



SECTION 4.0 RESOURCE PROTECTION & PRESERVATION



CITY OF LAKE ELSINORE GENERAL PLAN - ADOPTED DECEMBER 13, 2011

4.0 Resource Protection and Preservation

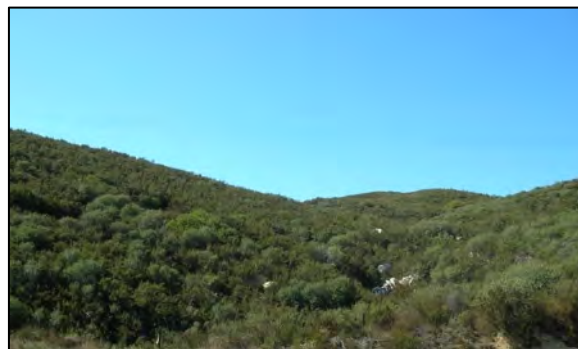
4.1 Summary

Lake Elsinore's natural resources and open space are important to the heritage, character, and overall quality of life of the community. This element of the General Plan addresses resource protection and preservation issues, related to biological resources, open space, water resources, cultural and paleontological resources, and aesthetic resources within the City and the Sphere of Influence (SOI).

"Nineteen plants and thirty-six animals within the City and/or the SOI's habitats are accorded the 'special status' designation."

4.2 Biological Resources

Biological resources include natural biotic habitats (vegetative communities and corresponding wildlife habitats) and associated flora and fauna. There are sixteen (16) distinct biotic habitats plus agriculture and developed lands that occur in the City and/or its Sphere of Influence (SOI). Several of the habitats are considered "sensitive" or "special status" because they are unique, have a relatively limited distribution in the region, or have a high wildlife value as defined by federal, state, and local government conservation programs. Each of these habitats provides cover, food, and water



Coastal Sage Scrub

necessary to meet biological requirements of a variety of animal species. Nineteen (19) plants and thirty-six (36) animals within the City and/or the SOI's habitats are accorded the "special status" designation. However, only a few of these animals are on the Federal Endangered Species Act List as threatened or endangered. Wetland features within the City and/or the SOI include coastal and valley freshwater marsh, lacustrine ecosystems, and vernal pools.

Lake Elsinore is the permanent and seasonal home to a wide variety of birds and serves an important role as a way station on the Pacific flyway for hordes of migrating waterfowl traveling from Alaska to South America. A short list of resident and often nesting birds include great blue herons, great egrets, night herons, osprey, white-tailed kites, western grebes, terns, gulls, black-necked stilts, avocets, killdeer, and plovers. In addition, about 50 North American white pelicans appear to reside at Lake Elsinore year-round and a number of white-faced Ibis have been regularly spotted around the lake within recent years, both species of special concern to the state. The heron nesting sites adjacent to Lake Elsinore are an integral part of the lake's

natural heritage and aquatic ecosystem. Although these herons are not on the endangered or threaten species list, they are, nevertheless, locally important wildlife resources.

In 2004, the City adopted the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), a comprehensive, multi-jurisdictional effort that focuses on conservation of 146 species and their associated habitats within western Riverside County. The MSHCP serves as a Habitat Conservation Plan pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP is used to allow the participating jurisdictions (i.e., the County of Riverside, City of Lake Elsinore, and the other fifteen (15) participating cities) to authorize “take” of plants and wildlife species identified within the plan area for private projects and public works projects within the MSHCP areas. Under the MSHCP, the wildlife agencies will grant take authorization for otherwise lawful actions in exchange for the assembly and management as coordination of the MSHCP Conservation Areas.

One of the conditions of the incidental take permits associated with the MSHCP is that the City and other plan participants must assemble a reserve system of approximately 500,000 acres to connect current and future conserved lands. Approximately 3,500 acres in the City and the SOI are part of the existing reserve system within the MSHCP. The City’s conservation target under the MSHCP is to add between 4,830 and 7,870 acres to the MSHCP over the next 25 years. This conservation target is to be balanced to ensure that the City remains in an economically competitive relationship with other Cities in terms of commercial and industrial development as well as providing sufficient residential inventory to comply with regional housing requirements.

The General Plan recognizes the need to balance growth with the conservation and enhancement of the area’s natural resources as development can impact resources such as water quality and associated watersheds. The goals and policies in this section are designed to enhance and preserve the City’s existing natural resources while balancing the City’s other imperatives for balanced economic growth.

4.2.1 Biological Resources Baselines

Existing and Proposed Conservation Areas of the MSHCP

The City of Lake Elsinore is focusing its conservation efforts on adding lands to existing core reserves and linkages within and adjacent to the Elsinore Area Plan. According to data available at the time this General Plan Update was prepared, approximately 3,500 acres in the City and SOI are part of the existing reserve system within the MSHCP. The City’s goal is to add between 4,830 acres and 7,870 acres to the reserve



Sign Identifying One of the City's Many Habitat Conservation Areas

system within the City over a 25-year period. As of the 2004 annual report, 868 acres were conserved. Since February 2000, a total of 2,190 acres has been conserved, which is 34% of the middle range of the target conservation. Under the MSHCP and its permits, the City reviews proposed land uses in the “criteria area” to determine if they are consistent with the MSHCP’s conservation goals and if the uses will contribute to assembling the reserves. The MSHCP in the City of Lake Elsinore is addressed in open space and conservation policies in the General Plan. There also are MSHCP survey, habitat evaluation, and mitigation fee requirements that apply to projects in the City, which are administered through the Community Development Department.

Existing Biological Resources

The City and SOI are located in the Elsinore Valley, which is bounded on the west by the east flank of the rugged Santa Ana Mountains and rises into hills to the east. MSHCP maps, and Table 4-1, indicate that approximately 13,000 acres of the total area are developed lands or have exotic vegetation, and approximately 600 acres are agricultural lands. The remainder of the MSHCP-designated area is natural vegetation communities, primarily chaparral and Riversidian sage scrub. Table 4-1 indicates the natural community types. Each type and its associated species are described in more detail in the sections below. Designated and proposed conservation areas within the City and SOI are identified and described.

4.2.2 Natural Communities

There are sixteen (16) natural communities, plus agricultural and developed lands, that occur in the City and its SOI as listed in Table 4-1 and shown on Figure 4.1, Vegetation Communities. Several of the natural communities are considered “sensitive” or “special status” habitats because they are unique, have relatively limited distribution in the region, or have high wildlife value as defined by federal, state, and local government conservation programs. Many are, or correspond to, vegetation series and associations identified in the California Natural Diversity Database (CNDDB) as “rare.” Such communities within the City and its SOI include

- Coastal sage scrub
- Riversidian sage scrub
- Diegan coastal sage scrub
- Riversidian alluvial fan sage scrub
- Chaparral
- Oak Woodland
- Coast live oak woodland
- Dense Englemann oak woodland
- Riparian Forest
- Riparian Scrub
- Southern willow scrub
- Southern cottonwood-willow riparian forest
- Southern sycamore-alder riparian forest
- Coastal and valley freshwater marsh
- Open Water/Reservoir/Pond
- Vernal pools

Table 4-1. Natural Communities in the City and SOI

Type	City	SOI	Total
Nonnative Grassland	5,661	1,103	6,764
Coastal Sage Scrub			
Riversidian Sage Scrub*	6,727	3,262	9,989
Diegan Coastal Sage Scrub	32	680	712
Riversidian Alluvial Fan Sage Scrub*	112	205	317
Chaparral			
Chamise Chaparral	213	6	219
Chaparral	4,148	8,544	12,692
Woodlands			
Coast Live Oak Woodland*	73	392	465
Dense Engelmann Oak Woodland*	0	5	5
Oak Woodland	5	57	62
Riparian			
Riparian Forest	56	32	88
Riparian Scrub	186	111	297
Southern Cottonwood/Willow Riparian*	0	22	22
Southern Willow Scrub*	27	30	57
Marsh			
Coastal and Valley Freshwater Marsh	32	0	32
Open Water/Reservoir/Pond	2,378	29	2,407
Vernal Pools* **	--	--	--
Agricultural Lands			
Field Croplands	89	289	378
Grove/Orchard	26	198	224
Residential/Urban/Exotic	7,982	3,853	11,835
TOTAL	27,747	18,818	46,565

