction emissions, consistency with air quality plans, long-term operational emissions of criteria air pollutants and precursors, and exposure to odors would all be less in Alternative 2 relative to the proposed project, but would not be reduced below the level of significance. [Similar]

Impacts Related to Noise

The 2030 General Plan would result in significant and unavoidable impacts related to transportation noise levels, because new sensitive receptors would be placed in proximity to existing and new roadway noise sources and the

UPRR Main Line. Although policies and programs of the 2030 General Plan would require reduction of these noise impacts, traffic source noise levels would still create a substantial permanent increase over current ambient noise levels at the on-site existing noise-sensitive receptors which may not be able to be reduced by planning and design features. Other noise impacts, including exposure to construction noise exceeding City standards, exposure to stationary and area-source noise levels exceeding City Standards, and exposure to vibration, would all be less than significant based on compliance with existing regulations.

Although Alternative 2 would result in less new development than the proposed project, new sensitive receptors would still be constructed in proximity to the UPRR Main Line and major roadways. Although this impact would be less than with the proposed project, it would remain a significant and unavoidable impact. Similarly, although other noise impacts would be smaller based on the reduced development footprint of Alternative 2, these impacts would be less than significant with the proposed project. [Similar]

Impacts on Transportation and Circulation

In the proposed plan, the impact on traffic level of service (LOS) on SR 99 would be significant and unavoidable. The impact of the proposed plan on traffic LOS on local streets outside the City's boundary and sphere of influence are potentially significant and unavoidable, because the City lacks a mechanism to ensure necessary improvements are made to these roads. The impact of increased traffic volumes on local streets would also be significant. Impacts related to LOS on Gridley's roads and streets; construction of new city roads, streets, and traffic controls; additional vehicular and pedestrian traffic at existing Union Pacific Railroad (UPRR) crossings; and increased traffic at commercial areas would be significant, but reduced to a less-than-significant level following mitigation.

As in the proposed project, Alternative 2 would result in significant and unavoidable impacts to LOS on SR 99, and LOS on local streets outside the City's boundary and sphere of influence. The impact related to increased traffic volumes on local streets would be reduced because of the lower residential and job-generating potential, but would still be significant based on the increase in traffic volumes expected over existing conditions. The impact related to construction of new city roads, streets, and traffic controls would be similar to the preferred plan. Other impacts, including LOS on Gridley's roads and streets; additional vehicular and pedestrian traffic at existing Union Pacific Railroad (UPRR) crossings; and increased traffic at commercial areas would be reduced in Alternative 2, but these impacts are less than significant following mitigation for the preferred plan, so no impacts would be reduced below the level of significance. Transportation impacts would be similar in Alternative 2 compared to the proposed project. [Similar]

Impacts on Hydrology and Water Resources

Impacts on Hydrology and Water Resources, including violation of water quality standards, erosion and sedimentation, construction-related water quality impacts, interference with groundwater recharge, dam failure, and the potential for flooding from increased stormwater runoff would be less-than-significant for the proposed project. The proposed project would not result in significant impacts related to hydrology and water resources.

Alternative 2 would designate less land for residential, commercial, and industrial uses and, at buildout, would have a lower level of development than the 2030 General Plan. However, Alternative 2 would not result in the implementation of additional policies to protect water quality, prevent flooding, and promote natural drainage systems, as would the 2030 General Plan. Therefore, Alternative 1 would result in a similar level of violation of water quality standards as the 2030 General Plan. [Similar]

Impacts on Biological Resources

In the proposed project, significant impacts related to loss of special status plants, disturbance of raptor nests and nests of migratory birds, loss or disturbance of Swainson's hawk foraging habitat or nest sites, loss of giant garter

snake, loss and degradation of habitat for VELB, loss and degradation of sensitive natural communities, loss and degradation of federally protected wetlands, potential introduction and spread of invasive weeds would all be reduced to less than significant levels following mitigation.

Alternative 2 would result in a smaller area of urban development in the plan area than the proposed project, but this alternative would still result in expansion of urban development to new areas. Impacts on biological resources would therefore be slightly reduced compared to the proposed project, although no significant impacts would be reduced below the level of significance. Because no impacts would be reduced below the level of significance by this alternative, impacts would be similar to those of the proposed project. [Similar]

Impacts on Geology, Soils, Minerals, and Paleontological Resources

Impacts in this issue area, including potential for exposure to seismic ground shaking, potential for seismic ground failure, soil erosion or topsoil loss, potential for unstable soils, construction in areas with expansive soils or areas with poor septic suitability, and possible damage to paleontological resources would all be less than significant for the proposed project.

Under Alternative 2,567 fewer acres in the 1,225-acre Planned Growth Area would be converted from agricultural uses or designated as new commercial, industrial, or residential uses compared to the proposed project. Based on this reduction in acreage, fewer impacts from soil conditions or geologic hazards would occur under Alternative 2, but no impacts would be reduced below the level of significance. Because no significant impacts would be avoided for Alternative 2 compared to the proposed plan, impacts are similar. [Similar]

Impacts on Agricultural Resources

The proposed project would result in significant and unavoidable impacts related to conversion of important farmland to urban use and conflict with Williamson Act contracts.

Alternative 2 would result in a significantly smaller area of urban development compared to the proposed project (567 fewer acres in the Planned Growth Area), but important farmland would still be converted to urban use, resulting in a significant and unavoidable impact. Because the same area under a Williamson Act contract would be proposed for urban development in Alternative 2 as in the proposed project, this impact would be similar to the proposed project. The alternative would result in similar agricultural resources impacts compared to the proposed project. [Similar]

Impacts on Public Services and Utilities

The preferred plan would result in significant and unavoidable impacts related to the provision of water supply, wastewater treatment and disposal, construction of new stormwater drainage facilities or expansion of existing facilities, fire protection and emergency medical services, law enforcement services, landfill capacity and solid waste disposal, and parks and recreation services and facilities. The proposed project would have less-than-significant impacts to provision of electrical service, the public school system, The proposed project would result in no impact related to landfill capacity and solid waste disposal.

Because the development pattern proposed in Alternative 2 is similar to, but slightly smaller than, that of the proposed project, similar programs and capacity are assumed to be available in this alternative as in the proposed project. Public services and utilities impacts would therefore be similar in Alternative 2 compared to the proposed project. [Similar]

Impacts on Cultural Resources

The proposed project would result in a potentially significant impact related to destruction or damage of as-yet undiscovered cultural resources. This impact would be reduced to a less-than-significant level by mitigation measures.

Alternative 2 would result in a smaller area of urban development (only 663 acres in the 1,224-acre Planned Growth Area would be planned for development), but the potential for unknown cultural and historical resources is present in the remaining portion of the Planned Growth Area, as well as the existing city, and this alternative would not reduce this impact below the level of significance. Cultural resource impacts would be similar in Alternative 2 compared to the proposed project. [Similar]

Impacts on Visual Resources

The proposed project would result in significant and unavoidable impacts related to scenic vistas and visual resources, degradation of visual character, and increased nighttime lighting and daytime glare. Although Alternative 2 would result in a smaller area of urban development in the plan area, increased population and urban development would still result in significant impacts to visual resources. These impacts would be similar under Alternative 2 relative to the proposed project. [Similar]

Impacts on Energy

The proposed project would result in less-than-significant impacts related to effects on energy consumption from land use locations and patterns, and from increased energy demand. Because Alternative 2 would proposes a similar pattern of development in a smaller portion of the Planned Growth Area, these impacts would be similar to those under the proposed project. [Similar]

Impacts related to Hazards and Hazardous Materials

The proposed project would result in less-than-significant impacts related to routine transport, use, and disposal of hazardous materials; interference with an adopted emergency response plan; exposure of structures to urban or wildland fires; and public health hazards from development on a known hazardous materials site. Alternative 2 proposes similar land uses in a smaller footprint compared to the proposed project. Since impacts related to hazards and hazardous materials are less than significant for the proposed project, no significant impacts are avoided in this alternative compared to the proposed project. [Similar]

Impacts related to Climate Change

The proposed project would result in significant and unavoidable impacts related to increases in greenhouse gas emissions, and impacts of climate change on the Plan Area would be less than significant. Under Alternative 2, the area proposed for urban development would be smaller, with reductions in both residential and job-generating land uses. Impacts related to Climate Change would be similar in Alternative 2 compared to the proposed project. [Similar]

5.6 ALTERNATIVE 3. CENTRALIZED DEVELOPMENT

5.6.1 Description

Relative to the 2030 General Plan, this alternative assumes a reduced development footprint in the Planned Growth Area (563 acres compared to 1,224 acres in the proposed project), with no new areas proposed for urban development west of the railroad line. This alternative proposes two mixed-use neighborhood center in the Planned Growth Area. Alternative 3 leaves about 662 acres in the AOC without a future use designation. At

buildout, Alternative 3 would have a lower level of development than would be allowed under the 2030 General Plan. Between 2,600 and 3,200 housing units could be constructed within the existing city and Planned Growth Area on vacant land and agricultural properties designated for residential development, compared to a total of about 3,850 to 4,700 housing units in the existing city and Planned Growth Area under the preferred plan. The amount of land available for future commercial development and industrial development would be similar in this alternative compared to the proposed project.

This alternative could potentially meet many of the project objectives, including preservation of agricultural land, neighborhood orientation, bicycle and pedestrian connections, providing a variety of housing types, providing new employment opportunities in Gridley, and compensation for service provision. However, this alternative would not direct the development pattern of Gridley's portion of the AOC as effectively as the proposed project, because about 662 acres of land in the AOC would remain without a land use designation in this alternative. Most fundamentally, this alternative might not provide enough land designated for urban development to proactively plan and guide the long-term growth of the City through 2030.

