APPENDIX F

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General Biological Resources Assessment for the City of Lake Elsinore Planning Area and Sphere of Influence, Riverside County, California.

General Plan Update
City of Lake Elsinore, Riverside County, California

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List of Abbreviated Terms

ACE	Areas of Conservation Emphasis
APS	Area Plan Subunit
ARL	Additional Reserve Lands
BIOS	Biogeographic Information and Observation System
BMP	Best Management Practices
BRA	Biological Resources Assessment
CAAP	Climate Action and Adaptation Plan
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEHC	California Essential Habitat Connectivity
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
EIR	Environmental Impact Report
ESA	Federal Endangered Species Act
GIS	Geographic Information Systems
GPU	General Plan Update
HMU	Habitat Management Unit
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
NOP	Notice of Preparation
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
PQP	Public Quasi-Public Lands
RCA	Regional Conservation Authority of Western Riverside County
ROW	Right-of-Way of Covered Roads under the MSHCP
RWQCB	Regional Water Quality Control Board
SOI	Sphere of Influence
SKR	Stephens' kangaroo rat
SNAC	Species Not Adequately Conserved
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
ZCA	Zoning Code and Map Amendment

1.0 INTRODUCTION

The City of Lake Elsinore (City) is updating its 2011 General Plan to address rapid population growth, evolving community priorities, and significant state policy changes related to housing, environmental justice, and climate resilience. The update extends the planning horizon to 2045 to more effectively guide future development, infrastructure investment, and environmental stewardship, including climate adaptation and habitat conservation. As the lead agency under the California Environmental Quality Act (CEQA), the City has issued a Notice of Preparation (NOP) to prepare a Program Environmental Impact Report (EIR) for the proposed Lake Elsinore General Plan Update (GPU), Zoning Code and Map Amendment (ZCA), and Climate Action and Adaptation Plan (CAAP) (collectively, the "Project"). The Project will update and build upon the City's 2011 General Plan and its associated EIR, which established the policy framework for future growth and resource protection consistent with the City's long-term goals and objectives.

This assessment is prepared in accordance with the framework of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), recognizing that a substantial portion of the planning area is conserved under the MSHCP and locally implemented through City Ordinance No. 2021-1454. The purpose of this biological resources assessment is to identify, characterize, and verify the type, location, and extent of sensitive biological resources that could be affected during future permitting and development activities. This report provides a detailed description of the existing biological setting within the GPU area and its vicinity, including vegetation communities, wildlife species observed, and overall habitat conditions. It further evaluates the potential for wildlife movement and migration corridors, special-status species, sensitive natural communities, and jurisdictional waters and wetlands to occur within the GPU boundary. The analysis of potential GPU-related impacts on biological resources, consistent with the checklist items presented in Appendix G of the CEQA Guidelines, will be conducted in subsequent, project-specific technical studies prepared within the GPU planning area.

1.1 Planning Area Location and Description

1.1.1 Planning Area Location

The City of Lake Elsinore is located within the U.S. Environmental Protection Agency Level IV Perris Valley Ecoregion, a semi-arid inland basin situated between the Santa Ana Mountains to the west and the San Jacinto Mountains to the east (Griffith et al. 2016). Elevations generally range from 1,200 to 1,600 feet above mean sea level, with topography characterized by broad alluvial plains, low rolling hills, and isolated granitic outcrops. The region supports a Mediterranean climate with hot, dry summers and mild, wetter winters, averaging 10–14 inches of annual precipitation.

Historically, the Perris Valley supported a mosaic of Riversidean coastal sage scrub, chaparral, and annual grassland communities, with southern willow scrub, cottonwood–willow riparian forest, and alkali meadow habitats occurring along drainages, floodplains, and lake margins. Soils in the area consist primarily of granitic alluvium and sandy loams that support well-drained upland habitats, while hydrologically connected features—including seasonal drainages, vernal pools, and wetlands Lake Elsinore, the largest natural

freshwater lake in Southern California, and associated wetlands provide important seasonal foraging and nesting habitat for migratory waterfowl and shorebirds along the Pacific Flyway (Buck-Diaz and Evens 2011).