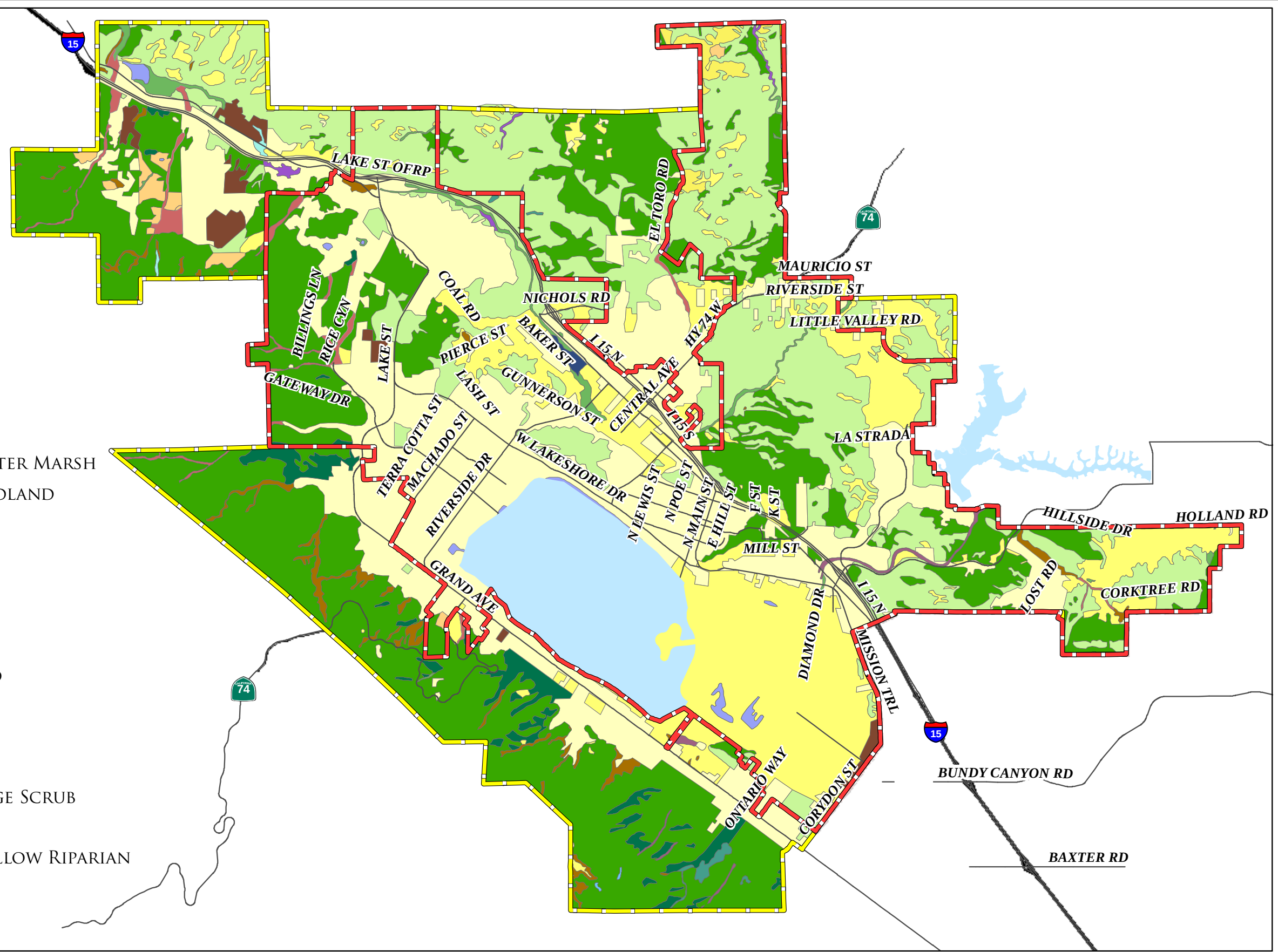
Notes

* Considered to be a special-status/sensitive habitat because it is unique, has relatively limited distribution in the region, has high wildlife value, and/or is directly or indirectly protected federal, state, or local regulations and policies.

** Individual vernal pools and vernal pool complexes were not mapped in the MSHCP or for the City General Plan but are known to occur in the City and SOI.

Source: GIS database for MSHCP (July 2003).

-  SPHERE OF INFLUENCE
-  CITY BOUNDARY
-  WATER BODIES
- VEGETATION COMMUNITIES**
-  CHAMISE CHAPARRAL
-  CHAPARRAL
-  COAST LIVE OAK WOODLAND
-  COASTAL AND VALLEY FRESHWATER MARSH
-  DENSE ENGELMANN OAK WOODLAND
-  DIEGAN COASTAL SAGE SCRUB
-  FIELD CROPLANDS
-  GROVE/ORCHARD
-  NON-NATIVE GRASSLAND
-  OAK WOODLAND
-  OPEN WATER/RESERVOIR/POND
-  RESIDENTIAL/URBAN/EXOTIC
-  RIPARIAN FOREST
-  RIPARIAN SCRUB
-  RIVERSIDEAN ALLUVIAL FAN SAGE SCRUB
-  RIVERSIDEAN SAGE SCRUB
-  SOUTHERN COTTONWOOD/WILLOW RIPARIAN
-  SOUTHERN WILLOW SCRUB



SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE



CITY OF LAKE ELSINORE
VEGETATION COMMUNITIES
FIGURE 4.1

BACKSIDE OF FIGURE

Nonnative Grassland

Nonnative grasslands are characterized by a dense to sparse cover of annual grasses with flowering culms (stems) 0.2 to 1.5 meters high. They are often associated with numerous species of showy-flowered native wildflowers, especially in years of favorable rainfall. Flowering occurs with the onset of the late-fall rains, and growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds. Nonnative grasslands occur on fine-textured soils that are moist during the winter rainy season and very dry during summer and fall. Adjacent communities may include oak woodland on moister, better-drained soils.

Composed almost entirely of annual grasses and other herbaceous annuals, this community is dominant over a large area immediately southwest of Lake Elsinore but existing also as a mosaic interspersed with coastal sage scrub communities. Plants typical of this community include several species of brome (*Bromus* spp.), wild oat (*Avena* spp.), filaree (*Erodium* spp.), schismus (*Schismus* spp.), fescue (*Vulpia* spp.), and a variety of wildflowers such as California poppy (*Eschscholtzia californica*), phacelia (*Phacelia* spp.), and goldfields (*Lasthenia californica*).

Coastal Sage Scrub

Coastal sage scrub is characterized by low shrubs and an absence of trees. Shrubs include either pure stands or mixtures of coarse, deciduous species that drop their leaves in response to periodic drought conditions. Coastal sage scrub occurs primarily below 914 meters (3,000 feet) above mean sea level on western slopes of mountains; on steep, south-facing, wind-exposed slopes; and in areas where the marine layer penetrates inland to foothills and canyons. Soils are typically well drained and relatively shallow. Shrubs are more widely spaced than in chaparral and do not have the characteristic rigidity or thick drought-resistant leaves of those in chaparral. Remaining dormant throughout the dry season, plants either drop their leaves or produce smaller leaves on secondary shoots, which reduces water loss. Root systems are generally shallow, and some shrubs store water in succulent leaves and stems. Other plants produce aromatic oils from the surfaces of leaves, making them less appealing to grazing animals and reducing water loss but at the cost of increased flammability during the fire season. Typical species in this community include California sagebrush (*Artemisia californica*), long-stemmed buckwheat (*E. elongatum*), California buckwheat (*Eriogonum fasciculatum*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), bush monkeyflower (*Mimulus longiflorus*), brittlebush (*Encelia farinosa*), California bush sunflower (*Encelia californica*), coast goldenbush (*Isocoma menziesii*), laurel sumac (*Malosma laurina*), deerweed (*Lotus scoparius*), golden yarrow (*Eriophyllum confertiflorum*), coast prickly pear (*Opuntia littoralis*), and lupines (*Lupinus* spp.).

Riversidian Sage Scrub

Riversidian sage scrub typically is a fairly open vegetation community, with at least 20 percent cover by California sagebrush, California buckwheat, and Spanish brome (*Bromus madritensis*). See description of coastal sage scrub above for additional details about plant species

composition. In the City and SOI, this community occurs in many locations, often on hills and slopes adjacent to developed areas. In many locations, the herb layer of the Riversidian sage scrub is dominated by nonnative invasive forbs and grasses, which reduces the quality of these areas as potential habitat for various species.

Riversidian sage scrub is considered a special-status or sensitive habitat.

Diegan Coastal Sage Scrub

Similar to Riversidian sage scrub, this community is found where moisture is more abundant. Dominant species are California sagebrush, California buckwheat, laurel sumac, lemonade berry (*Rhus integrifolia*), and white sage. This community occurs only in small patches within the existing City limits; substantially more acres of this type occur in the SOI than in the City.

Riversidian Alluvial Fan Sage Scrub

Riversidian alluvial fan sage scrub grows on sandy, rocky alluvial soils deposited by streams that experience periodic flooding. The soils in these areas are well drained to excessively drained and have low water-holding capacity and low fertility. Vegetation consists of drought-deciduous subshrubs and large evergreen woody shrubs adapted to these soil characteristics and capable of survival, or rapid recruitment, after intense periodic flooding and erosion. Pioneer, intermediate, and mature stages of the alluvial fan sage scrub plant community are often distinguished. The pioneer stage has sparse vegetation and low plant diversity. The intermediate stage is characterized by dense vegetation dominated by subshrubs. The mature stage has dense, full-grown subshrubs, along with evergreen woody shrubs. Scale-broom is a shrub species found most often on alluvial soils associated with drainages. Other common shrub species of this vegetation community are often characteristic species of either Riversidian sage scrub or chaparral communities. These common subshrub species include coastal sagebrush, California buckwheat, chamise, brittlebush (*Encelia farinosa*), hairy yerba santa (*Eriodictyon trichocalyx*), sugarbush, birch-leaved mountain mahogany, and deerweed (*Lotus scoparius*).

Small patches of this community are present in the City in washes where the soil has been deposited and periodically scoured by flowing water from slopes above. Soils tend to be sandy and porous. Substantially more acres of this community occur in the SOI than in the City.

Riversidian alluvial fan sage scrub is considered a special-status/sensitive habitat.

Chaparral

Chaparral is widely distributed on dry slopes and ridges at low and mid-elevations. It typically consists of shrubs with tough, broad leaves, although species composition may vary considerably with many different subtypes. This community also is highly adapted to periodic natural fires.

Chamise chaparral, which is the most common chaparral type in Riverside County, is dominated by chamise (*Adenostoma fasciculatum*). Southern mixed chaparral often occurs adjacent to Riversidian sage scrub and chamise chaparral but generally on sites with more moisture. Common chaparral shrubs include toyon (*Heteromeles arbutifolia*), chamise, several California lilacs (*Ceanothus megacarpus*, *C. crassifolius*, *C. cuneatus*, and *C. spinosus*), birch-leaved mountain mahogany (*Cercocarpus betuloides*), manzanita (*Arctostaphylos* spp.), and scrub oak (*Quercus berberidifolia*).

Generally taller and denser than sage scrub communities, this community is found in the City primarily on the eastern slopes of the Santa Ana Mountains. It is more broadly distributed in the SOI.

Oak Woodland

Oak woodland varies from open savannas with grassy understories to fairly dense woodlands with shrubby understories. This community typically integrates with both nonnative grassland and riparian woodland. Annual rainfall is generally between 38 and 64 centimeters (15 and 25 inches), and intermittent streams may be present. The dominant trees in the Riverside area are coast live oak (*Quercus agrifolia*), with smaller amounts of Engelmann oak (*Quercus engelmannii*), black walnut (*Juglans californica*), western sycamore (*Platanus racemosa*), toyon, and blue elderberry (*Sambucus mexicana*). Smaller trees and shrubs along with herbaceous plants and grasses that form the vegetative understory include sugar bush (*Rhus ovata*), squawbush (*Rhus trilobata*), poison-oak (*Toxicodendron diversilobum*), coastal wood fern (*Dryopteris arguta*), and bracken fern (*Pteridium aquilinum*).

Within the City and SOI this community is typically located near intermittent stream courses and is known to occur in the canyons on the east face of the Santa Ana Mountains.

Coast Live Oak Woodland

Coast live oak woodlands vary from closed-canopy stands of coast live oak to mixtures with conifers and broadleaf trees to open savannas. The shrub layer is poorly developed but may include toyon, laurel sumac, or blue elderberry. The herb component is typically continuous and dominated by rip-gut brome (*Bromus diandrus*) and several other introduced species. This community typically occurs on north-facing slopes and shaded ravines.

Coast live oak woodland is considered a special-status/sensitive habitat. It occurs in both the City and SOI, with substantially more acres in the SOI than in the City.