5.6.2 Environmental Effects

Impacts on Land Use

For the proposed project, impacts related to division of existing communities, conflict with other plans, or conflict with an adopted Habitat Conservation Plan (HCP) would all be less than significant. However, the proposed project offers a buildout potential larger than is required to meet the projected population increase for Gridley through 2030. The impact related to inducement of population growth is significant for the proposed project.

Alternative 3 would result in a similar pattern of urban development to that of the proposed project, although a smaller portion of the Planned Growth area is designated for urban development. Therefore, impacts related to division of existing communities, conflict with other plans, or conflict with an adopted HCP would be similar to those under the proposed project. The buildout potential for this alternative (2,600 to 3,200 housing units) would be larger than that required to meet the projected population increase for Gridley through 2030, so the impact related to inducement of population growth, although less than for the proposed project, would still be significant. Because no significant impacts would be avoided, impacts in this issue area would be similar for Alternative 2 compared to the proposed project. [Similar]

Impacts on Air Quality

The 2030 General Plan would result in significant and unavoidable impacts related to short-term, construction-related emissions; Air Quality Plan consistency; long-term operational emissions of criteria air pollutants and precursors; and exposure to odors. Impacts related to long term, operational mobile-source emissions of CO and exposure of sensitive receptors to Toxic Air Contaminants would be less than significant.

Alternative 3 would result in designation of less land as residential, commercial, and industrial and, at buildout, would have a lower level of development than the 2030 General Plan. This would result in fewer emissions sources overall. However, even the smaller increase in urbanized land uses in Alternative 2 would result in substantial air quality impacts. An additional 2,600 to 3,200 residential units and would be developed in the Plan Area, along with 1 million to 1.3 million square feet of commercial development and 3.2 million square feet of industrial development, would occur in this alternative. Thus, the significant and unavoidable impacts related to short-term construction emissions, consistency with air quality plans, long-term operational emissions of criteria air pollutants and precursors, and exposure to odors would all be less in Alternative 3 relative to the proposed project, but would not be reduced below the level of significance. [Similar]

Impacts Related to Noise

The 2030 General Plan would result in significant and unavoidable impacts related to transportation noise levels, because new sensitive receptors would be placed in proximity to existing and new roadway noise sources and the UPRR Main Line. Although policies and programs of the 2030 General Plan would require reduction of these noise impacts, traffic source noise levels would still create a substantial permanent increase over current ambient noise levels at the on-site existing noise-sensitive receptors which may not be able to be reduced by planning and design features. Other noise impacts, including exposure to construction noise exceeding City standards, exposure to stationary and area-source noise levels exceeding City Standards, and exposure to vibration, would all be less than significant based on compliance with existing regulations.

Although Alternative 3 would result in less new development than the proposed project, new sensitive receptors would still be constructed in proximity to the UPRR Main Line and major roadways. Although this impact would be less than with the proposed project, it would remain a significant and unavoidable impact. Similarly, although other noise impacts would be smaller based on the reduced development footprint of Alternative 3, these impacts would be less than significant with the proposed project. [Similar]

Impacts on Transportation and Circulation

In the proposed plan, the impact on traffic level of service (LOS) on SR 99 would be significant and unavoidable. The impact of the proposed plan on traffic LOS on local streets outside the City's boundary and sphere of influence are potentially significant and unavoidable, because the City lacks a mechanism to ensure necessary improvements are made to these roads. The impact of increased traffic volumes on local streets would also be significant. Impacts related to LOS on Gridley's roads and streets; construction of new city roads, streets, and traffic controls; additional vehicular and pedestrian traffic at existing Union Pacific Railroad (UPRR) crossings; and increased traffic at commercial areas would be significant, but reduced to a less-than-significant level following mitigation.

As in the proposed project, Alternative 3 would result in significant and unavoidable impacts to LOS on SR 99, and LOS on local streets outside the City's boundary and sphere of influence. The impact related to increased traffic volumes on local streets would be reduced because of the lower residential and job-generating potential, but would still be significant based on the increase in traffic volumes expected over existing conditions. The impact related to construction of new city roads, streets, and traffic controls would be similar to the preferred plan. Other impacts, including LOS on Gridley's roads and streets; additional vehicular and pedestrian traffic at existing Union Pacific Railroad (UPRR) crossings; and increased traffic at commercial areas would be reduced in Alternative 3, but these impacts are less than significant following mitigation for the preferred plan, so no impacts would be reduced below the level of significance. Transportation impacts would be similar in Alternative 3 compared to the proposed project. [Similar]

Impacts on Hydrology and Water Resources

Impacts on Hydrology and Water Resources, including violation of water quality standards, erosion and sedimentation, construction-related water quality impacts, interference with groundwater recharge, dam failure, and the potential for flooding from increased stormwater runoff would be less-than-significant for the proposed project. The proposed project would not result in significant impacts related to hydrology and water resources.

Alternative 3 would designate less land for residential, commercial, and industrial uses and, at buildout, would have a lower level of development than the 2030 General Plan. However, Alternative 3 would not result in the implementation of additional policies to protect water quality, prevent flooding, and promote natural drainage systems, as would the 2030 General Plan. Therefore, Alternative 3 would result in a similar level of violation of water quality standards as the 2030 General Plan.

Impacts on Biological Resources

In the proposed project, significant impacts related to loss of special status plants, disturbance of raptor nests and nests of migratory birds, loss or disturbance of Swainson's hawk foraging habitat or nest sites, loss of giant garter snake, loss and degradation of habitat for VELB, loss and degradation of sensitive natural communities, loss and degradation of federally protected wetlands, potential introduction and spread of invasive weeds would all be reduced to less than significant levels following mitigation.

Alternative 3 would result in a smaller area of urban development in the plan area than the proposed project, but this alternative would still result in expansion of urban development to new areas. Impacts on biological resources would therefore be slightly reduced compared to the proposed project, although no significant impacts would be reduced below the level of significance. Because no impacts would be reduced below the level of significance by this alternative, impacts would be similar to those of the proposed project. [Similar]

Impacts on Geology, Soils, Minerals, and Paleontological Resources

Impacts in this issue area, including potential for exposure to seismic ground shaking, potential for seismic ground failure, soil erosion or topsoil loss, potential for unstable soils, construction in areas with expansive soils or areas with poor septic suitability, and possible damage to paleontological resources would all be less than significant for the proposed project.

Under Alternative 3,662 fewer acres in the 1,225-acre Planned Growth Area would be converted from agricultural uses or designated as new commercial, industrial, or residential uses compared to the proposed project. Based on this reduction in acreage, fewer impacts from soil conditions or geologic hazards would occur under Alternative 3, but no impacts would be reduced below the level of significance. Because no significant impacts would be avoided for Alternative 2 compared to the proposed plan, impacts are similar. [Similar]

Impacts on Agricultural Resources

The proposed project would result in significant and unavoidable impacts related to conversion of important farmland to urban use and conflict with Williamson Act contracts.

Alternative 3 would result in a significantly smaller area of urban development compared to the proposed project (662 fewer acres in the Planned Growth Area), but important farmland would still be converted to urban use, resulting in a significant and unavoidable impact. Because the same area under a Williamson Act contract would be proposed for urban development in Alternative 3 as in the proposed project, this impact would be similar to the proposed project. The alternative would result in similar agricultural resources impacts compared to the proposed project. [Similar]

Impacts on Public Services and Utilities

The preferred plan would result in significant and unavoidable impacts related to the provision of water supply, wastewater treatment and disposal, construction of new stormwater drainage facilities or expansion of existing facilities, fire protection and emergency medical services, law enforcement services, landfill capacity and solid waste disposal, and parks and recreation services and facilities. The proposed project would have less-than-significant impacts to provision of electrical service, the public school system, The proposed project would result in no impact related to landfill capacity and solid waste disposal.

Because the development pattern proposed in Alternative 3 is similar to, but slightly smaller than, that of the proposed project, similar programs and capacity are assumed to be available in this alternative as in the proposed project. Public services and utilities impacts would therefore be similar in Alternative 3 compared to the proposed project. [Similar]

Impacts on Cultural Resources

The proposed project would result in a potentially significant impact related to destruction or damage of as-yet undiscovered cultural resources. This impact would be reduced to a less-than-significant level by mitigation measures.