Located in southwest Riverside County, approximately 24 miles south of downtown Riverside, the City of Lake Elsinore is bordered by the City of Wildomar to the south and east, the City of Menifee to the East, the City of Canyon Lake to the east and north, and unincorporated portions of Riverside County to the north, west and south. The 72 square mile Planning Area encompasses all incorporated lands within the 43 square mile City limits plus 29 square miles of unincorporated lands outside the City limits, referred to as the City's Sphere of Influence (SOI; **Figure 1**). The SOI is unincorporated County area likely to receive city services and possibly annexed to the city in the future. In California, the SOI are determined by the Local Agency Formation Commission. While the City has no formal authority within the SOI, the State of California requires a city to consider land use planning for areas that bear relation to the City's future. This planning approach provides cities with a means of shaping the future of areas they may eventually annex (City of Lake Elsinore 2011).

A full description of the existing conditions within the Planning Area is described in the Existing Conditions Atlas produced for the GPU (MIG 2024).

1.1.2 Planning Area Description

The GPU incorporates statutory requirements for general plans and guidance provided in the 2023 General Plan Guidelines; coordinates future development and policies with regional planning efforts and serves as the city's fundamental guide in developing strategies to address greenhouse gas reduction, climate change, and climate planning. This report will inform the Conservation, Open Space, and Parks Element in the GPU and the Biological Resources section of the Draft Program EIR.

1.1.3 Document Organization

The document begins by summarizing non-MSHCP biological resources to establish a contemporary baseline derived from county, state, and federal sources. It then incorporates these data into an assessment of the General Plan Update using the overarching framework and organizational structure of the 2023 MSHCP Consistency Analysis template (RCA 2023a).