Dense Englemann Oak Woodland

Dense Englemann oak woodland is a climax woodland dominated by Englemann oak (*Quercus engelmannii*), with coast live oak as an additional significant constituent. The understory is composed of typical grassland species. Canopy cover is dense. This vegetation community

appears on moderately moist sites, especially in steep canyons. Dense Englemann oak woodlands are known to occur southeast of Lake Mathews between Gavilan Road and Lake Mathews Drive.

Dense Englemann oak woodland is considered a special-status/sensitive habitat. It occurs in the SOI but not within the City boundaries.

Riparian Forest, Woodland, and Scrub

Riparian forests and woodlands are dependent on the presence of or proximity to nonseasonal water sources. The water may be surface water or shallow groundwater. Riparian woodlands may measure a few meters in width to much broader, depending on water flow. Where non-seasonal streams flow out of the mountains and onto flatter grasslands, the riparian woodland community may be a relatively broad one, but in the higher elevations where water flows down a narrow passageway often confined by steep hillsides, this community may be very narrow. Riparian woodland may also occupy areas surrounding human-made lakes and reservoirs. Typical species of this community include willows (*Salix* spp.), western sycamore, black walnut, Fremont and black cottonwood (*Populus fremontii* and *P. trichocarpa*), white alder (*Alnus rhombifolia*), coast live oak, mule fat (*Baccharis salicifolia*), and smaller plants such as poison-oak, California blackberry, horsetails (*Equisetum* spp.), and scarlet and creek monkeyflower (*Mimulus cardinalis* and *M. guttatus*).

Riparian scrub is characterized as a scrubby streamside thicket, dominated by any of several willows, mule fat, or a mix of these. Vegetation may vary from open to impenetrable. Willows typically occur on relatively fine-grained sand and gravel bars that are close to river channels and/or groundwater. Coarser substrate soils or areas where there is relatively great depth to the water table favors dominance by mule fat. This early successional community may precede any of several riparian woodland or forest types absent severe flooding disturbance.

Riparian forest and scrub communities occur along streambeds in the City and SOI and along the shore of Lake Elsinore. Types include southern willow scrub, composed of relatively small willows and mulefat; southern cottonwood – willow riparian forest, with taller willows and cottonwoods; and southern sycamore – alder riparian woodland, composed of western sycamore, white alder, and often lower densities of willows, cottonwoods, or oaks. In general, all riparian communities are considered to be special-status/sensitive habitats.

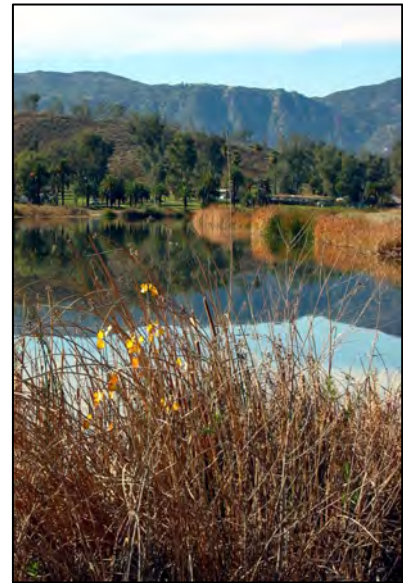
Southern Willow Scrub

Southern willow scrub is distinguished by dense, broadleaved, winter-deciduous riparian thickets dominated by several willow species, including black willow, sandbar willow, red willow (*Salix laevigata*), and arroyo willow, with scattered Fremont cottonwood and western sycamore. Most stands are too dense to allow much understory development. Typical soils include loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to southern

cottonwood – sycamore riparian forest. It occurs in both the City and SOI and is considered a special-status/sensitive habitat.

Southern Cottonwood – Willow Riparian Forest

Southern cottonwoods are dominated by Fremont cottonwood, black cottonwood, and several tree willows. Understories consist of shrubby willows. The dominant species require moist, bare mineral soil. Sub-irrigated and frequently overflowed lands along rivers and streams provide the necessary conditions for germination and establishment. Other typical plant species include California mugwort, mule fat, wild cucumber (*Marah macrocarpus*), western sycamore, Goodding's black willow (*Salix gooddingii*), sandbar willow (*Salix exigua*), yellow shining willow (*Salix lasiandra*), arroyo willow (*Salix lasiolepis*), and stinging nettle (*Urtica dioica*). It occurs in the SOI and is considered to be a special-status/sensitive habitat.



Gunnerson Pond

Southern Sycamore – Alder Riparian Woodland

Southern sycamore – alder riparian woodland is a tall, open, broadleaved, winter-deciduous streamside woodland dominated by western sycamore and white alder. These stands seldom form closed canopy forests and may appear as trees scattered in a shrubby thicket of hard drought-resistant evergreens and deciduous species. Soils consist of very rocky streambeds subject to seasonally high-intensity flooding. White alder increases in abundance on more perennial streams, while western sycamore favors more intermittent hydrographs. Other common forms of vegetation include California mugwort, coast live oak, horsetail, smilo grass (*Piptatherum miiaceum*), California blackberry, poison-oak, blue elderberry, and stinging nettle (*Urtica dioica*). This woodland is considered to be a special-status/sensitive habitat.

Marsh

Marsh communities are dominated by perennial, emergent flowering plants (monocots) generally up to 4 to 5 meters tall. Vegetation often forms completely closed canopies. Bulrush (*Scirpus* spp.) and cattail (*Typha* spp.) species dominate. Marsh communities are found on sites permanently inundated by fresh water and lacking significant current. Conditions of prolonged saturation permit accumulation of deep, peaty soils in this community.

Coastal and Valley Freshwater Marsh

This community is generally found in areas with slow-moving or ponded water where shallow topography is subject to prolonged saturation. One of these areas is northeast of Lake Elsinore,

around a small lake that was created several years ago. It is recognized by the presence of plants that grow up through shallow water, such as cattail, bullrush, and sedge. This community occurs in the City but not the SOI and is considered a special-status/sensitive habitat.



Rare White Pelicans in the Back Basin.

Open Water/Reservoir/Pond

Open water/reservoir/pond areas are called lacustrine ecosystems and are characterized by inland depressions or dammed riverine channels containing standing water, including both near-shore (limnetic) and deepwater habitats (littoral). Usually, to meet this classification, each area must exceed 20 acres (8 hectares) and be deeper than 6.6 feet (2 meters). The lower San Jacinto River, Lake Elsinore, and several other ponds and creeks within the study area provide open water habitat relatively free of vegetation that supports fish, amphibians, and waterfowl. Among the warm water fishery species that provide recreational fishing in Lake Elsinore are largemouth bass, catfish, and crappie. Recent efforts to improve the water quality in Lake Elsinore have included the harvesting of carp in order to restructure the fishery composition and the installation of a series of axial flow pumps designed to increase vertical water circulation, thereby maintaining higher levels of dissolved oxygen in the water. These areas are subject to a wide range of regulations and, depending on site-specific conditions, typically are considered to be a special-status/sensitive habitat.

Vernal Pools

Vernal pools are seasonal wetlands that form in localized depressions with subsurface hardpans, allowing ponded rainwater to remain above the surface into the dry season. These seasonal wetlands create a moist environment to which a specialized group of plant species has adapted. Species composition varies among pools and among years. However, common species in vernal pools in or near the project area include woolly marbles (*Psilocarphus brevissimus*), toad rush (*Juncus bufonius*), spike rush (*Eleocharis* species), wire-stem popcorn flower (*Plagiobothrys leptocladus*), Mexican speedwell (*Veronica peregrina* ssp. *xalapensis*), annual hairgrass (*Deschampsia danthonioides*), alkali pepper-grass (*Lepidium dictyotum*), and water pygmy weed (*Crassula aquatica*); many special-status species are also present.

Agricultural Lands

Limited areas of groves, orchards, and cropland persist in the study area. These lands have little value as habitat for wildlife other than those species highly adapted to disturbance.

Residential/Urban/Exotic

A substantial portion of the area within the Lake Elsinore SOI has been developed. Remaining natural resources in this area are now limited to ornamental trees and garden shrubs that may provide some habitat for nesting birds.

4.2.3 Special-Status Species

Plants and animals are identified as being “special status” species if they are listed or proposed for listing under federal or state law; identified as “sensitive,” “a species of concern,” or “a species of special concern” on lists maintained by federal or state agencies; or are on the list of biologically endangered and rare plant species maintained by the California Native Plant Society. Table 4-2 identifies the special-status species that are known to occur or have a reasonable potential for occurrence in the City and its SOI.

Table 4-2. Special-Status Species that Occur or Potentially Occur in the City and/or SOI

Species Common/ Scientific Name	Status ¹	Habitat Affinities
Plants		
Chaparral sand-verbena <i>Abronia villosa</i> var. <i>aurita</i>)	Federal: None State: None CNPS: 1B	Exposed sites with sandy soils, especially washes and dunes, in chaparral, sage scrub, and alluvial scrub.
California orcutt grass <i>Orcuttia californica</i>	Federal: E State: E CNPS: 1B	Vernal pools, alkaline soils, and southern basaltic claypan.
Coulter’s goldfields <i>Lasthenia glabrata</i> ssp. <i>Coulteri</i>	Federal: None State: None CNPS: 1B	Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Alkaline soils in playas, sinks, and grasslands 1-1,400 meters in elevation.
Davidson’s saltscale <i>Atriplex serenans</i> var. <i>davidsonii</i>	Federal: None State: None CNPS: 1B	Alkali vernal pools, alkali annual grasslands, alkali playa, and alkali scrub components of alkali vernal plains.
Hammitt’s clay-cress <i>Sibaropsis hammittii</i>	Federal: None State: None CNPS: 1B	Chaparral and valley and foothill grassland at elevations of 700 to 1,100 meters.
Intermediate mariposa lily <i>Calochortus weedii</i> var. <i>intermedius</i>	Federal: None State: None CNPS: 1B	Rocky hill and valley landscapes with chaparral, sage scrub, or grasslands.
Little mouseltail <i>Myosurus minimus</i> ssp. <i>Apus</i>	Federal: None State: None CNPS: 3	Vernal pools and poorly drained spots in moist grasslands, generally under alkaline conditions.