Alternative 3 would result in a smaller area of urban development (only 563 acres in the 1,224-acre Planned Growth Area would be planned for development), but the potential for unknown cultural and historical resources is present in the remaining portion of the Planned Growth Area, as well as the existing city, and this alternative would not reduce this impact below the level of significance. Cultural resource impacts would be similar in Alternative 3 compared to the proposed project. [Similar]

Impacts on Visual Resources

The proposed project would result in significant and unavoidable impacts related to scenic vistas and visual resources, degradation of visual character, and increased nighttime lighting and daytime glare. Although Alternative 3 would result in a smaller area of urban development in the plan area, increased population and urban development would still result in significant impacts to visual resources. These impacts would be similar under Alternative 3 relative to the proposed project. [Similar]

Impacts on Energy

The proposed project would result in less-than-significant impacts related to effects on energy consumption from land use locations and patterns, and from increased energy demand. Because Alternative 3 would proposes a similar pattern of development in a smaller portion of the Planned Growth Area, these impacts would be similar to those under the proposed project. [Similar]

Impacts related to Hazards and Hazardous Materials

The proposed project would result in less-than-significant impacts related to routine transport, use, and disposal of hazardous materials; interference with an adopted emergency response plan; exposure of structures to urban or wildland fires; and public health hazards from development on a known hazardous materials site. Alternative 3 proposes similar land uses in a smaller footprint compared to the proposed project. Since impacts related to hazards and hazardous materials are less than significant for the proposed project, no significant impacts are avoided in this alternative compared to the proposed project. [Similar]

Impacts Related to Climate Change

The proposed project would result in significant and unavoidable impacts related to increases in greenhouse gas emissions, and impacts of climate change on the Plan Area would be less than significant. Under Alternative 2, the area proposed for urban development would be smaller, with reductions in both residential and job-generating land uses. Impacts related to Climate Change would be similar in Alternative 2 compared to the proposed project. [Similar]

5.7 SUMMARY OF COMPARATIVE EFFECTS OF THE ALTERNATIVES

Table 5-1 provides a summary comparison of the environmental impacts of the alternatives, as presented in the environmental analysis above, to the environmental impacts of the 2030 General Plan (the proposed project). The environmental impacts of the 2030 General Plan are addressed in detail throughout this EIR.

Table 5-1 Comparison of Environmental Impacts of Alternatives to the 2030 General Plan			
Environmental Topic	Alternative 1. No Project: Existing General Plan	Alternative 2. Centralized Development with Urban Reserve	Alternative 3. Centralized Development
Land Use	Lesser	Similar	Similar
Air Quality	Similar	Similar	Similar
Noise	Similar	Similar	Similar
Transportation and Circulation	Greater	Similar	Similar
Hydrology and Water Resources	Similar	Similar	Similar
Biological Resources	Similar	Similar	Similar
Geology, Soils, Minerals, and Paleontological Resources	Similar	Similar	Similar
Agricultural Resources	Lesser	Similar	Similar
Public Services and Utilities	Similar	Similar	Similar
Cultural Resources	Similar	Similar	Similar
Aesthetic Resources	Similar	Similar	Similar
Energy	Similar	Similar	Similar
Hazards and Hazardous Materials	Greater	Similar	Similar
Climate Change	Greater	Similar	Similar
Source: Data provided by EDAW in 2009			

5.8 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the alternatives to the 2030 General Plan, CEQA requires that an "environmentally superior" alternative among the alternatives considered be selected and that the reasons for such selection be disclosed. In general, the environmentally superior alternative is the alternative that would generate the fewest or least severe adverse impacts.

For the purposes of this EIR, Alternative 3 is environmentally superior. Although no significant impacts of the proposed project would be reduced below the level of significance in Alternative 3, this alternative would result in reductions to impacts in the greatest number of topic areas compared to the 2030 General Plan.

The project objectives, for the purposes of this EIR, are contained in Chapter 3, "Project Description." It is assumed that any of the alternatives described in this chapter could be designed to achieve the majority of the community's goals, as expressed throughout the 2030 General Plan.

6 OTHER CEQA CONSIDERATIONS

6.1 CUMULATIVE EFFECTS

Section 15130 of the State CEQA Guidelines requires the analysis of all cumulatively considerable impacts resulting from a proposed project. Section 15355 defines a cumulative impact as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." This chapter identifies cumulative impacts that could be created as a result of implementation of the 2030 General Plan.

Cumulative impacts can originate from one project or from separate projects. Cumulative impacts result when two or more impacts of a project combine and increase the severity or significance of either impact. Cumulative impacts can also be created when impacts from separate projects combine to make a compound impact that is more severe than the impacts would have been had the projects occurred in isolation. This chapter examines the cumulative effects of the 2030 General Plan—that is, the impacts of the 2030 General Plan when combined with impacts resulting from buildout of plans for Butte County, nearby cities, and other projects in the region.

Effects related to climate change are inherently cumulative in nature. A detailed discussion of effects of the 2030 General Plan related to climate change is presented in Section 4.14.

6.1.1 METHODS OF ANALYSIS

For the purposes of evaluating cumulative impacts, the State CEQA Guidelines allow the use of two alternative methods to determine the scope of projects to be considered:

- **List method**—A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.

- **Regional growth projections method**—A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document that has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

This analysis uses the regional growth projections method. The analysis examines population, housing, and employment growth projections for individual cities in Butte County, the unincorporated county, and nearby Live Oak and Sutter County. The projections are based on two sources of information: projections through 2030 made by the Butte County Association of Governments (BCAG) in 2006, and buildout assumptions based on review of information (such as adopted General Plans) available from surrounding cities and the county. Specifically, the following General Plans were used:

- Butte County General Plan (Adopted 1979, updated 2000)
- City of Chico General Plan (Adopted 1994, updated 1999)
- City of Biggs General Plan (Adopted 1998)
- City of Oroville General Plan (Adopted 1995)
- City of Live Oak General Plan (Adopted 1992)

All of these surrounding jurisdictions are in the process of updating their General Plans. These updates have the potential to greatly change or increase the development potential of the currently adopted versions of the plans.

6.1.2 GEOGRAPHIC SCOPE

The geographic scope that could be affected by the proposed project varies depending on the issue topic. The general geographic area associated with different environmental effects of the proposed project was used to define the area considered for cumulative impacts. Table 6-1 provides information on the geographic scope considered for cumulative impacts on different resource areas addressed in this DEIR.

Table 6-1
Geographic Scope of Cumulative Impacts

Issue Area	Geographic Area
Land Use	Regional development projected by BCAG projections, and local development identified in Butte County, its cities, and the city of Live Oak.
Population, Housing, and Employment	Butte County, its cities, and the city of Live Oak
Transportation and Circulation	Regional and local facilities, based on Caltrans and BCAG growth projections
Air Quality	Sacramento Valley Air Basin
Noise	Immediate project vicinity where effects are localized
Geology, Soils, and Paleontological Resources	Limited to project site
Hydrology and Water Quality	Sacramento Valley Groundwater Basin, East Butte Subbasin
Public Utilities and Services	Local service providers, including the City of Gridley Electric Department, Gridley Public Works Department, Gridley Fire Department, Gridley Police Department, and the Gridley Unified School District
Agricultural Resources	Butte County
Public Health and Hazards	Immediate project vicinity
Biological Resources	Butte County and the Sacramento Valley
Parks and Open Space	Regional and local facilities
Cultural Resources	Project site and off-site elements and Butte County
Visual Resources	Butte County
Climate Change	Global, regional, and local (project site and vicinity) (See Section 4.14)

Source: Data provided by EDAW in 2009

6.1.3 ANALYSIS OF REGIONAL GROWTH PROJECTIONS

Table 6-2 lists the estimated population, number of households, and number of jobs in the incorporated cities and the unincorporated county in 2006 and the projections for the same in 2030 based on BCAG projections. Data for Gridley have been adjusted to include the additional growth that would result from the adoption and buildout of the Gridley 2030 General Plan.

Table 6-2
Butte County Estimated and Projected Population, Housing, and Employment Levels—2006 and 2030

Jurisdiction	Population		Housing Units		Jobs	
	2006	2030	2006	2030	2006	2030
Incorporated Cities						
Biggs	1,780	3,997	622	1,397	--	--
Chico	79,091	127,212	32,864	52,860	--	--
Gridley	**5,949**	**19,845**	**2,224**	**7,120**	**--**	**--**
Oroville	13,550	28,582	5,785	12,203	--	--
Paradise	26,516	33,667	12,707	16,134	--	--
Unincorporated Butte County	90,323	114,687	39,181	49,749	--	--
Total	**217,209**	**327,990**	**93,383**	**139,463**	**88,714**	**123,539**

Sources: BCAG 2006, City of Gridley 2009 (2030 General Plan)

As shown in Table 6-1, projections based on 2006 BCAG data and the projected growth of the proposed project indicate that the number of housing units in Butte County, including incorporated cities, will increase from 93,383 in 2006 to 139,463 in 2030; the population will increase from 217,209 people to 327,990, and employment is expected to grow from 88,714 jobs in 2006 to 123,539 jobs in 2030 (BCAG 2006, City of Gridley 2009).

For the nearby city of Live Oak, the California Department of Finance estimated a 2007 population of 8,126, and the Sacramento Area Council of Governments (SACOG) projects a population of 12,841 in 2035 (Sutter County 2008). Live Oak's current general plan identifies an estimated 2025 population of 14,090. The NOP for Live Oak's General Plan Update identifies the potential for up to 21,000 additional housing units, 2.2 million square feet of commercial space, and 1.3 million square feet of employment space.

The City of Chico's 1994 general plan identifies a buildout population of 134,000 within a 15- to 25-year period (through 2009 or 2019). In addition to the BCAG estimates for the city of Biggs, analysis of cumulative traffic impacts used a buildout projection of approximately 3,300 new dwelling units and 500,000 square feet of commercial land use constructed in the Biggs portion of the Area of Concern (AOC) by 2030, rather than the BCAG population projection. The City of Biggs is currently updating its General Plan. In order to conservatively evaluate traffic impacts of the proposed plan, full urban buildout of the Biggs portion of the AOC was assumed for cumulative impact discussions in the Transportation section.

6.1.4 Cumulative Effects of the 2030 General Plan

Impacts on Land Use, Housing, and Population

The proposed project would not physically divide a community. The other communities in the immediate vicinity of the project site, the cities of Biggs and Live Oak, are separated from Gridley and each other by several miles of agricultural land. Changes in which might reasonably be expected to occur in these communities therefore would not contribute to a cumulative impact on this basis.