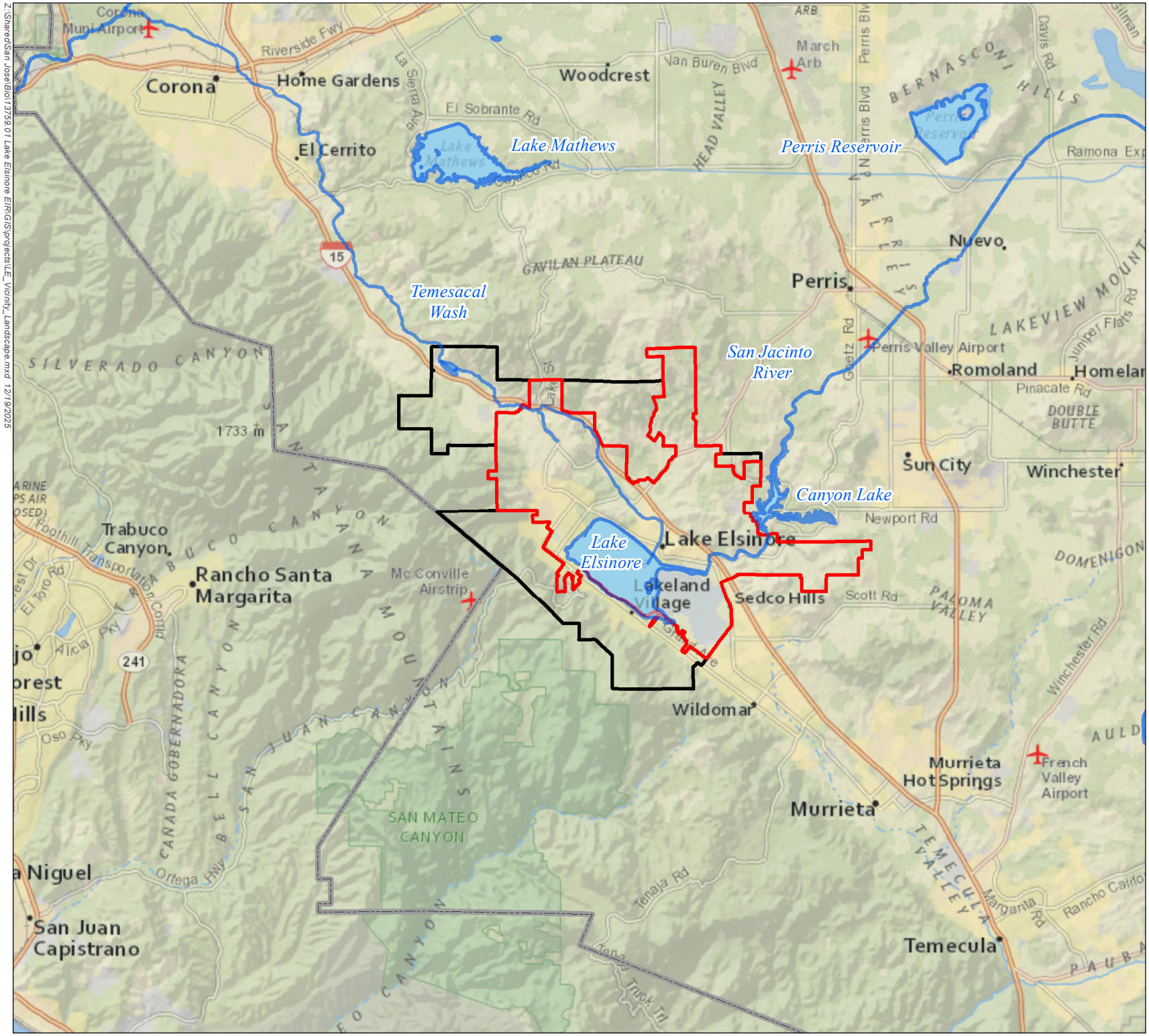

Figure 1. Vicinity
Lake Elsinore GPU
Riverside County, CA

City Boundary
Sphere of Influence
MSHCP Planning Area
Lakes
Rivers

Source: ESRI, RCA
Author: E. Jansen

0 40 80 160 mi
1:250,000
NAD 1983 UTM Zone 11N

Z:\Shared\San Jose\Jobs\13759.01 Lake Elsinore EIR\GIS\projects\LE_Vicinity_Landscape.mxd 12/19/2025

2.0 METHODS

This assessment integrates a standard Biological Resources Assessment (BRA) with a parallel Western Riverside County MSHCP Consistency Analysis to establish a unified biological baseline for the General Plan Update. The BRA provides the ecological inventory of habitats, species, and natural resources across the Planning Area, while the MSHCP analysis evaluates compatibility with Plan requirements, conservation objectives, and regulatory frameworks. Together, these coordinated analyses inform future land-use decisions and directly support the goals and objectives of the General Plan's Biological Resources, Open Space, and Conservation Element.

2.1 Biological Resources Review

A desktop assessment of publicly available data from county, state, and federal agencies was used to identify and describe the extent and distribution of special status species and habitat within the Planning Area. Special status species were defined as species formally listed as endangered or threatened under ESA or CESA, as well as any species that meet the CEQA definition of rare, threatened, or endangered under 14 CCR §15380. CEQA also requires agencies to consider species that are not legally listed but are recognized as sensitive, declining, or vulnerable by CDFW, USFWS, or regional conservation policies such as the MSHCP. For purposes of this analysis, special-status species include: (1) species listed as Threatened or Endangered under the federal or California Endangered Species Acts; (2) federal or state candidate or proposed species; (3) California Species of Special Concern and Fully Protected species; (4) plant taxa on the California Native Plant Society Rare Plant Ranks (1–4, as appropriate); and (5) other taxa tracked by CDFW, including Watch List species.

The Planning Area is located fully within the MSHCP and provides a regional programmatic framework through which the City can achieve compliance with applicable federal and state endangered-species regulations for covered activities. The MSHCP is permitted under Section 10(a)(1)(B) of the federal Endangered Species Act (ESA) and an approved Natural Community Conservation Plan under the California Natural Community Conservation Planning Act. These permits collectively provide incidental take authorization for covered species when projects demonstrate consistency with the MSHCP's conservation objectives, survey requirements, and avoidance/minimization measures. Although the MSHCP does not replace other federal or state regulatory programs—such as ESA Section 7 consultation for federal actions, Clean Water Act Section 404/401 permitting, or California Fish and Game Code Section 1600 notifications—the Plan is specifically designed to align with these processes and provide a biologically robust, regionally coordinated conservation strategy that informs and streamlines agency review.