Chapter 4.0

Species Common/ Scientific Name	Status ¹	Habitat Affinities
Long-spined spineflower <i>Chorizanthe polygonoides</i> var. <i>longispina</i>	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub, meadows, valley and foothill grassland; gabbroic clay; 30–1,450 meters in elevation.
Many-stemmed dudleya <i>Dudleya multicaulis</i>	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub, valley and foothill grassland; in heavy, often clayey soils or grassy slopes; 0–790 meters in elevation.
Munz's onion <i>Allium munzii</i>	Federal: E State: T CNPS: 1B	Chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland; only in Riverside County; heavy clay soils; grows in grasslands and openings within shrublands or woodlands; 300–1,035 meters in elevation.
Palmer's grapplinghook <i>Harpagonella palmeri</i>	Federal: None State: None CNPS: 4	Chaparral, coastal sage scrub, grasslands; clay soils.
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	Federal: None State: None CNPS: 1B	Coastal scrub, chaparral; dry slopes and flats; sometimes at interface of two vegetation types, such as chaparral and oak woodland; dry, sandy soils; 40–1,705 meters in elevation.
Robinson's pepper-grass <i>Lepidium virginicum</i> var. <i>robinsonii</i>	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub; dry soils, shrubland; 1–945 meters in elevation.
Round-leaved filaree <i>Erodium macrophyllum</i>	Federal: None State: None CNPS: 2	Cismontane woodland, valley and foothill grassland; clay soils; 15–1,200 meters in elevation.
San Diego ambrosia <i>Ambrosia pumila</i>	Federal: E State: None CNPS: 1B	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; in the U.S., known only from San Diego and Riverside Counties; sandy loam or clay soil; in valleys, persists where disturbance has been superficial; 20–415 meters in elevation.
San Jacinto Valley crownscale <i>Atriples coronata</i> var. <i>notatior</i>	Federal: E State: None CNPS: 1B	Floodplains (seasonal wetlands) dominated by alkali scrub, alkali playas, vernal pools, and, to a lesser extent, alkali grasslands.
Slender-horned spineflower <i>Dodecahema leptoceras</i>	Federal: E State: E CNPS: 1B	Chaparral, coastal scrub (alluvial fan sage scrub), flood deposited terraces, and washes.
Small-flowered microseris <i>Microseris douglasii</i> var. <i>platycarpa</i>	Federal: None State: None CNPS: 4	Clay soils in association with native grasslands or vernal pools.

Species Common/ Scientific Name	Status ¹	Habitat Affinities
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>Laevis</i>	Federal: None State: None CNPS: 1B	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland, alkali meadow, alkali scrub; also in disturbed places; 0–480 meters in elevation.
Invertebrates		
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	Federal: E State: None	Areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	Federal: E State: None	Open areas in grasslands, forb lands, coastal sage scrub, and chaparral, usually with low disturbance and a well-developed biological soil crust. Primary larval host plant is <i>Plantago erecta</i> .
Amphibians		
Western spadefoot <i>Spea hammondi</i>	Federal: SOC State: SSC	Grassland, coastal sage scrub, and other habitats with open sandy gravel soils. Breeds in vernal pools and temporary ponds/pools associated with river bottoms and floodplains. Primarily a species of the lowlands, frequenting washes, floodplains of rivers, alluvial fans, and alkali flats.
Reptiles		
Coast (San Diego) horned lizard <i>Phrynosoma coronatum</i> (<i>blainvillei</i>)	Federal: None State: SSC	Open or sparse scrub and chaparral communities. This species prefers loose, friable soil for burrowing.
Orangethroat whiptail <i>Cnemidophorus hyperythrus</i>	Federal: None State: SSC	Chaparral, sage scrub, and open edges of riparian areas; specialist to some degree on native termites.
Coast Western Patch-nosed Snake <i>Salvadora hexalepis virgultea</i>	Federal: None State: SSC	Occupies desert scrub, coastal chaparral, washes, sandy flats, and rocky areas.
Coastal western whiptail <i>Aspidoscelis tigris stejnegeri</i>	Federal: SOC State: None	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.
Northern red-diamond rattlesnake <i>Crotalus ruber ruber</i>	Federal: None State: SSC	Chaparral, woodland, grassland, and desert areas. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.

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Species Common/ Scientific Name	Status ¹	Habitat Affinities
Western pond turtle <i>Clemmys marmorata pallida</i>	Federal: None State: SSC	Ponds, small lakes, perennial pools in drainages, marshes, slow-moving, sometimes brackish water.
Birds		
American bittern <i>Botaurus lentiginosus</i>	Federal: SOC State: None	Freshwater marshes and vegetated borders of ponds and lakes.
Bald Eagle <i>Haliaeetus leucocephalus</i>	Federal: Delisted State: E	Open areas, forest edges, and mountains near large lakes and rivers. Requires tall trees for nesting. Three known nest efforts in or near western Riverside County but not within the project area in the last 10 years.
Bell's sage sparrow <i>Amphispiza belli belli</i>	Federal: SOC State: SWL	Extensive patches of chaparral less than about 2 meters in height and sage scrub shaded and relatively open at the ground layer.
Black-crowned night-heron <i>Nycticorax nycticorax</i>	Federal: None State: None	Many types of wetlands.
Burrowing owl <i>Athene cunicularia</i>	Federal: SOC State: SSC	Requires fairly large expanses of relatively open, level, or hummocky terrain, including grasslands, agricultural fields, dairies, flood channels, and occasionally undisturbed areas of golf courses or airports.
Cactus wren <i>Campylorhynchus brunneicapillus</i>	Federal: None State: SSC	Coastal sage scrub with thickets, patches, or tracts of large branching cacti, thorny shrubs, and small trees.
California Horned Lark <i>Eremophila alpestris actia</i>	Federal: None State: SSC	Found in a variety of open habitats.
Coastal California gnatcatcher <i>Poliophtila californica californica</i>	Federal: T State: SSC	Obligate resident of several distinct subassociations of the coastal sage scrub community.
Cooper's hawk <i>Accipiter cooperii</i>	Federal: None State: SWL	Mature forest, open woodlands, parks, and residential areas.
Double-crested cormorant <i>Phalacrocorax auritus</i>	Federal: None State: None	Occupies diverse aquatic habitats in all seasons. Diet is primarily fishes. Tolerates only minimal disturbance at nesting colonies.
Downy woodpecker <i>Picoides pubescens</i>	Federal: None State: None	Nests in extensive lowland riparian woodland and forest; will forage in many adjacent habitats.

Species Common/ Scientific Name	Status ¹	Habitat Affinities
Least Bell's vireo <i>Vireo bellii pusillus</i>	Federal: E State: E	Riparian habitat with some tree layer and a dense understory, often of young willows but sometimes mule fat, blue elderberry, California rose, desert wild grape, and a variety of other shrubby species.
Loggerhead shrike <i>Lanius ludovicianus</i>	Federal: SOC State: SSC	Open areas (e.g., grassland, rangeland, fallow agricultural fields), especially where there are scattered large shrubs, trees, or other suitable perches at moderate height.
Northern harrier <i>Circus cyaneus</i>	Federal: None State: SSC	Coastal lowlands, marshes, mesic grasslands, and agricultural fields. Probably extirpated locally as a breeder.
Osprey <i>Pandion haliaetus</i>	Federal: None State: SWL	Large water bodies supporting fish with surrounding or nearby suitable nest sites.
Peregrine falcon <i>Falco peregrinus</i>	Federal: Delisted State: Delisted, P	Open areas, mud flats with waterfowl, shorebirds. Not currently believed to breed in Riverside County.
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	Federal: None State: SWL	Rocky slopes, especially where a relatively open shrub cover dominated by California sagebrush is interspersed with grassy areas.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Federal: E State: E	Riparian woodlands along rivers and streams, with mature dense stands of willows, cottonwoods, and sometimes alders. Requires some inundation or soil saturation in riparian areas at least through May.
Tree swallow <i>Tachycineta bicolor</i>	Federal: None State: None	During winter and migration, found in open areas, grasslands, meadows, brushlands, and near water sources.
Tricolor blackbird <i>Agelaius tricolor</i>	Federal: SOC State: SSC	Freshwater marshes. Suitable breeding habitat includes cattails and bulrushes as well as nonnative thistles and mustards.
White-faced ibis <i>Plegadis chihi</i>	Federal: None State: SWL	Nests in large, shallow marshes with islands of emergent vegetation. Forages in a wide variety of marsh and mudflat habitats.
White-tailed kite <i>Elanus leucurus</i>	Federal: None State: P	Nests in riparian woodland edges, pasture lands and savannah, oaks, and sycamores. Forages in open areas with short grass and/or forbs.

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Species Common/ Scientific Name	Status ¹	Habitat Affinities
Yellow-breasted chat <i>Icteria virens</i>	Federal: None State: SSC	Nests and forages in dense, low riparian growth, including edges of woods, fencerows, dense thickets, and brambles in low, wet places near streams, pond edges, or swamps and in old overgrown clearings and fields.
Yellow warbler <i>Dendroica petechia brewsteri</i>	Federal: None State: SSC	Nests in mature riparian forest and woodland, foraging largely in the upperstory; more common as a spring and fall migrant in varied habitats.
Mammals		
Bobcat <i>Lynx rufus</i>	Federal: None State: None	Variety of habitats, including conifer, oak, riparian, pinyon-juniper forest, chaparral; dependent on extensive open space and connectivity, with rabbits a central part of the diet.
Mountain lion <i>Puma concolor</i>	Federal: None State: None	Variety of habitats; requires very large tracts of land with low levels of human disturbance and development.
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	Federal: None State: SSC	Coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon juniper, and annual grassland in sandy herbaceous areas, usually in association with rocks or coarse gravel.
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	Federal: None State: SSC	Arid regions supporting short-grass habitats such as annual grassland, often adjacent to or mixed with Riversidian sage, scrub, alluvial fan scrub, Great Basin sagebrush, chaparral, disturbed habitat, or agriculture.
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	Federal: E State: T	Inhabits annual grassland with sparse perennial vegetation and open sage scrub in the San Jacinto Valley and adjacent areas of western Riverside County and northwestern San Diego County.

Species Common/ Scientific Name	Status ¹	Habitat Affinities
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¹ Indicates federal and state listing status as of January 2011 and CNPS list for plants.