Future growth under cumulative conditions may result in a variety of physical impacts related to consistency with adopted land use plans. Impacts involving adopted land use plans or policies and zoning generally would not combine to result in cumulative impacts. The determination of significance for impacts related to these issues, as described by Appendix G of the State CEQA Guidelines, is whether a project would conflict with any applicable

land use plan or policy adopted for the purpose of avoiding or mitigating environmental impacts. Such a conflict is site-specific; it is addressed on a project-by-project basis. Implementing the proposed project would not result in significant land use planning impacts, nor significant impacts related to compliance with habitat conservation plans. Land use inconsistency, by itself, is not considered a significant cumulative effect because it is a land use regulation, not an environmental impact. However, the indirect effects from those plans and policies adopted for the purpose of avoiding or mitigating environmental impacts, can lead to physical environmental impacts, which are considered in the appropriate sections of this DEIR. Because land use impacts would occur on a project-specific basis rather than a cumulative basis, the proposed project would not contribute to cumulatively considerable land use impact.

As shown in Table 6-2, the 2030 General Plan has been projected to facilitate a population increase within the Plan Area from 5,949 in 2006 to 19,845 in 2030. BCAG projects that total growth Butte County, including the unincorporated county and all of Butte County's cities is expected to increase the total population from 217,209 in 2006 to 327,990 in 2030. As discussed in Section 4.1, "Land Use," of this EIR, the level of growth allowed in the Plan Area through the implementation of the 2030 General Plan would be significant. When development under the 2030 General Plan is combined with the potential development permitted by the County and other cities, a significant cumulative impact related to a population increase would result. The 2030 General Plan would make a cumulatively considerable contribution to this **significant** cumulative impact.

Impacts on Air Quality

The project-level impacts of the project's contributions to short- and long-term criteria pollutant emissions are considered significant and unavoidable; therefore, the cumulative effect from short- and long-term criteria pollutants generated from the proposed General Plan Update, combined with related projects, are considered a cumulatively considerable **significant and unavoidable** impacts.

As described under Impact 4.3-4, implementation of the new General Plan would result in less-than-significant CO-related air quality impacts from local mobile sources. Since the model used in the traffic analysis is a regional transportation model that includes development forecast in Butte County through 2030, this is representative of the cumulative condition. Thus, the impact would also be **less than significant** on a cumulative basis.

Given that compliance with applicable rules and regulations would be required for the control of stationary-source TAC emissions, both on-site and off-site, the project's contribution to long-term cumulative increases in stationary-source TAC concentrations would be considered minor, as discussed in Impact 4.3-5. Exposure to TAC emissions from mobile sources, specifically diesel exhaust PM, is of growing concern within the Sacramento Valley Air Basin (SVAB). The Plan area does not involve any major transportation corridors (i.e., roadways experiencing greater than 100,000 vehicles per day). For these reasons, cumulative TAC impacts associated with the proposed General Plan Update are considered **less than significant**.

Similarly, as noted in Impact 4.3-6, the proposed 2030 General Plan would result in a significant impact with respect to odorous emissions on a project-level basis. It is also anticipated that exposure of sensitive receptors to odors would also be **significant and unavoidable** on a cumulative basis, because the potential for future odor-generating land uses and distances to receptors is unknown. The same mitigation measure (Mitigation Measure 4.3-6) would also apply to this cumulative impact.

Impacts on Noise

Future development projects within Gridley's Sphere of Influence will invariably affect the future (cumulative) ambient noise environment. It is difficult to project exactly how the ambient noise conditions within the county will change after buildout of the 2030 General Plan, Butte County General Plan, and other local community general plans (i.e., Biggs); however, it is known that traffic noise levels will increase as a result of the additional traffic generated by buildout of various land use designations. The primary factor for a cumulative noise impact

analysis is the consideration of future traffic volumes. Railroad noise is not expected to increase over current levels; however it does currently exceed existing and future noise standards, policies in the 2030 General Plan Noise Element when implemented would reduce railroad related noise levels. Therefore, under cumulative circumstances noise levels resulting from rail activity would be equal to or less than existing conditions. Because railroad noise would not increase as a result of adopting the 2030 General Plan there would be no significant contribution to cumulative noise impacts. In addition, non-transportation noise and construction noise impacts are anticipated to be project-specific and not significantly contribute to cumulative noise impacts.

Implementation of the 2030 General Plan, along with regional growth and traffic conditions, would cause changes in traffic noise levels ranging from slight decreases to an increase of about 7 decibels (dB) community noise equivalent level (CNEL) over existing traffic noise levels, as indicated in Table 4.4-9 in Section 4.4, "Noise." A traffic noise level is considered significant if noise levels exceed applicable City or State standards (60 dB CNEL, Table 4.4-6) or result in a substantial increase (i.e., 3 dB) in ambient noise levels at off-site existing nearby noise-sensitive land uses. The 2030 General Plan would result in significant impacts on several roadway sections. The 2030 General Plan would make a cumulatively considerable contribution to the **significant** impact.

Impacts on Transportation and Circulation

The analysis of transportation and circulation provided in Section 4.4 of this EIR was performed as a cumulative analysis. The analysis is considered cumulative because the standard tool for analysis, provided as the BCAG Regional Travel Demand Forecasting Model, contains market-based assumptions about employment and housing growth for Butte County as part of the baseline definition of the tool. For the purposes of this EIR, the model was adjusted to reflect total Gridley General Plan buildout, the proposed changes to the City's transportation system, and to account for trips to and from areas outside Butte County on Highway 99. Demand generated from the city of Biggs and the Biggs portion of the AOC was also adjusted in the model to reflect the potential addition of up to 3,300 housing units and 500,000 square feet of commercial use by 2030.

The regional model already assumes a level of growth in local jurisdictions that is considered reasonable according to demographic projections and trends as analyzed by BCAG. The overall forecasts are controlled by expectations of employment and housing growth in the marketplace and in relation to each other, rather than to an arbitrary buildout of land uses in all local jurisdictions. In sum, all project scenarios studied in Section 4.4, "Transportation and Circulation," of this EIR are considered cumulative by nature because anticipated land use forecasts for other areas are already included in the travel model.

As described in Section 4.4, the 2030 General Plan would result in a significant and unavoidable impact related to degradation of roadway levels of service. This is a significant cumulative impact. The 2030 General Plan would make a cumulatively considerable contribution to this **significant** cumulative impact.

Impacts on Hydrology and Water Resources

Land uses and development consistent with the 2030 General Plan, together with development within the unincorporated area of Butte County and the county's other incorporated cities, would result in cumulative impacts on hydrology and water resources. As discussed in Section 4.5, "Hydrology and Water Resources," land uses and development consistent with the 2030 General Plan would result in less-than-significant hydrology and water resources impacts related to drainage and flooding, water quality, erosion and sedimentation, construction-related water quality impacts, interference with groundwater recharge, dam failure, and the potential for flooding due to increased stormwater runoff.

Implementation of the County's Stormwater Ordinance, SWMP, and NPDES permits would require controls similar to those proposed by the proposed project on a countywide basis with respect to water quality impacts, including erosion and sedimentation impacts. Therefore, cumulative water quality impacts would be **less than significant**. Under the 2030 General Plan, Gridley will continue to rely on groundwater for its City water supply.

The Lower Tuscan aquifer which serves the valley portions of Butte County has historically seen limited utilization, and data are not available to indicate the aquifer's response to increased utilization. The Butte County Department of Water and Resource Conservation is currently undertaking studies on the Lower Tuscan aquifer. Because insufficient data is available, the cumulative impact of interference with groundwater recharge is considered to be **significant**, and the proposed project's contribution to this significant impact is potentially cumulatively considerable.

Impacts related to dam failure and the potential for flooding due to increased stormwater runoff are less than significant for the proposed project. Cumulative impacts related to dam failure would also be less than significant; evacuation and emergency response plans for potential dam failures are in place which would support an effective and coordinated response. Similar the cumulative impact related to potential for flooding from increased stormwater runoff is **significant**, but the City's mitigation measures, including the use of natural drainage and low impact development principles in new development, would result in a less than considerable contribution to this impact.

Impacts on Biological Resources

Past development in Butte County and the Sacramento Valley ranging from conversions of land to agricultural production more than a hundred years ago, to recent development projects, has resulted in substantial conversions of native habitat to other uses. Although future projects would be expected to mitigate for impacts on threatened and endangered species and other sensitive biological resources that are provided with regulatory protections, many types of habitats and species are provided no protection and it can be expected that a net loss of native habitat for plants and wildlife, agricultural lands, and open space areas that provide value to biological resources will continue. Cumulative impacts to biological resources, including net reduction in habitat, is therefore significant.

Biological resources impacts of the proposed project—including loss of special status plants, disturbance of raptor nests and nests of migratory birds, loss or disturbance of Swainson's hawk foraging habitat or nest sites, loss of giant garter snake, loss and degradation of habitat for valley elderberry longhorn beetle (VELB), loss and degradation of sensitive natural communities, and loss and degradation of federally protected wetlands—would all be reduced to less than significant levels following mitigation. The impact related to conflict with local, regional, or State policies or ordinances would be less than significant for the proposed project. Although all feasible mitigations for impacts to biological resources are imposed for the proposed project, the project would still contribute to a net reduction in habitat, a cumulatively considerable contribution to **significant and unavoidable** impacts to biological resources.

Impacts on Geology and Soils

Cumulative impacts on geology and soils would be less than significant based on the application of goals, policies, and implementation programs incorporated into the 2030 General Plan, as described in Section 4.7, "Geology, Soils, Mineral Resources, and Paleontological Resources."