Because the MSHCP's substantial influence on regional land use planning, habitat conservation, and project-level environmental review, the desktop analysis emphasized the evaluation of relevant MSHCP elements both within and 0.5 miles surrounding the Planning Area (MSHCP 2003, Implementing Agreement 2003). To supplement this framework, additional state and federal databases were queried to update species occurrence information, habitat distributions, and environmental conditions. These data sources were integrated into the MSHCP context to ensure that the biological setting reflects both regional conservation

priorities and the most current available scientific information. Primary data sources used to characterize biological conditions in the Planning Area included,

- CDFW California Natural Diversity Database (CNDDB) 9-USGS quadrangle record search including: Alberhill, Lake Elsinore, Lake Mathews, Murrieta, Perris, Romoland, Sitton Peak, Steele Peak, and Wildomar (CDFW 2025a)
- CNPS Rare Plant Program Inventory of Rare and Endangered Plants of California 9-USGS quadrangle record search including: Alberhill, Lake Elsinore, Lake Mathews, Murrieta, Perris, Romoland, Sitton Peak, Steele Peak, and Wildomar (CNPS 2025).
- Calflora Observation Database (Calflora 2025)
- CDFW California Terrestrial Habitat Connectivity Mapping Projects. Biogeographic Information and Observation System (BIOS; CDFW 2025b)
- USFWS Designated Critical Habitat (USFWS 2025a)
- USFWS National Wetlands Inventory (NWI; USFWS 2025b)
- USFWS Information for Planning and Consultation (IPaC; USFWS 2025c).
- National Resources Conservation Service Soil Survey (NRCS 2025a)
- State Soil Data Access (SDA) Hydric Soils Rating by Map Unit (NRCS 2025b)
- EcoAtlas Southern California Wetland Recovery Project (EcoAtlas 2025)
- Bumble Bee Watch (The Xerces Society et al. 2025)
- eBird Hotspot Database (Cornell Lab of Ornithology 2025)
- iNaturalist search for observations in Riverside County, CA (2025)
- Western Monarch Milkweed Mapper 2025

Western Riverside MSHCP (Dudek and Associates 2003, Western Riverside County Regional Conservation Authority 2025)

<u>Administrative Boundaries and Reserve Assembly</u>
- Area Plan Boundary and Subunits
- Criteria Cells
- Cell Groups
- Habitat Management Units
- Public, Quasi-Public Lands
- Rough Step Units
- MSHCP Boundary

<u>Species Survey Areas</u>
- Burrowing Owl
- Criteria Area Species
- Narrow Endemic Plants
- Stephens' Kangaroo Rat

<u>Vegetation Layers</u>
- 1994 Vegetation Baseline
- 2005 California Native Plant Society (CNPS) Vegetation Layer
- 2012 Vegetation Layer

<u>Other</u>
- Covered Roads Right-of-Way
- Trails, Trailheads, and Facilities
- Wildlife Corridor Cores and Linkages

In GIS, biological features were clipped to the City Boundary and SOI and a 0.5 mile buffer which is the length of one MSHCP Criteria Cell. A 0.5 mile buffer was used because the MSHCP specifies a project adjacent to a Criteria Cell or mapped species survey area is still subject to focused review because adjacency can result in indirect impacts (e.g., edge effects, noise, lighting, hydrology, access, or human disturbance) to covered species habitat; therefore, the RCA and local jurisdiction evaluate whether the project could preclude conservation objectives, interfere with species movement, or degrade habitat function, and may require avoidance, buffers, design modifications, or species-specific surveys to demonstrate consistency, even when no direct encroachment occurs. Adjusted for area, the relative proportion of a biological resource within the City Boundary was compared with resources in the SOI to provide an indication of resources most likely to be affected by land management activities.