Codes and Abbreviations

C: Candidate

CNPS: California Native Plant Society

1B: Rare and endangered in California and throughout its range

2: Rare and endangered in California but more common elsewhere

4: Limited distribution

P: Fully Protected species identified in the California Fish and Game Code

SOC: Species of Concern

SSC: California Department of Fish and Game Species of Special Concern

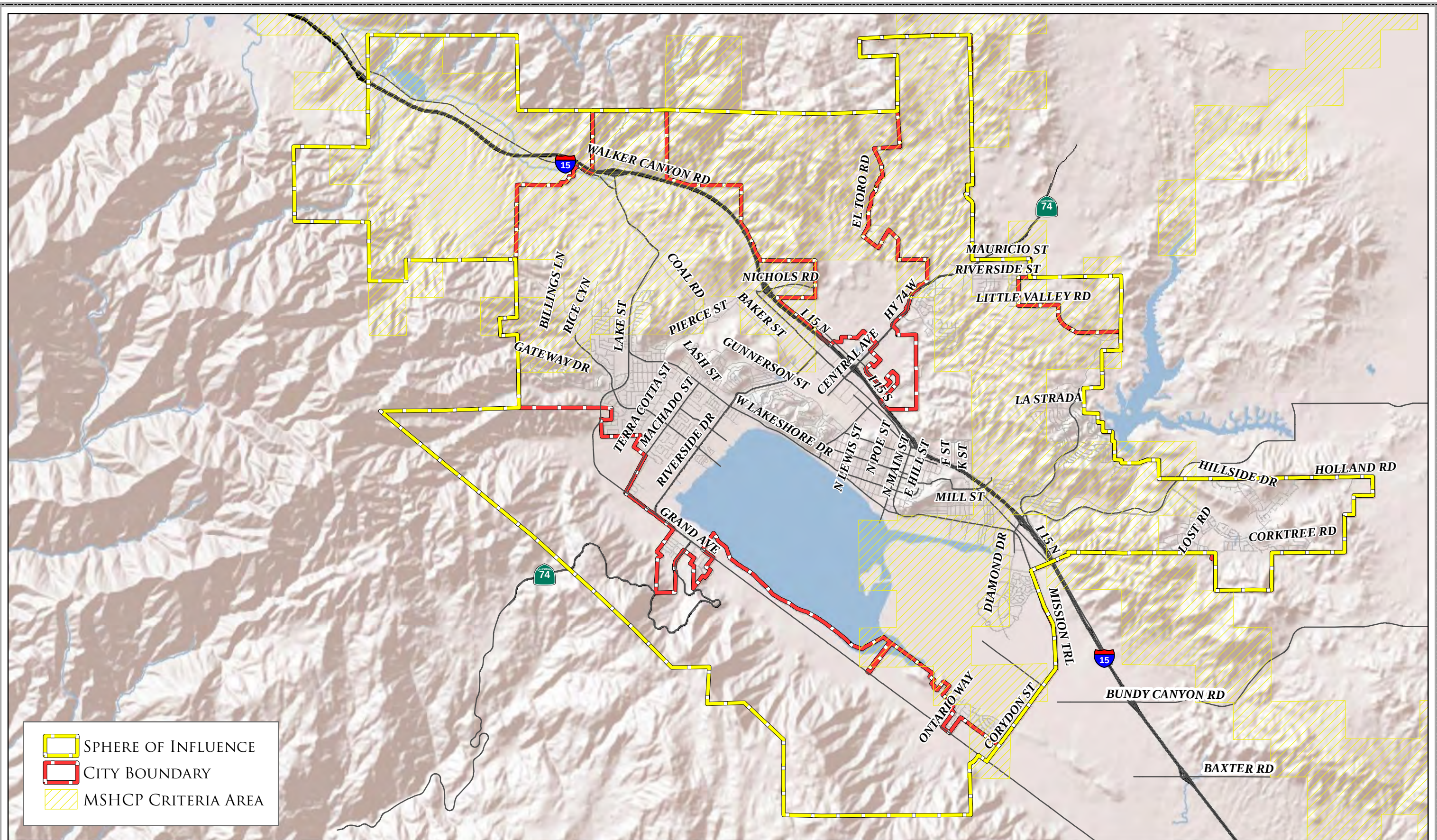
SWL: California Department of Fish and Game Watch List

T: Threatened

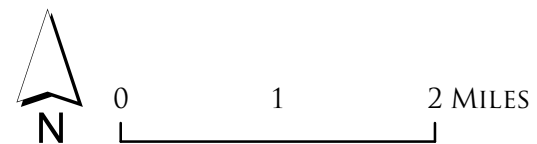
4.2.4 Existing and Proposed Conservation Areas

The City is a participating agency in the MSHCP and as such is working with Riverside County, other cities in the region, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (DFG), California Department of Transportation (Caltrans), California State Parks, U.S. Forest Service, and U.S. Bureau of Land Management to consolidate the lands needed to complete the MSHCP Reserve area over a 25-year period. Specifically, the City is focusing on adding lands to existing core reserves and linkages within and adjacent to the Elsinore Area Plan, public and quasi-public lands that are part of the existing MSHCP conservation area; and the criteria area in and adjacent to the City and SOI as shown in Figure 4.2, MSHCP Criteria Areas. MSHCP maps indicate approximately 3,500 acres in the City and SOI are part of the existing MSHCP conservation area. The MSHCP criteria area depicted and discussed within the maps and text published grids of one-quarter section descriptor “cells” allow the City to focus and distribute the conservation effort between land owner development interests and permanent conservation based on the City Council’s independent land use authority. Development would be allowed in areas designated as MSHCP conservation areas through the City LEAP program based on tradeoffs for conservation acreage dedication or acquisitions pursuant to the MSHCP program.

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SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE



CITY OF LAKE ELSINORE
MSHCP CRITERIA AREAS
FIGURE 4.2

BACKSIDE OF FIGURE

4.2.5 Biological Resources Goals, Policies and Implementation Programs

Goal 1 Identify and conserve important biological habitats where feasible while balancing the economic growth and private property right interests of the City, its residents, and landowners.

Policies

- 1.1 The City shall continue to participate in the Western Riverside County Multiple Species Habitat Conservation Plan, the LEAPS program, and the Implementing Agreement; with a strategy that focuses on quality assemblage of conservation acreage. The City shall work toward the lower end of the conservation acreage range as promised by the County during the adoption of the MSHCP by the City.
- 1.2 Evaluate the installation of barrier fencing or other buffers between MSHCP Conservation Areas and proposed public and private land uses that may be incompatible with the Conservation Areas in order to minimize illegal/unauthorized public access, domestic animal predation, or dumping in the Conservation Areas while not impeding wildlife movement.
- 1.3 The City's Conceptual Reserve Design shall be developed in accordance with Section 3.2.3 of the MSHCP as amended, and may rely upon the flexibility permitted by the MSHCP where appropriate in conducting the Reserve Assembly Accounting set forth in Section 6.7 of the MSHCP.
- 1.4 Encourage revegetation with native plants compatible with natural surrounding habitat where soils have been disturbed during construction, and discourage plants identified in the MSHCP as unsuitable for conservation areas.
- 1.5 The City shall coordinate with the Regional Conservation Authority to have that agency acquire native habitat areas as permanent open space and allow public trail access where appropriate.
- 1.6 The City shall establish a plan for a trail network intended for active or passive use within public open space areas and traversing around and through MSHCP Conservation areas where compatible with guidelines set forth in the MSHCP and City Council MSHCP policies.
- 1.7 The City shall require all new trails, trailheads, conservation signage, interpretive centers, and maintenance facilities established within MSHCP Conservation areas to follow the

Chapter 4.0



Guidelines for the Siting and Design of Trails and Facilities, as set forth in Section 7.4.2 of the MSHCP.

- 1.8 The City shall consult with the Regional Conservation Authority (RCA) and adjacent jurisdictions to ensure proper adherence to MSHCP guidelines and to allow for a maximum level of regional interconnection of trails systems. The City shall reduce, modify or add to the regional interconnections and linkages based on new biological analysis brought forward during the CEQA and LEAP processes.

Implementation Program Through the MSHCP, LEAP and CEQA processes the City shall identify and conserve important biological habitats while balancing economic growth and property rights.

Agency/Department Community Development Department

Goal 2 Protect sensitive plant and wildlife species residing or occurring within the City.

Policies

- 2.1 Biological resources analyses of proposed projects shall include discussion of potential impacts to any plant or wildlife species that is officially listed as threatened or endangered by the United States Fish and Wildlife Service and/or the California Department of Fish and Game but not covered by the MSHCP.
- 2.2 Development or modification shall be discouraged in areas containing riparian habitat of high functions and values or corridors with 80% or more of natural native habitat that link larger patches of natural native habitat containing 80% or more native plant species. Further, development in areas described for conservation, including areas planned for riparian/riverine restoration included in the MSHCP, shall also be discouraged.
- 2.3 The City shall encourage the development of a Native Tree Planting and Maintenance Program that presents guidelines for selecting and locating trees to support wildlife, improve air and water quality, and reduce energy consumption.

Implementation Program The City shall continue to implement the Western Riverside County MSHCP.

Agency/Department Community Development Department

4.3 Open Space

4.3.1 Introduction

Much of the City encompasses areas with steep slopes and high elevations that are not capable of being readily developed without unique, sensitive, and special land planning design. As a result, many of these areas have remained vacant. As the City's vision evolves, related development interests and land values have increased significantly, and many of the vacant lands are designated for development because of the City's increasing land values and increased commercial and residential interest. Open space on lands that contain endangered species and related habitat, or located within linkages, may be designated for permanent preservation under the MSHCP during the project review process, subject to the City's LEAP program. Additional open space areas outside of the MSHCP will also be needed to achieve a healthy balance between urban areas and the natural environment.

"Additional open space areas outside of the MSHCP will also be needed to achieve a healthy balance between urban areas and the natural environment."

Direct public access is currently not widely available to many of the City's open space areas and may likely be restricted out of the MSHCP conservation area within the City and SOI. Residents desire protection of these unique resources while also making the open space resources more accessible to the public. The policies in this section are intended to protect open space areas while also making them more accessible to the public for visual and recreational opportunities.

4.3.2 Open Space Baselines

The General Plan Land Use designations exhibited in Figure 2.1a show areas designated as open space within the City. Open space on land that contains endangered species and related habitat may be designated for permanent preservation under the MSHCP. Land on steep slopes is sometimes difficult and costly to develop and therefore will also likely remain as permanent open space until land values and design standards allow development. Land currently within the floodplain of local drainages, including Lake Elsinore and Temescal Creek, have been left vacant currently in order to avoid flooding and have been delineated accordingly as Open Space. Figure 4.3 illustrates a vacant land inventory in 2009.