Cumulative gains in population, households, and jobs would require a commensurate increase in infrastructure, capital facilities, services, housing, and commercial uses. Each of these increases carries with it a corresponding increase in the amount of ground disturbance resulting from the construction of new buildings and structures and other site development activities. However, each project considered in this cumulative analysis must individual meet building code requirements as well as the requirements of local polices (i.e., grading and erosion control plans), and therefore no additive effect would result and no cumulatively considerable impact related to seismic or soil hazards would occur.

A records search of the University of California Museum of Paleontology's Paleontology Collections database in Berkeley, California, did not identify any previously recorded fossil localities within the Plan Area. However, the

project site is underlain by Pleistocene-age sediments of the Modesto Formation, which is considered a paleontologically sensitive unit. The fact that vertebrate fossils have been recovered throughout the Sacramento and San Joaquin Valleys in sediments referable to these formations suggests that there is a potential for uncovering additional similar fossil remains during construction-related earthmoving activities at the project site. Implementation of the goals and policies of the Conservation Element will reduce impacts on previously undiscovered paleontological resources to less-than-significant levels.

Fossil discoveries resulting from excavation and earth-moving activities associated with development occur throughout the state. However, unique, scientifically-important fossil discoveries are relatively rare, and the likelihood of encountering them is site-specific and is based on the type of specific rock formations found underground. These rock formations vary from location to location. Furthermore, when unique, scientifically-important fossils are encountered by construction activities, the subsequent opportunities for data collection and study generally provide a benefit to the scientific community. Therefore, because of the low probability that any project would encounter unique, scientifically-important fossils, and the benefits that would occur from recovery and further study of those fossils if encountered, development of the related projects and other development in the region are not considered to result in a cumulatively considerable impact related to paleontological resources.

For the reasons described above, cumulative impacts on geology, soils, mineral resources, and paleontological resources are considered **less than significant**.

Impacts on Agricultural Resources

The Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation estimates that Butte County contained 196,219 acres of Prime Farmland, 21,604 acres of Farmland of Statewide Importance, and 24,235 acres of Unique Farmland in 2006, for a total of 242,058 acres of Important Farmland. Butte County does not designate Farmland of Local Importance. In addition to Important Farmland, the FMMP identified 407,678 acres of grazing land, for a total of 649,736 acres of agricultural land, approximately 61% of the area surveyed in the county. Between 2004 and 2006, approximately 3,784 acres of important farmland were lost, along with 1,337 acres of grazing land. Although Important Farmland information is not available prior to 2004 in Butte County, data for irrigated and non-irrigated farmland between 1988 and 2004 indicate an average annual loss of about 1,141 acres of farmland and 507 acres of grazing land. (CDC 2008)

Implementation of the 2030 General Plan would permanently convert Important Farmland to nonagricultural, urban uses. The Plan Area includes 526 acres of Prime Farmland and 859 acres of Farmland of Statewide Importance, resulting in conversion of 0.2% of the County's prime farmland, and 4% of the County's Farmland of Statewide Importance. The total conversion of Important Farmland from implementation of the proposed project would be relatively small in the context of the entire county's agricultural land base. However, the conversion of agricultural land would contribute to the incremental decline of Important Farmland in the county and result in the irreversible conversion of this agricultural land.

The loss of Important Farmland is a cumulatively considerable impact when considered in connection with the **significant** cumulative losses that would occur through implementation of the proposed project, past farmland conversions, and planned future development.

Impacts on Public Services and Utilities

Buildout of the 2030 General Plan would involve changes to land use type, density, and scale, which would increase demands on public services and utilities. The cumulative impacts on water supply services, wastewater management services, solid waste management and recycling, public education services, fire protection and emergency services, criminal justice services, and library services are described below.

Water Supply Services

Development of future water supply in Gridley variable factors such as groundwater recharge, and it is affected by other variable factors, such as land use density and land use type. The City of Gridley is the primary water supplier in the Plan Area, and available data indicate that adequate water supplies for the proposed project can be provided without depleting groundwater supplies. New development throughout the county and in other locations that could affect the groundwater aquifer would also be subject to State legislation that requires water supply assessments that address ongoing water supply adequate for property subdivision proposals (SB 610 and SB 221). State law requires adequate water supplies be identified prior to approval of large projects. The 2030 General Plan contains policies with requirements to maintain the City's water resources, and existing regulations require future development to prove that adequate water supply is available before development may occur.

Wastewater Management Services

Buildout of the 2030 General Plan would result in greater demand for wastewater collection and treatment and could create a demand for new City wastewater facilities. Policies in the 2030 General Plan would require that adequate wastewater facilities be provided for future development before it occurs, to ensure that sufficient wastewater capacity is available in areas where future growth would occur.

Solid Waste Management and Recycling

Buildout of 2030 General Plan would include new development that would increase the generation of solid waste in the plan area. Additional growth in surrounding jurisdictions would also increase the generation of solid waste. Gridley's waste is disposed in the Neal Road landfill. This landfill has been in operation since 1965 and has more than 85% of its capacity (approximately an additional 21.7 million cubic yards) remaining. Over the past three years, total disposal at the Neal Road landfill has ranged between approximately 166,000 tons and 183,000 tons. The Neal Road landfill is projected to have adequate capacity to accommodate solid waste from buildout of the 2030 General Plan.

Public Education Services

Growth anticipated with buildout of the 2030 General Plan would result in an increased student population, contributing to an increased demand for additional public schools. Regional growth would result in increased demand for schools throughout the County. However, the City is planning to accommodate local school needs locally. As described in Section 4.9, "Public Services," of this EIR, the Public Facilities Element of the 2030 General Plan contains policies intended to ensure that school facilities are provided concurrently with future development and existing regulations also ensure that new developments contribute funds to new or expanded public schools.

It is not possible to know exactly where additional school facilities will be constructed to serve the needs generated by growth within the planning area at any given time. Landowners and interested developers in the City's growth areas will fund planning documentation, provide financing for, and dedicate land for future public facilities, as directed by the City. As noted throughout the 2030 General Plan, the City will coordinate with the school district to ensure appropriate level of service standards in new growth areas are achieved.

Fire Protection and Emergency Services

Future regional growth would result in increased demand for fire services throughout the County. Buildout of the 2030 General Plan would include the construction of new structures during development of residential, commercial, and industrial land uses, which would lead to an increased risk of fire hazards in the plan area. Additionally, nearby growth in Biggs and the unincorporated county could add demands for increased fire protection, creating a need for new fire facilities within areas receiving fire protection from the City of Gridley. As described in Section 4.9 of this EIR, the Public Facilities Element of the 2030 General Plan contains a goal

and policies that would require additional facilities and services be made available to accommodate projected growth in the plan.

Criminal Justice Services

Buildout of the 2030 General Plan would create greater demands for protection by the Police Department and would lead to additional needs for police facilities in the planning area. Additional growth in Biggs could result in an increased need for protection by the Police Department and create a need for new department facilities. As described in Section 4.9 of this EIR, the Public Facilities Element of the 2030 General Plan contains goals and policies that would require additional public services to accommodate projected growth in the 2030 General Plan, including police services.

Public Services and Utilities Impact Conclusion

Landowners and interested developers in the City's Planned Growth Area will fund planning documentation, provide financing for, and dedicate land for future public facilities, as directed by the City. The City has established standards and criteria in general terms in the 2030 General Plan, including standards and criteria for water supply and conservation; wastewater collection, conveyance, treatment, and disposal; solid waste management; public education; fire protection and emergency services; and criminal justice services. The environmental analysis throughout this EIR takes into account utility expansions required to serve new growth and the corresponding potential for environmental impacts of these expansions. As development proposals are identified, additional project-level environmental analysis would be completed to ensure General Plan standards are implemented. With implementation of General Plan policy, cumulative impacts related to public services and utilities are considered less than cumulatively considerable and **less than significant**.

However, because cumulative growth beyond that shown in existing plans could exceed capacity at the Neal Road landfill, this is considered a **significant** cumulative impact to which the 2030 General Plan would make a cumulatively considerable contribution.

Impacts on Cultural and Paleontological Resources

Impacts on cultural resources in the proposed plan can be reduced to a less-than-significant level by applying goals, policies, and implementation programs in the 2030 General Plan.

Cumulative gains in population, households, and jobs would require a commensurate increase in infrastructure, capital facilities, services, housing, and commercial uses in the Plan Area, Butte County and other nearby areas. Each of these increases carries with it a corresponding increase in the magnitude of ground disturbance and the construction of new buildings and structures and other site development activities. The impact on archaeological deposits, human remains, and paleontological resources would be substantial given the past extent of urban development, and anticipated gains in population, jobs, and housing. Although data generated by this analysis cannot confirm this, it is also possible that, because of the scope and range of activities that would be undertaken, the 2030 General Plan may result in the loss of a class of archaeological sites unique to the paleoenvironmental context of the Plan Area. This is considered a significant cumulative impact. The 2030 General Plan would make a cumulatively considerable contribution to **significant** cumulative cultural resources impacts.

Impacts on Visual Resources

Implementation of the 2030 General Plan would substantially alter the visual character of the Plan Area by converting agricultural lands and open space to developed urban uses, resulting in significant impacts. No feasible mitigation is available to address impacts on visual resources associated with the conversion of agricultural land and open space to urban development, impacts on views of scenic vistas, and contribution to light and glare. Standards for design, architecture, development, and landscaping would be included as part of future development

projects and would help to ensure that future urban development remains within aesthetic guidelines established in policies of the 2030 General Plan; however, there is no mechanism to allow implementation of development projects while avoiding the conversion of the local viewsheds from agricultural land uses and open spaces to urban development. Related cumulative urban development in Butte County and Live Oak would also transform the visual environment from open space and agricultural areas to urban uses. Most or all of these projects would also be expected to comply with adopted community design and aesthetic standards, but it is likely that these projects would also result in significant and unavoidable aesthetic impacts because of the magnitude of the development proposed. Cumulative visual impacts are considered **significant**. The 2030 General Plan would make a cumulatively considerable contribution to these **significant** cumulative impacts.

IMPACTS ON ENERGY

Land uses and development consistent with the 2030 General Plan would lead to a less-than-significant increased demand for energy and consumption of energy resources; however, the demand for energy and consumption of energy resources would still increase. Future land use patterns, new construction and building renovations, and commuting patterns would increase demand for energy in the Plan Area. Cumulative development throughout the county would result in a significant cumulative increase in the demand for energy. This is considered a significant cumulative impact. The 2030 General Plan would make a cumulatively considerable contribution to this **significant** cumulative impact.

IMPACTS ON HAZARDS AND HAZARDOUS MATERIALS

Buildout of the 2030 General Plan would increase the intensity of development in the Plan Area. The proposed project would result in less-than-significant impacts related to routine transport, use, and disposal of hazardous materials; interference with an adopted emergency response plan; exposure of structures to urban or wildland fires; and public health hazards from development on a known hazardous materials site.

Under cumulative conditions, implementation of the proposed project in conjunction with growth planned in surrounding jurisdictions is not anticipated to present a public health hazard to residents. Health and safety impacts associated with the past or current uses of a proposed project site usually occur on a project-by-project basis, rather than in a cumulative manner.

Projected growth both within the project site and in surrounding jurisdictions would involve storage, use, disposal, and transport of hazardous materials to varying degrees during construction and operation. Impacts from these activities are less than significant under the proposed project because the storage, use, disposal, and transport of hazardous materials are extensively regulated by various federal, state, and local laws, regulations, and policies. It is assumed that individual development projects in the plan area, and in surrounding jurisdictions, would implement and comply with these existing hazardous materials laws, regulations, and policies. Therefore, planned growth in the plan area and surrounding jurisdictions would result in a **less-than-significant** cumulative impact, and the proposed project would not result in a cumulatively considerable incremental contribution to a cumulative impact related to transport of hazardous materials.

6.2 GROWTH-INDUCING EFFECTS

The State CEQA Guidelines (Section 15126.2[d]) require that an EIR evaluate the growth-inducing effects of a proposed project (in this case, the update of the General Plan). Specifically, an EIR must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment.

Direct growth-inducing impacts are generally associated with the provision of urban services to an undeveloped area. The provision of these services to a site, and the subsequent development, can serve to induce other landowners in the vicinity to convert their property to urban uses. Indirect, or secondary growth-inducing impacts

consist of growth induced in the region by the additional demands for housing, goods and services associated with the population increase caused by, or attracted to, a new project.

Growth inducement, by itself, is not an environmental effect, but may indirectly lead to environmental effects. Such environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or wildlife habitats, or conversion of agricultural and open space land to urban uses.

Based on Section 65300 of the Government Code, the 2030 General Plan is required to serve as a comprehensive, long-term plan for the physical development of the City of Gridley. By definition, the 2030 General Plan intends to provide for and address future growth and conservation in the City and its Plan Area.

The 2030 General Plan does not propose any specific development projects. In a sense, then, the 2030 General Plan therefore would not have direct growth-inducing impacts. Indirect growth-inducing impacts would occur, however, due in part to changes in the Land Use Diagram and the goals and policies of the General Plan. These changes are required in order to address long-range land use planning needs of the community. The goals, policies, and implementation strategies of the updated General Plan provide a framework to accommodate future growth. Projected growth is described in Chapter 3, "Project Description," and the environmental consequences related to the potential growth are fully analyzed in Chapter 4, "Environmental Setting, Impacts, and Mitigation Measures."

Promotion of economic and population growth represents the extent to which the proposed General Plan would increase economic activity and population in the City and region. Anticipated population growth is indirect in nature because the proposed General Plan does not directly propose development, but only provides the framework for development planning and implementation to proceed. The 2030 General Plan could accommodate up to 4,700 additional housing units, more than 13,000 additional residents, and more than 5 million square feet of nonresidential building construction. The actual level of buildout and the timing of construction and development activities would be subject to market conditions and other factors beyond the City's control or knowledge. However, with the substantial amount of new development accommodated under the General Plan, it is possible that, through expansion of job opportunities in Gridley or other aspects of the General Plan, growth elsewhere could be facilitated. In this way, the General Plan is considered growth inducing.

Whether or not growth obstacles are eliminated relates to the extent to which the 2030 General Plan would increase infrastructure capacity or change the regulatory structure such that additional development in the Planning Area would be allowed. A physical obstacle to growth typically involves the lack of public service infrastructure or insufficient infrastructure capacity. The extension of public service infrastructure (e.g., roadways, water and sewer lines) into areas that are not currently provided with these services would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth. To the extent that infrastructure is sized to accommodate already approved and expected growth based on the population projections of the General Plan, growth inducement would not occur. However, if infrastructure and facilities are oversized, or extended to areas outside of the Planning Area, this could induce growth by providing capacity to areas not intended for development.

As detailed in the 2030 General Plan, this EIR, and ongoing master planning work by the City, infrastructure and public services are planned and implemented according to the needs of Gridley. The City does not provide urban services to areas in the unincorporated County in a way that would induce or facilitate urban development. In fact, the proposed General Plan update includes policy language that specifically prohibits such public service and infrastructure related growth inducement (see Land Use Policy 1.3 and Land Use Policy 1.5, for example).

6.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA requires that significant irreversible environmental changes caused by a plan be addressed in an EIR. Specifically, the EIR must consider whether "uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely" (State CEQA Guidelines Section 15126.2[c]). Nonrenewable resources, as used in this discussion, refer to the physical features of the natural environment: land, air, and waterways.

The land use designations proposed by the 2030 General Plan would result in commitment of allowable land uses to these areas for the foreseeable future. In addition, proposed changes to land use designations would allow the development of differing uses that may not have been previously anticipated by the existing *City of Gridley General Plan*. As discussed in Section 4.1, "Land Use," of this EIR, the proposed amendments would result in significant changes to land use designations from the existing plan.

Irreversible changes would likely occur as a result of future excavation, grading, and construction activities associated with development of land uses envisioned in the 2030 General Plan. Although these changes can generally be addressed by mitigation measures, the potential for disturbance would represent an irreversible change. The 2030 General Plan would also result in irreversible changes by increasing land use densities and introducing development onto the sites that are designated for a specific land use, but that are presently undeveloped.

Land uses and development consistent with the 2030 General Plan would result in changes to traffic and circulation and therefore would increase emissions of air pollutants and generation of noise. Other irreversible changes associated with the 2030 General Plan would be the future use of nonrenewable resources for urban development (concrete, glass, plastic, and petroleum products). Similarly, operation of future urban development would also consume energy and water.

Land uses and development consistent with the 2030 General Plan would result in the conversion of agricultural lands to nonagricultural uses. Although the 2030 General Plan includes policies and programs aimed at protecting existing agricultural land uses and promoting continuation of agricultural operations, any conversion of agricultural lands would be a significant irreversible environmental change.

The 2030 General Plan would generate GHG emissions as described in Section 4.14, "Effects Related to Climate Change." Such emissions would represent a significant irreversible change to the environment.

6.4 SIGNIFICANT AND UNAVOIDABLE EFFECTS

According to Sections 15126.2(a) and 15126.2(b) of the State CEQA Guidelines, an EIR shall identify and focus on the significant environmental effects of the proposed project, including effects that cannot be avoided if the proposed project were implemented.

This section describes significant environmental impacts, including impacts that are mitigated but would not be reduced to a less-than-significant level. With implementation of the 2030 General Plan, significant effects related to land use, air quality, noise, transportation and circulation, hydrology and water resources, agricultural resources, and aesthetic resources cannot be avoided. Individual impacts are discussed below.

IMPACT 4.1-4: INDUCEMENT OF POPULATION GROWTH

Implementation of the 2030 General Plan would accommodate an increase in population and employment within the Plan Area. Increases in land availability for residential development could directly induce population growth. Additionally, increases in land designated for industrial and commercial uses could indirectly induce population

growth by increasing the number of jobs in the county. No feasible mitigation is available to reduce this impact. This impact would remain **significant and unavoidable**.

IMPACT 4.2-1: TRANSPORTATION NOISE LEVELS

Long-term project-generated traffic source noise levels would exceed the applicable standards or create a substantial permanent increase in ambient noise levels at existing and proposed noise-sensitive receptors. Development of the extended planning area north of downtown would increase existing noise levels above existing and proposed standards for new and existing sensitive receptors. This impact is significant.

Sufficient feasible mitigation measures are not available to reduce traffic noise to a level considered less-than-significant based on the 2030 General Plan measures alone. Specific project level analysis and mitigation would be appropriate, using 2030 General Plan policy as guidance. Additionally, the traffic source noise levels would still create a substantial permanent increase over current ambient noise levels at the on-site existing noise-sensitive receptors which may not be able to be reduced by planning and design features. As a result, this impact is considered **significant and unavoidable**.