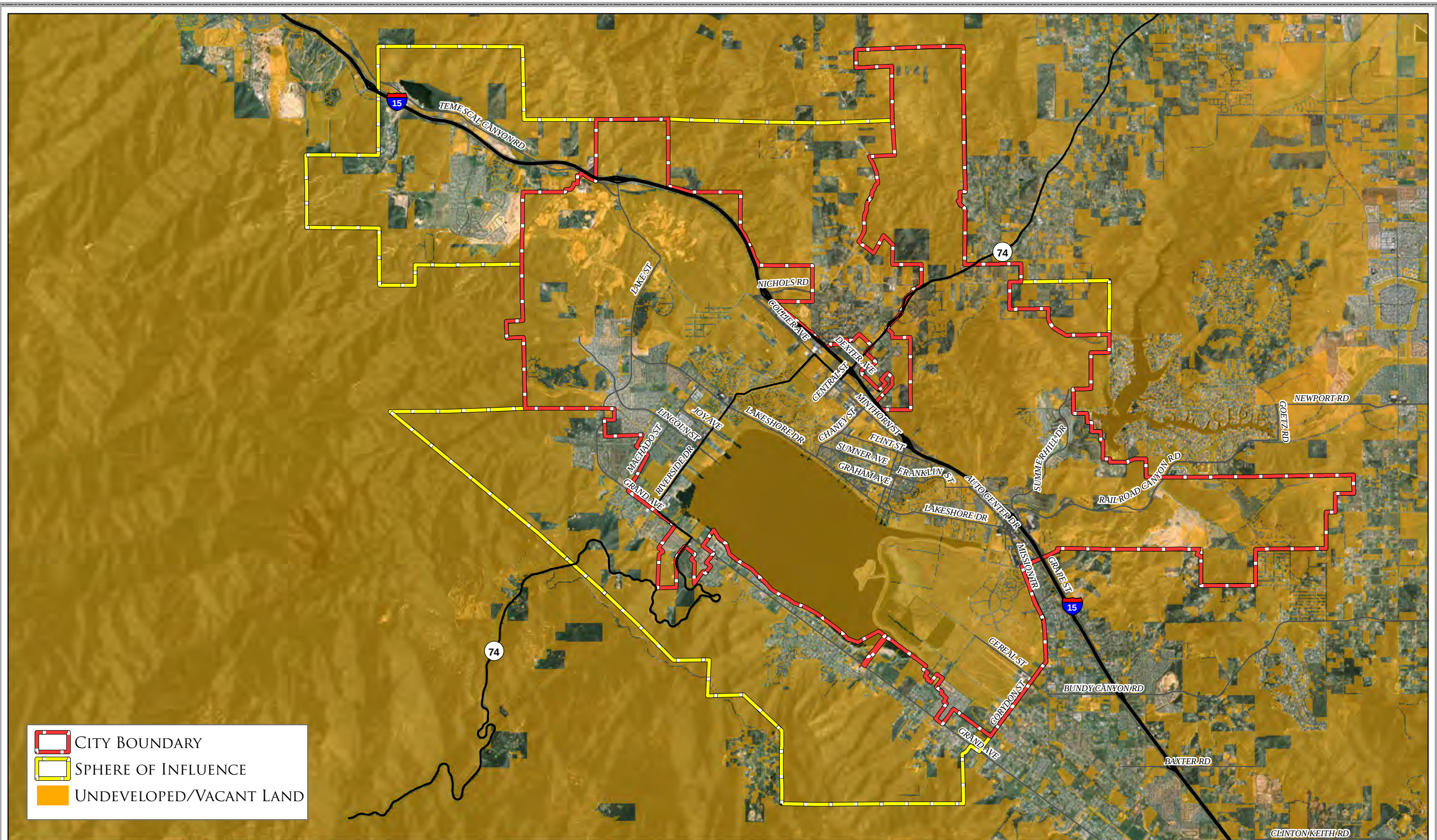
4.3.3 Open Space/Recreation/MSHCP Land Use Designations

As of 2007, approximately 31,626 acres have been dedicated to parks and open space, with approximately 322 acres devoted to parks and the remainder (approximately 31,304 acres) designated as vacant land. This General Plan would allow for approximately 18,236 acres of permanent open space, recreation, and MSHCP preserve areas. Approximately 13,525 acres will be designated as open space, and 2,029 recreation. Further, approximately 7,187.1 acres within the planning area are identified as within the MSHCP preserve.

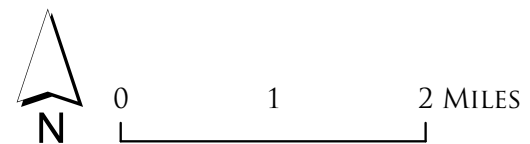
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SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE



CITY OF LAKE ELSINORE
 VACANT LAND INVENTORY (2009)
 FIGURE 4.3

BACKSIDE OF FIGURE

4.3.4 Open Space Goal, Policies and Implementation Program

Goal 3 Provide an open space layout within the City that will enhance the recreational and visual experiences of all City residents and visitors.

Policies

- 3.1 Maximize the MSHCP conservation areas and other open space that is available for public use.
- 3.2 The City shall ensure that passive and active open space uses are incorporated into development areas.
- 3.3 Development on steep slopes in public or private property shall require contour grading.
- 3.4 Preserve the City's visual character, in particular the surrounding hillsides, which topographically define the lake region.



A View of the City from the West

Implementation Program The City shall consider modifying the existing grading ordinance to include contour grading or other methods and concepts that protect and enhance steep slopes, including enforcement procedures and appropriate access.

Agency/Department Engineering Department

4.4 Water Resources

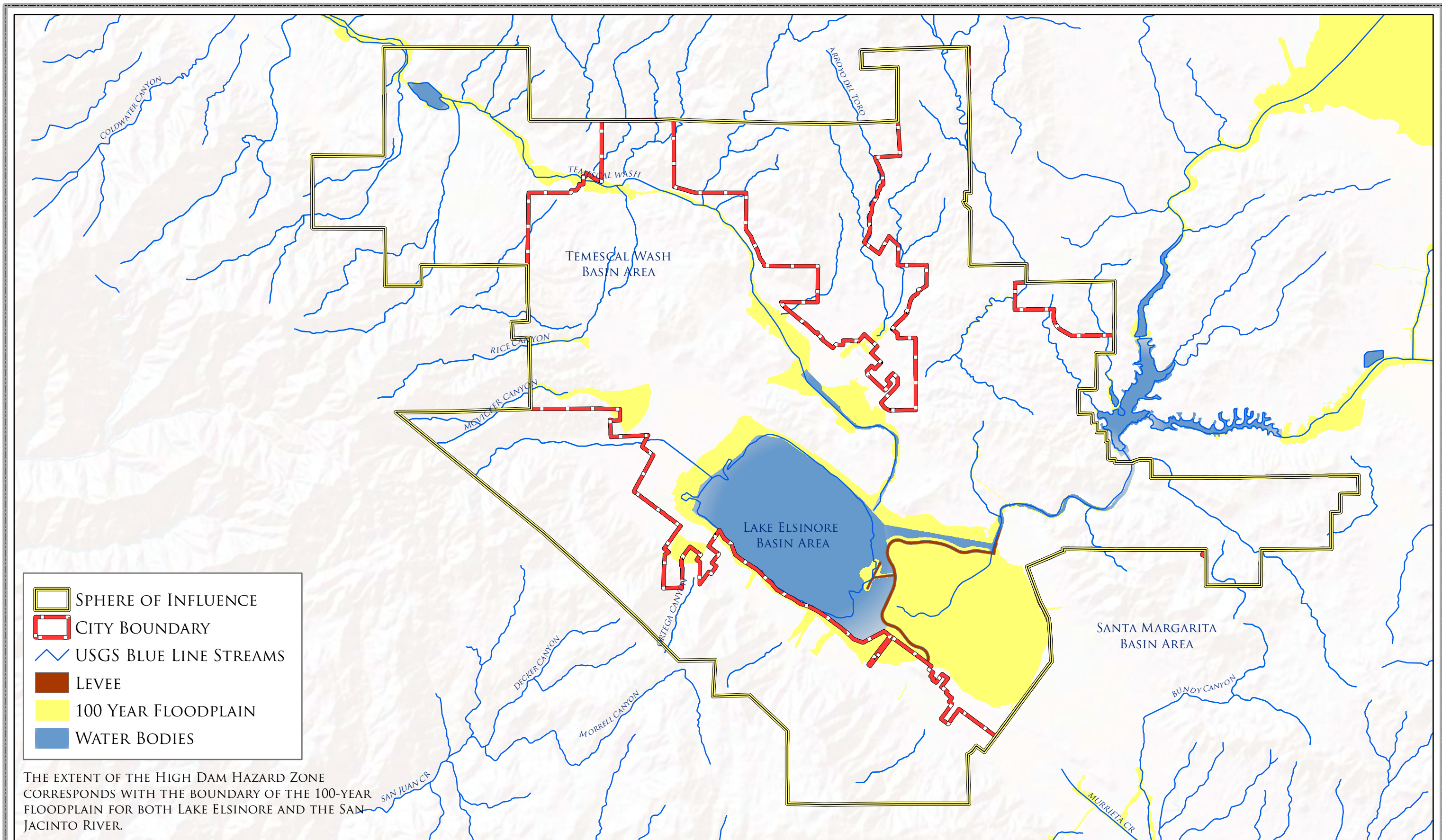
4.4.1 Introduction

The City lies in an arid region where water is a limited resource. Fortunately, the City contains a wealth of raw and nonpotable reclaimed water resources, such as Lake Elsinore, the San Jacinto River, and the Temescal Wash and treated water plants, as depicted in Figure 4.4, Hydrologic Resources. As such, it is important that all water resources be protected and conserved while enhancing their overall quality as the City increasingly becomes more urbanized.

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SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE



CITY OF LAKE ELSINORE
HYDROLOGIC RESOURCES
FIGURE 4.4

BACKSIDE OF FIGURE

Lake Elsinore, which currently contains 3,412 surface acres of water and encompasses many lake-oriented recreational facilities, is the City's largest and most significant water resource. However, Lake Elsinore varies widely in size in response to hydrologic conditions, ranging from 6,000 acres in very wet years to portions of a dry lakebed in drought years.

Efforts to stabilize the lake level to a satisfactory level should be supported so that the area surrounding the lake can be increasingly developed with water-oriented recreational opportunities that the City's residents can enjoy. The policies in this section are intended to conserve and improve water resources.

4.4.2 Water Resources Baselines

The following discussion addresses the existing surface and groundwater hydrology, drainage, water quality, and potential flooding conditions extant within the City.

Hydrology

The study area has a typical Mediterranean climate with wet, cool winters, and warm, dry summers. Most of the rainfall occurs between November and April, with an average annual rainfall of 13.7 inches.

Surface Water

The primary surface water features within the project area are Lake Elsinore, the San Jacinto River, and Temescal Wash (see Figure 4.4). Railroad Canyon Reservoir releases flows to the San Jacinto River. The San Jacinto River flows into Lake Elsinore, which in turn flows into Temescal Wash during periods of high lake levels. As shown in Figure 4.4, the drainage patterns within the City and SOI can be divided into three basins, including the Temescal area, Lake Elsinore, and Santa Margarita.