IMPACT 4.3-1: GENERATION OF SHORT-TERM CONSTRUCTION-RELATED EMISSIONS OF CRITERIA AIR POLLUTANTS AND PRECURSORS

Emissions of Criteria Air Pollutants and Precursors during construction of the proposed general plan would exceed BCAQMD's significance thresholds of 25 lb/day for ROG and NOX and 80 lb/day for PM10. Policies contained in the proposed 2030 General Plan would support compliance with BCAQMD-recommended standard construction mitigation practices. This would substantially reduce construction-generated air pollutant emissions from buildout of the 2030 General Plan. However, due to the large amount of total development proposed over the buildout period, construction-generated emissions of criteria air pollutants and precursors would still be substantial, could violate an ambient air quality standard, contribute substantially to an existing or predicted air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be significant.

Mitigation Measure 4.3-1a would require each project applicant, as a condition of project approval, to implement measures to further reduce exhaust emissions from construction-related equipment. Mitigation Measure 4.3-1b would require each project applicant, as a condition of project approval, to implement enhanced and additional control measures recommended by BCAQMD to further reduce fugitive PM_{10} dust emissions. Implementation of the mitigation measures would reduce short-term, construction-related emissions, but not to a less-than-significant level. Construction-related emissions of criteria air pollutants and precursors would still exceed significance thresholds; for this reason, such emissions could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be **significant and unavoidable**.

IMPACT 4.3-2: CONSISTENCY WITH AIR QUALITY PLANNING EFFORTS

Future development in Gridley would generate emissions of criteria air pollutants (PM_{10} and $PM_{2.5}$) and ozone precursors, both of which affect regional air quality. Anticipated population and development consistent with the 2030 General Plan could lead to operational (mobile-source and area-source) emissions that are not accounted for in the current applicable air quality plan and would exceed BCAQMD thresholds.

Mitigation Measure 4.3-2 and the various general plan goals, policies, and implementation strategies outlined above would reduce air pollutant emissions that affect both Gridley and the region. However, the 2030 General Plan would still result in operational emissions in excess of threshold assumptions used by BCAQMD for relevant

clean air plans. Buildout of the 2030 General Plan would continue to conflict with current air quality planning efforts. This impact is **significant and unavoidable**.

IMPACT 4.3-3: GENERATION OF LONG-TERM OPERATIONAL, REGIONAL EMISSIONS OF CRITERIA AIR POLLUTANTS AND PRECURSORS

Long-term operational activities consistent with the 2030 General Plan would result in emissions of ROG, NO_X, and PM_{10} that exceed BCAQMD's significance thresholds of 25, 25, and 80 lb/day, respectively. Thus, operational emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations.

Implementation of the above mitigation measure, in addition to compliance with the above 2030 General Plan policies and implementation strategies and existing regulations, would reduce operational emissions of ROG, NO_X, and PM_{10}, but the City cannot demonstrate that these measures would reduce impacts to a less-than-significant level. This impact is considered **significant and unavoidable**.

IMPACT 4.3-6: EXPOSURE OF SENSITIVE RECEPTORS TO EMISSIONS OF ODORS

Implementation of the 2030 General Plan could result in the exposure of sensitive receptors to emissions of objectionable odors. Implementation of Mitigation Measure 4.3-6 would reduce the exposure of sensitive receptors to odorous emissions. However, the City cannot demonstrate at this time that this would reduce impacts to a less-than-significant level. Because the sources of the odors cannot be completely eliminated, the potential exposure may not completely mitigate odor impacts and may not completely protect the odor-producing sources against potential future nuisance complaints. Full physical mitigation of potential odor impacts would require the implementation of odor control measures, and neither the City nor future project applicants have the direct ability to impose such controls. Whether BCAQMD, or the City, reacting to complaints, sees fit in the future to order modifications to operation of major odor sources is uncertain. Any predictions about future enforcement actions are beyond the scope of this EIR. As a result, this impact is considered **significant and unavoidable**.

IMPACT 4.4-1: DEGRADATION OF CITY ROADWAY LEVELS OF SERVICE

With implementation of the 2030 GPU, operation of numerous City roadways currently operating at LOS C or better would degrade to LOS D, LOS E, or LOS F. In addition, numerous City roadways currently operating at LOS D, LOS E, and LOS F would degrade further. Impacts to segments of East Gridley Road and Washington Street would remain **significant and unavoidable**.

IMPACT 4.4-2: DEGRADATION OF HIGHWAY LEVELS OF SERVICE

With implementation of the 2030 GPU, operation of two SR 99 segments would degrade to LOS D or LOS F. In addition, numerous roadways currently operating at LOS D, LOS E, and LOS F would degrade further.

Construction of a parallel facility to SR 99, implementation of an "expressway" access standard, and constructing an additional crossing at the UPPR cannot be guaranteed and most likely would not be sufficient to reduce the impact to a less-than-significant level. No feasible mitigation is available to fully mitigate this impact to a less-than-significant level. This impact would remain **significant and unavoidable**.

IMPACT 4.4-3: DEGRADATION OF REGIONAL ROADWAY LEVELS OF SERVICE

With implementation of the 2030 GPU, increased traffic from land use development envisioned in the 2030 GPU would degrade projected operation of regional roadways (i.e., located outside the City of Gridley Sphere of Influence) currently operating at LOS D.

No feasible mechanism is currently available to address impacts to regional roadways resulting from increased traffic volumes created by new development envisioned in the 2030 GPU. No feasible mitigation is available to fully mitigate this impact to a less-than-significant level. This impact would remain **significant and unavoidable**.

IMPACT 4.4-4: DEGRADATION OF INTERSECTION LEVEL OF SERVICE

Implementation of the 2030 General Plan Update would result in additional automobile traffic at key intersections in Gridley. Level of Service in excess of the current LOS C standard and in excess of the proposed LOS D standard is forecast at intersections under City jurisdiction.

Improvements to existing developed areas of SR 99 would be a part of the regional transportation planning process. The City cannot guarantee, therefore, that that Mitigation Measure 4.4-4 would be implemented. The impact is considered **significant and unavoidable**.

IMPACT 4.4-5: INCREASED CIRCULATION HAZARDS AT RAILROAD CROSSINGS

Implementation of the 2030 General Plan Update would result in additional automobile and pedestrian traffic across existing at-grade UPRR crossings, which may increase the likelihood of accidents at these locations. Daily traffic volumes at UPRR crossings are projected to increase by 130% under the 2030 GPU.

Due to the potential for a substantial increase in traffic across the railroad tracks, because grade separation cannot be guaranteed by the City, and because there are no other feasible mitigation measures, this impact is considered **significant and unavoidable**.

IMPACT 4.8-1: LOSS OF IMPORTANT FARMLAND

Implementation of the General Plan would result in the loss of agricultural land uses, including approximately 1,385 acres of Important Farmland and lands zoned for agricultural use, to urban development. This impact is considered significant. Because no new farmland would be made available and the productivity of existing farmland would not be improved as a result of implementing agricultural protection policies, full compensation for losses of farmland would not be achieved and a net loss of Important Farmland would still occur. No feasible mitigation is available to reduce this impact to a less-than-significant level. This impact would remain **significant and unavoidable**.

IMPACT 4.8-2: CONFLICT WITH WILLIAMSON ACT CONTRACTS

Buildout of the 2030 General Plan would result in the development of urban land uses on lands under a Williamson Act contract. Approximately 117 acres of land in the Planned Growth Area are currently under a Williamson Act contract and would be converted to urban uses. To allow for urban development, these agricultural land uses would be removed from protection under the Williamson Act. There is no feasible mitigation that would at once allow the City to plan for urban land uses as illustrated on the General Plan Land Use Diagram and would also preserve lands under a Williamson Act permanently from conversion to non-agricultural use. Therefore, Impact 4.8-2 would remain **significant and unavoidable**.

IMPACT 4.9-1: PROVISION OF WATER SUPPLY AND WATER INFRASTRUCTURE

Buildout of the 2030 General Plan would increase the demand for a reliable supply of water for domestic uses, landscape irrigation, and fire flow. Construction of infrastructure required to serve water demand under the 2030 General Plan could result in significant impacts. Because of the level of development anticipated under the 2030 General Plan, it is possible that the construction of additional facilities could generate significant impacts. Installing water lines would involve earth disturbance, transport of materials, and operation of equipment similar

to that which will also be required for installation of other infrastructure in the same public rights-of-way and between public rights-of-way and end users. Although General Plan policy requires infrastructure and facilities to be provided in a way that reduces environmental impacts, the extent of infrastructure required to serve future demand, depending on phasing of future development, could create significant impacts. The impacts of infrastructure required to serve General Plan buildout is analyzed at a programmatic level along with the direct effects of construction and operation of General Plan land uses throughout this EIR. No mitigation is available beyond General Plan policy that would reduce impacts of the construction of water supply related infrastructure to a less-than-significant level. The impact is considered **significant and unavoidable.**

IMPACT 4.9-2: WASTEWATER TREATMENT AND DISPOSAL

New development under the 2030 General Plan will generate additional wastewater demand and require improvements for wastewater treatment and disposal, as well as conveyance. The specific environmental impacts of each phase of improvements to the wastewater infrastructure will be evaluated at the project level and is beyond the scope and purpose of a General Plan programmatic EIR. As development proceeds in the city's infill areas and the Planned Growth Area, separate environmental review and analysis of the potential impacts of that development will occur in accordance with the requirements of CEQA.

Adherence to the above goals and policies would provide the City with the means to implement the required wastewater infrastructure that is described in detail in the Sewer System Management Plan. Goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the development that is projected for Gridley. Policies and strategies ensure the City will assess individual development projects under buildout of the 2030 General Plan, collect fees to fund wastewater improvements, and to ensure that the City has the capacity to meet wastewater treatment demands.

Adherence to the above goals and policies would ensure that the expansion and improvements to infrastructure would occur to meet the needs of new growth according to wastewater treatment and disposal standards. Because of the level of urban development anticipated under the General Plan, the construction of additional facilities could generate significant impacts. The impacts of infrastructure required to serve General Plan buildout is analyzed along with the direct effects of construction and operation of General Plan land uses throughout this document. No mitigation beyond the 2030 General Plan policies and implementation strategies is available that would reduce the impact of construction of facilities to a less-than-significant level. The impact is considered **significant and unavoidable**.

IMPACT 4.9-3: CONSTRUCTION OF NEW STORMWATER DRAINAGE FACILITIES OR EXPANSION OF EXISTING FACILITIES

Development of urban uses within Gridley's infill areas and in the Planned Growth Area would increase the need for stormwater collection, detention/retention, and conveyance facilities. Buildout of the 2030 General Plan has the potential to cause significant impacts by increasing stormwater runoff associated with construction activities, thereby placing greater demands on Gridley's stormwater conveyance system. The specific environmental impacts of constructing new stormwater detention or conveyance facilities cannot be determined at this programmatic level of analysis. As development proceeds in the city's infill areas and the Planned Growth Area, separate environmental review and analysis of the potential impacts of that development will occur in accordance with the requirements CEQA. Although buildout of the 2030 General Plan has the potential to increase and intensify the effects of stormwater runoff, goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the development that is projected for Gridley. Impacts that could result from stormwater runoff attributed to new development are addressed by these goals and policies. Because of the level of urban development anticipated under the General Plan, the construction of additional facilities could generate significant impacts. The City has addressed local drainage needs, best environmental practices to reduce impacts related to stormwater management, and regional drainage needs in the 2030 General Plan. No mitigation

beyond the 2030 General Plan policies and implementation strategies is available. The impact is considered **significant and unavoidable.**

IMPACT 4.9-4: LANDFILL CAPACITY AND SOLID WASTE DISPOSAL

Although buildout of the 2030 General Plan would increase generation of solid waste, goals and policies identified in the proposed 2030 General Plan are intended to address potential future impacts related to the growth that is projected for Gridley's infill areas and in the Planned Growth Area. Implementation of and the City's policies and programs would ensure that the City complies with applicable regulations related to the disposal and reduction of solid waste and would reduce the amount of solid waste entering the Neal Road Landfill. The City is part of the Butte County Regional Waste Management Authority, which coordinates solid waste management, including diversion and recycling programs. The City does not manage the Neal Road Landfill and the City's portion of the waste stream at this landfill is approximately 3 to 4 percent of the total municipal waste received at the Neal Road Landfill on an annual basis. Although it appears that there will be sufficient capacity to meet the City's needs during this General Plan time horizon, the City does not control landfill capacity and does not dictate urban growth in other places within Butte County that would have an important bearing on the effective lifetime of the landfill. The City is not does not develop new landfills or expand existing landfills, does not permit landfill construction or expansion, and does not operate landfills. Due to the factors beyond the control of the City, it is possible that the 2030 General Plan would generate solid waste beyond the capacity of the existing landfill. No mitigation beyond the 2030 General Plan policies and implementation strategies is available. The City has identified all feasible measures to reduce the local waste stream, but does not control landfill capacity. The impact is considered **significant and unavoidable**.

IMPACT 4.9-6: FIRE PROTECTION AND EMS

The Planned growth in the north part of the city would require infrastructure improvements to provide for greater fire flows. The proposed 2030 General Plan includes objectives, goals, and policies to ensure the adequacy of fire protection services and EMS. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. However, new growth under the General Plan could result in the need to construct new facilities and/or expand existing facilities to accommodate demand for service. The City cannot rule out the possibility of significant impacts (such as noise from fire station operations, increased light and glare, etc.) associated with these improvements at this time. No mitigation beyond the 2030 General Plan policies and programs is available. The impact is considered **significant and unavoidable**.

IMPACT 4.9-7: LAW ENFORCEMENT SERVICES, STAFFING, AND DEPLOYMENT

Implementation of the proposed project would allow for additional residents, businesses, and other urban development within the existing Plan Area and the Planned Growth Area. The 2009 population in Gridley is estimated to be 6,417 people. To maintain adequate service levels, hiring of additional law enforcement personnel will be necessary. The need for specialized law enforcement services will also continue to increase. The proposed 2030 General Plan includes objectives, goals, and policies to ensure the adequacy of law enforcement services. Before approving a project within its existing Plan Area or Planned Growth Area, the City would ensure compliance with all applicable standards. It is possible that growth accommodated under the General Plan could result in the need to construct new facilities or expand existing facilities to serve new growth. Goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the proposed growth areas in Gridley and the Planned Growth Area. Impacts that could result from increased demand for law enforcement services and facilities would be mitigated by implementation of applicable goals and policies. It is possible that growth accommodated under the General Plan could result in the need to construct new facilities or expand existing facilities to serve new growth. The City cannot demonstrate at this time that impacts of such development (such as noise from public safety operations, increased light and glare, etc.) would result in less-than-significant impacts. No mitigation beyond the 2030 General Plan policies and implementation strategies is available. This impact would be **significant and unavoidable**.

IMPACT 4.9-9: PARKS AND RECREATION SERVICES AND FACILITIES

Implementation of the proposed project would include development of residential uses within the existing Plan Area and the Planned Growth Area. An increase in population of approximately 10,970 people through 2030 could occur as a result. Additional parkland and recreational facilities will be needed to meet the needs of future residents of Gridley. The specific environmental impacts of constructing new individual park or recreation facilities cannot be determined at this programmatic level of analysis. Development and operation of park facilities may result in potentially significant impacts (such as damage to habitat, traffic, noise, and other impacts) that are addressed through plans, policies and mitigation measures identified in other sections of this EIR. However, various park and recreational expansion or improvement projects have been identified in certain areas of the city, which will be subject to specific environmental analysis in accordance with the requirements of CEQA.

Although buildout of the 2030 General Plan would increase demand for parkland, goals and policies identified in the proposed 2030 General Plan are intended to address impacts related to the projected population growth for Gridley. Impacts that could result from increased demand and usage of parks are addressed by these goals and policies.

Growth accommodated under the General Plan will result in the need to construct new facilities to serve new growth. The City cannot demonstrate at this time that impacts of such facilities development would result in less-than-significant impacts. Therefore, the City considers this impact to be **significant and unavoidable**.

IMPACT 4.11-1: ADVERSE IMPACTS ON SCENIC VISTAS

Implementation of policies in the 2030 General Plan would ensure that new urban development projects are designed with design concepts and elements that would lessen significant impacts associated with preserving scenic views and visual resources. However, development of urban land uses projects would permanently change views throughout the City of Gridley and citywide scenic vistas (i.e., Sutter Buttes, agricultural landscapes). No feasible mitigation measures or policies are available that could fully preserve the existing visual qualities while allowing development of urban land uses under the Preferred Alternative. Therefore, Impact 4.11-1 would remain **significant and unavoidable**.

IMPACT 4.11-2: DEGRADATION OF VISUAL CHARACTER

Because of the location of future urban development under the 2030 General Plan, no feasible mitigation is available to address impacts on aesthetic resources associated with the conversion of agricultural and open space land uses to urban development. Design, architectural, development, and landscaping standards would be included as part of future development projects and would ensure that future urban development remains within aesthetic guidelines established in policies of the 2030 General Plan; however, there is no mechanism to allow implementation of development projects while avoiding the conversion of the local viewsheds from agricultural land uses and open spaces to urban development. Therefore, Impact 4.11-2 would remain **significant and unavoidable**.

IMPACT 4.11-3: INCREASE IN NIGHTTIME LIGHTING AND DAYTIME GLARE

With implementation of the proposed policies and programs in the 2030 General Plan, the potential light and glare impacts of future development projects would be minimized to the maximum extent practicable. Although implementation of 2030 General Plan policies would reduce impacts related to light and glare, new urban development under the plan would permanently add nighttime lighting into a rural area that is relatively void of nighttime lighting. No other mitigation measures are feasible that would fully preserve existing nighttime views

while at the same time allowing urban development. Therefore, Impact 4.11-3 would remain **significant and unavoidable**.

IMPACT 4.14-1: INCREASES IN GREENHOUSE GAS EMISSIONS

Project-generated GHG emissions would not be anticipated to conflict with the goals of AB 32 (i.e., an agency-adopted regulation for the purpose of reducing GHG emissions) due to the General Plan Update's inclusion of policies and programs designed to reduce GHG emissions. However, the buildout of the proposed General Plan Update would result in GHG emissions that would increase considerably compared to existing levels. Thus, the project's GHG emissions would generate GHG emissions that are cumulatively considerable. Implementation of the General Plan Update goals, policies, and programs would reduce emissions of GHGs, but the degree of future impacts and applicability, feasibility, and success of future mitigation measures cannot be adequately known for each specific future project at this program level of analysis. Therefore, it cannot be determined whether these measures would reduce GHG levels to a less-than-significant level. As such, Impact 4.14-1 must be conservatively assumed to result in a considerable net increase in GHGs, and thus would contribute considerably to the cumulative impact of climate change. This impact would remain **significant and unavoidable**.

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