Lake Elsinore is natural in origin and measures approximately 5 miles long by 2 miles wide. In an effort to maintain a more constant lake level, a levee was constructed across the lake in 1995 to reduce the size of the water surface and minimize evaporation. The levee also provides flood protection up to an elevation of 1,262 feet for the southern end of the lake, an area known as the Back Basin (see Figure 4.4).

Lake Elsinore is fed by three (3) primary sources of water: runoff from local tributaries, direct precipitation inputs to the lake surface, and inflows from the San Jacinto River. The percentage of the total input for each of these sources is 8%, 20%, and 72%, respectively, indicating that the San Jacinto River is by far the largest source of water reaching Lake Elsinore. Little groundwater interaction is expected because the lake lies on a relatively impermeable layer of clay soil.

Groundwater

Elsinore Groundwater Basin General Setting

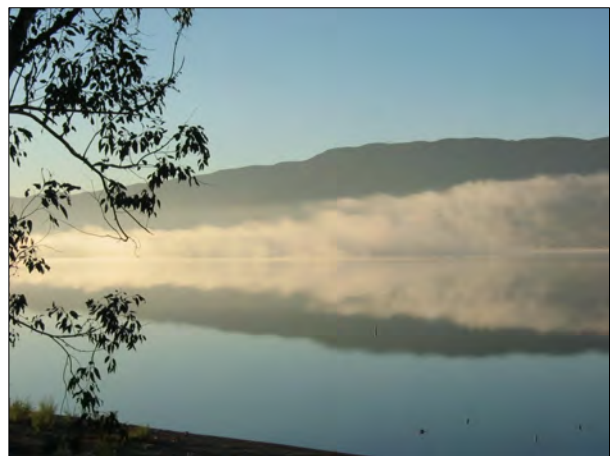
The Elsinore groundwater basin is supplied primarily by infiltration of precipitation in the surrounding watershed. Other sources of inflow include infiltration along the San Jacinto River channel upstream of Lake Elsinore and agricultural and residential return flows. Municipal pumping for potable water is the only major outflow from the Elsinore groundwater basin. Some additional groundwater pumping is performed as necessary to help maintain the elevation of Lake Elsinore at 1,242.4 feet above mean sea level.

Depth to Water Table and Groundwater Gradient

The depth to groundwater varies considerably across the project area, ranging from approximately 50–60 feet in the northern portion of the basin to approximately 400–500 feet in the southern portion. The groundwater gradient naturally follows this variation in depth, flowing from the northwest to the southeast underneath Lake Elsinore. Two faults, Glen Ivy North and Rome Hill,

appear to partially block groundwater flow.

The average groundwater gradient is approximately 0.016 in the middle of the basin, based on somewhat limited data. This steep gradient is due to the considerable level of groundwater pumping in the Back Basin.



Early Morning Fog at the Lake

Groundwater Overdraft

The Elsinore Valley Municipal Water District (EVMWD) Groundwater Management Plan includes a groundwater budget analysis of the Elsinore basin for the period 1990 to 2000. The results of the analysis indicate that the basin experiences an average annual deficit of approximately 1,800 acre-feet per year over the 11-year period studied. Eight of the 11 years analyzed had a deficit, while the remaining 3 years without a deficit corresponded to above-average annual precipitation totals. In addition, water levels in wells in the southern portion of the basin dropped more than 200 feet in the same time period, providing further evidence of a groundwater overdraft condition. Continuing overdraft may lead to ground subsidence as soils compact over long periods of time, although no clear evidence of subsidence has currently been identified around Lake Elsinore.

Flooding

Flood information from the 1990 General Plan was researched and found to still be applicable. Following this summary is an update of the Federal Emergency Management Agency (FEMA) flood mapping information based on a review of the latest maps.

Regional flood control planning and facilities construction are within the jurisdiction of the Riverside County Flood Control District. The district is also responsible for the maintenance and operation of flood control facilities, including debris dams, storm channels, and storm drains. The district's facilities may be characterized as the "backbone" system of flood control for the region. The City of Lake Elsinore also owns and maintains certain flood control facilities in the City that are generally constructed as part of the drainage plans for individual projects. The City ensures that the construction of these facilities is consistent with the master plans of the Riverside County Flood Control District.



San Jacinto River Bank Full Discharge

FEMA prepared a study in 1980 and revised it in 1987 that identified the following flooding sources in the City: Arroyo del Toro, Channel H, Elsinore Spillway Channel, Lake Elsinore, Leach Canyon Channel, Lime Street Channel, McVicker Canyon, Ortega Wash, Ortega Channel, Rice Canyon, San Jacinto River, Stovepipe Canyon Creek, Temescal Wash, Wash G, Wash I, and Wasson Canyon Creek. The locations of these sources is presented in Figure 4.4.

The San Jacinto River is the major watercourse within the City. Runoff during a 100-year flood is contained within the riverbed upstream of Interstate 15. Below that point, 100-year flows presently cause flooding over portions of Railroad Canyon Road. In addition, San Jacinto River inflows to Lake Elsinore cause the lake to rise substantially to an elevation of 1,267 feet, inundating inhabited portions of the lakeshore along the southwest and west sides of the lake. Flooding is exacerbated by the low capacity and high elevation of the Temescal Wash outlet (1,260 feet).

Temescal Wash is a gradually sloped earth ditch with limited capacity. The channel has experienced substantial encroachment from residential and commercial development. The 1980 flood caused the condemnation of more than 100 homes and property damage to residential, commercial and industrial uses in the downtown area. Total damages cost approximately \$34 million.

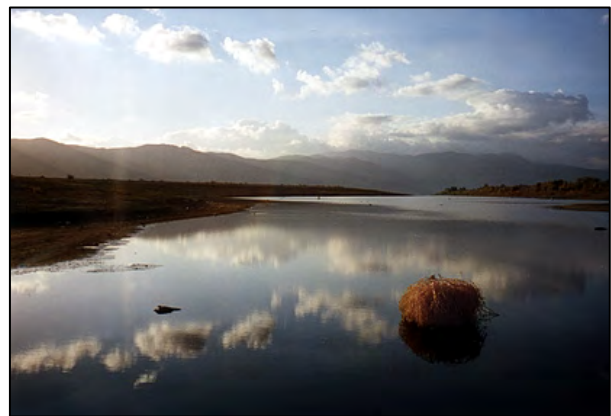
Flooding also occurs from the flow of Wasson Canyon Creek as water flows over Camino del Norte and spreads out due to an irregular flow line and lack of any defined channel banks.

Backwater forms behind the railway bridge and extends upstream past the Collier Avenue weir crossing at depths of nearly six (6) feet.

Sheet flow is a flood hazard that exists in developed areas below the mouths of Leach Canyon, McVicker Canyon, and Rice Canyon. Fully improved, 100-year design channels have been constructed for Leach Canyon and other washes. However, these facilities do not provide adequate upstream control at the mouth of the canyons. As a result, only the channels pick up a portion of the floodwaters, and the remaining runoff is in the form of sheet flooding toward the lake, with depths of more than one (1) foot.

Flooding from Rice Canyon results from the failure of an earth berm located at the mouth of the canyon. Failure of the dike allows expansive sheet flooding in a southwest direction into Lake Elsinore, at depths of less than 1 foot. Flooding generated in McVicker Canyon results in sheet flow on the alluvial fan below the mouth of the canyon. In the lower reach, these flows combine with those of Leach and Rice Canyon to create an expansive area of shallow sheet flooding on the western side of the lake. The potential of floodwaters carrying debris was determined to be high by FEMA for Channel H, Leach Canyon, Lime Street Channel, Ortega Channel, and Rice Canyon.

Flooding problems also exist in the Sedco Hills area, east of Mission Trail. Sheet flooding at low levels during rainy periods occurs in many areas of Sedco Hills, washing out streets and flooding property.



Dusk at Lake Elsinore

Inundation of property and the potential loss of life due to failure of the Railroad Canyon Dam is a hazard in the Railroad Canyon Road area and the eastern floodplain of the lake. Railroad Canyon Reservoir is located in the Canyon Lake Hills development northeast of the City. The reservoir, constructed in 1927, captures waters of the San Jacinto River, which is the primary drainage course of the San Jacinto Mountains. The capacity of the reservoir is approximately 12,000 acre-feet. The Railroad Canyon Dam is a concrete arch dam. The City's subdivision code requires that the boundaries of the inundation hazard area be identified and noted on all final maps prior to approval.

Figure 4.4 shows the current FEMA 100-year floodplain within the City and SOI. As shown in Figure 4.4, the floodplain for Lake Elsinore extends into some areas that are currently developed with urban uses. The floodplain for Temescal Wash, McVicker Canyon, and the Ortega Channel also extends into areas characterized by development.

The Riverside County General Plan contains information on potential flooding and dam inundation. According to the Elsinore Area Plan, the Temescal Wash, Murrieta Creek, and the

San Jacinto River, as well as Lake Elsinore, pose significant flood hazards. Dam failure of the Railroad Canyon Dam at Canyon Lake would cause flooding in the plan area.

The flood hazard areas identified in the Elsinore Area Plan are covered by the 100-year floodplain information shown in Figure 4.4. The information on flood hazards discussed in the Elsinore Area Plan for the 100-year floodplain do not extend beyond the updated 100-year FEMA floodplain boundaries shown in Figure 4.4.

The Elsinore Area Plan also refers to the inundation potential associated with a failure of Railroad Canyon Dam at Canyon Lake. The Elsinore Area Plan shows dam hazard zones that would occur with failure of the Railroad Canyon Dam. Review of the Elsinore Area Plan finds that inundation associated with dam hazard zones would not extend beyond the 100-year floodplain shown in Figure 4.4 of this document. The extent of the High Dam Hazard Zone in the Elsinore Area Plan actually corresponds with the boundary of the 100-year floodplain for both Lake Elsinore and San Jacinto River shown in Figure 4.4.

The benefits of the Lake Elsinore Management Project include conserved water during dry years by reducing evaporation loss and implementing a well system, reduced flood damage, improved water quality by allowing more frequent discharges, improved recreational lake use, and enhanced fish and wildlife habitat. Most of the projects were completed by the early 1990s, but certain components, such as lake replenishment, are ongoing.

Surface Water Quality

Surface water quality is strongly influenced by local land uses. Pollutant sources in the Lake Elsinore area are historically caused by agricultural uses that involve chemicals and fertilizers.

State Water Resources Control Board Impaired Water Bodies

The State Water Resources Control Board (SWRCB), in compliance with Clean Water Act Section 303(d), has prepared a list of impaired water bodies in the State of California (SWRCB 2004). The list includes a priority schedule for the development of total maximum daily loads for each contaminant, or stressor, affecting the water body. On July 25, 2003, the U.S. Environmental Protection Agency (EPA) gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments.



View of Lake Elsinore's Back Basin Levee

- Within the City of Lake Elsinore, Lake Elsinore is listed as an impaired water body as a part of the SWRCB 303 (d) listing.

Lake Elsinore and San Jacinto Watersheds Authority and the Lake Elsinore Stabilization and Enhancement Project

As part of the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Bond Act of 2000 funding (also known as Proposition 13), the Santa Ana Watershed Project Authority (SAWPA) was named as one of the members of a newly formed Joint Powers Authority (JPA) called the Lake Elsinore and San Jacinto Watersheds Authority (LESJWA). Members of LESJWA include Elsinore Valley Municipal Water District, the City of Lake Elsinore, County of Riverside, the City of Canyon Lake, and SAWPA.

The LESJWA is the lead agency for the Lake Elsinore Stabilization and Enhancement Project. The enhancement project is necessary because the lake is a "...eutrophic natural reservoir that exhibits algal blooms, low water clarity, large variations in water level elevation and dissolved oxygen content, fish kills, and high nutrient conditions."

A total of \$15 million was identified in Proposition 13 for LESJWA to implement projects to address goals in the watersheds. SAWPA's role includes providing representation on the LESJWA board and administration of the agency. The administrative functions include facilitation of financing projects and programs, including Proposition 13 funds and EPA grant funds as well as unidentified federal and state financing; administrative support, including management, accounting, and clerical services; and project management as requested by the new JPA.

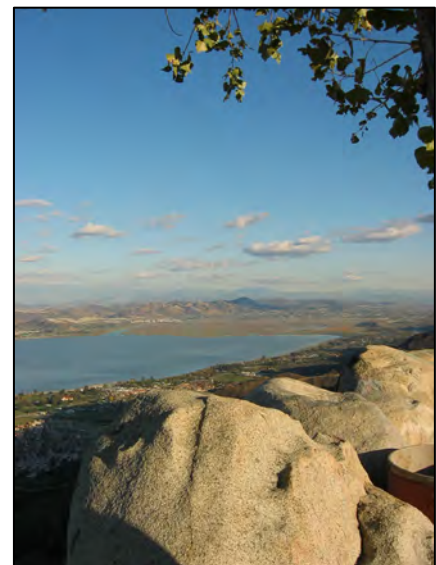
In addition to the Lake Elsinore Stabilization and Enhancement project, the LESJWA has implemented other projects to improve water quality in the lake. In 2004, recycled water was added to the lake, lake mixing facilities were constructed, striped bass were added, and carp were removed from the lake.

4.4.3 Water Resources Goal, Policies and Implementation Program

Goal 4 Improve water quality and ensure the water supply is not degraded as a result of urbanization of the City.

Policies

- 4.1 Encourage developers to provide clean water systems that reduce pollutants being discharged into the drainage system to the maximum extent feasible and meet required federal National Pollutant Discharge Elimination System (NPDES) standards.



View of the Lake

- 4.2 Support public education and awareness programs to reduce pollutant discharges into the drainage system.
- 4.3 Require Best Management Practices through project conditions of approval for development to meet the Federal NPDES permit requirements.
- 4.4 The City shall utilize the 1998 North American Vertical Datum to be consistent with the national standard for mean sea level, which would increase the measurement of the mean sea level for Lake Elsinore by approximately 2.4 feet.

Implementation Program The City shall support the implementation of Best Management Practices to protect the City's water resources.

Agency/Department Public Works Department

4.5 Mineral Resource

4.5.1 SMARA Regulations

The California Surface Mining and Reclamation Act of 1975 (SMARA) requires that general plans classify and map mineral resources designations approved by the State Mining and Geology Board. SMARA seeks to promote conservation and protection of valuable lands within the State subject to urban expansion. Sand and gravel are necessary ingredients for urban construction, and it is advantageous for builders to have a local source of these materials. However, while extraction of minerals is important to the region's economy, the general plan must also balance residential, commercial and other development with mineral extraction activities. Such mineral extraction activity is an interim use which may ultimately transition to residential, commercial or other development in order to accomplish other goals of the general plan. Consequently land use patterns in proximity to resource extraction areas must be carefully considered to minimize potential conflicts.

Guidelines for Classification and Designation of Mineral Lands, adopted by the State Mining and Geology Board, require that the State Geologist classify areas into Mineral Resource Zones (MRZ). In order to classify lands according to availability of mineral resources, the following MRZ categories are used by the State Geologist:

MRZ-1: Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.

MRZ-2: Areas of identified mineral resource significance. This category is further divided on the basis of both degree of knowledge and economic factors. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves. MRZ-2b areas contain discovered reserves that are either inferred reserves

(limited data) or are deposits presently considered sub-economic. MRZ-2a classification is of prime importance since it contains known economic mineral deposits.

MRZ-3: Areas containing known or inferred mineral occurrences of undetermined mineral resource significance.

MRZ-4: Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources. There is insufficient data to assign any other designation.

4.5.2 Mineral Resource Areas

The City of Lake Elsinore lies within the Temescal Valley Area, Riverside County, California. Special Report No. 165, prepared in 1991 by the State Department of Conservation, Division of Mines and Geology, identified construction aggregate, clay deposits, and crushed stone with an MRZ-2 designation in the City.

The construction aggregate resource areas include sand and gravel deposits in McVicker Canyon, Rice Canyon and Temescal Wash. The mouth and upstream deposit areas at McVicker Canyon are within lands subdivided and developed, thereby eliminating this area from consideration as a sand and gravel reserve. The deposits associated with Rice Canyon and Temescal Wash are being mined. The long term extraction and recommended use of these lands are addressed in the specific plans for these areas.

A crushed stone site located along Railroad Canyon Road has been intermittently mined in the past by the Riverside County Transportation Department and other operators, as a source of base aggregate for roadway construction. The Railroad Canyon Road site is located within the approved Cottonwood Hills Specific Plan area.

Significant clay resources are associated with the Alberhill area in the north portion of the City, and classified by the State since 1982. Clays from this area have been used to produce two main types of clay products, heavy products such as sewer pipe, brick and tile, and refractory products such as fire brick, flue lining and pottery. In addition, red “bone clay” is sold directly for cement use. The Pacific Clay Products deposits are located within the approved Alberhill Specific Plan and pending Alberhill Villages Specific Plan. The mining activity is being phased out in accordance with approved permits, and the continued use and ultimate reclamation of these lands has been or will be addressed in the specific plans prepared for these areas.

4.5.3 Mineral Resources Goal, Policies and Implementation Program

Goal 5 Balance the importance of conserving mineral resource areas that have been determined to be significant, the need for extracted materials for local construction, and the potential impacts and conflicts that may result.

Policies

- 5.1 The City shall consider the public benefits in allowing extraction activities of mineral resources when making land use decisions.
- 5.2 The City shall require mined property to be left in a condition suitable for reuse in conformance with the General Plan land use designations and the California Surface Mining and Reclamation Act (SMARA).
- 5.3 The City shall encourage the reuse and recycling of existing aggregate construction material for new residential, commercial and industrial development.

Implementation Program Through the project, CEQA and permitting processes, the City shall ensure a balance between the conservation of significant mineral resources, the need for extracted materials for local construction, and proper mitigation for potential impacts and conflicts between uses.

Agency/Department Engineering and Community Development Departments

4.6 Cultural Resources and Paleontological Resources

4.6.1 Introduction

Prior to the era of the Spanish colonization in the late 18th century, the geographic area of the City and the SOI was inhabited by the Luiseño Indians and possibly other Native Americans. The term Luiseño has been used to refer to the Takic-speaking people associated with the Mission San Luis Rey that was developed by the Spaniards.

With the independence of Mexico in the early 19th century, the mission period came to an end, and it became common practice for large land grants to be issued to those friendly with the Nationalistic Mexican cause. The Mexican period soon ended with the Treaty of Guadalupe-Hidalgo in 1848, which ceded much of the southwest to the United States, including all the lands around La Laguna, the City's historic name, derived from the Spanish name Laguna Grande. In 1858, Augustin Machado acquired La Laguna, renamed it Rancho La Laguna, and became the first landowner to call the lakeshore home since the Indians.

Franklin Heald then purchased Rancho La Laguna and founded the town of Elsinore in 1883, which was named after the famous lake side City of Helsingnor from Shakespeare's Hamlet. With the construction of the Atchison, Topeka, & Santa Fe Railroad and the discovery of mineral ores in the late 19th century, immigration began to increase significantly to the lake area. Many people also visited the newly created town of Elsinore looking for recreational opportunities, which helped to stimulate its tourist industry. In 1972, by popular vote, the area incorporated and officially became known as the City of Lake Elsinore.

As a result of its historical evolution, the City encompasses significant prehistoric and historical archaeological sites in addition to a rich record of fossil life. The policies in this section are intended to promote and preserve the City's existing cultural and paleontological resources. In addition, each of the 16 district plans contains goals and policies regarding historical sites and buildings within its specific boundary.

4.6.2 Cultural and Paleontological Resource Baselines

Prehistoric and Historic Archaeology

The record search indicated that 157 prehistoric and historical archaeological sites have been previously recorded in the City of Lake Elsinore. Of these 157 sites, two prehistoric archaeological sites (CA-RIV-1022 and CA-RIV-2798) have been determined eligible for listing in the NRHP. CA-RIV-1022 is described as a rock shelter and CA-RIV-2798 is recorded as a prehistoric village site.

Archival research was conducted at the Lake Elsinore Historical Society; the University of California, Irvine; and the research library at Jones & Stokes. This research was conducted in an effort to determine the prehistoric, ethnographic, and historic contexts for the City of Lake Elsinore. The City shall consider adopting the 1988 North American Vertical Datum of 1242.2.

Prehistoric Context

A distinct cultural sequence has yet to be specifically defined for Lake Elsinore. Traditionally, this area has been incorporated within discussion of Luiseño ethnographic traits, and previous descriptions depended upon the similarity of the limited assemblages with those from the more extensively studied Pauma Valley sites (Hampson et al. 1992). A discussion of Moratto's (1984) Southern Coast Region (San Diego) sequence is based on these comparisons and included here. In addition, Moratto's (1984) Desert Region (Colorado River) sequence is also discussed.

Southern Coast Region - San Diego Sequence

San Dieguito (Beginning ca. – 5500 Before Present (B.P.))

This period reflects a generalized hunting tradition distinct from the Desert Tradition. California units of the San Dieguito Complex include the C.W. Harris site (San Diego County),