2.1.1 MSHCP Land Cover Datasets

The Planning Area is located within the South Coast Subregion of the Southwestern California Region, both of which are contained within the larger California Floristic Province (Baldwin et al. 2012). The MSHCP relies heavily on standardized vegetation/landcover layers to evaluate consistency with the MSHCP, track reserve assembly, assess impacts to sensitive resources, and guide agency review. The three most commonly used layers include datasets produced in 1994, 2005, and 2012 and each serve different regulatory and analytical functions (**Table 1**). The 1994 data set is the foundational vegetation dataset used to define the biological conditions at the time the MSHCP was drafted. The 1994 and 2005 data sets do not follow the modern CDFW Vegetation Classification and Mapping Program (VegCAMP) or National Vegetation Classification System (NVCS). Rather, the MSHCP was adopted in 2004, and its landcover system is based on early 1990s–early 2000s regional vegetation mapping conventions (largely Holland-type communities and MSHCP-specific consolidated vegetation groups; Holland and Keil 1995). The MSHCP system cannot use NVCS because survey triggers, species distribution models, and Conservation Objectives depend on the older MSHCP vegetation types. However, subsequent updates of the 2012 land cover data set integrated the VegCAMP standards to ensure modern classification standards (CDFW 2015a).

Table 1. Roles of the MSHCP Land Cover Layers.

Land Cover Layer	Regulatory Role	Primary Uses	Source
1994	Official regulatory baseline used by MSHCP	Defines historic vegetation; determines Additional Survey Needs; informs Criteria Cells; species habitat baseline; used for survey triggers (MSHCP §6.3.2)	RCA 1994
2005	Non-regulatory	Early post-plan change detection; reserve monitoring; species modeling support	RCA 2005
2012	Non-regulatory; best available 'current conditions' dataset	CEQA baseline; current vegetation mapping; connectivity; adaptive management	RCA 2012

Land cover datasets from 1994, 2005, and 2012 are compared to characterize current conditions and identify changes in land cover types, habitat succession, evaluate ecological condition within MSHCP Linkages and

Core Areas, and assess potential constraints to wildlife movement. The 1994 dataset establishes the regulatory habitat baseline, while the 2005 and 2012 layers help determine whether vegetation changes may affect corridor permeability, structural connectivity, or species dispersal routes. Because the 2012 dataset is not fully coextensive with earlier layers and may use different classification conventions, change detection and connectivity modeling can produce inconsistent results. In areas within missing data, these inconsistencies can complicate comparisons, and field verification should be used to confirm biological conclusions. For example, the extent of 2012 land cover in the Planning Area is smaller compared to 1994 and 2005 datasets which excludes a large portion of the southern SIO that represents large areas of open space integral to wildlife movement along the foothills of the Santa Ana Mountains. As a result, CEQA analyses should incorporate site-specific surveys and confirmatory mapping to ensure defensible conclusions about wildlife movement and habitat linkage function.

2.1.2 Wildlife Movement and Habitat Connectivity

A functional network of connected wildlands is essential to the continued support of California's diverse natural communities in the face of human development and climate change. Corridors along drainages, valleys and other features facilitate wildlife movement and connectivity between areas of suitable habitat; the corridors (e.g., linkages) and associated habitats are essential to population viability (Penrod et al. 2001, Spencer et al. 2010). The Planning Area consists of a mosaic of MSHCP-designated existing and proposed wildlife core areas and linkages (LSA Environmental Consultants 2019). Key wildlife core and linkage terminology includes,

- **Constrained Linkage:** A constricted connection expected to provide for movement of identified Planning Species between Core Areas, where options for assembly of the connection are limited due to existing patterns of use.
- **Core Area:** A block of Habitat of appropriate size, configuration, and vegetation characteristics to generally support the life history requirements of one or more Covered Species.
- **Linkage:** A connection between Core Areas with adequate size, configuration and vegetation characteristics to generally provide for "Live-In" Habitat and/or provide for genetic flow for identified Planning Species.
- **Live-In Habitat:** Habitat that contains the necessary components to support key life history requirements of a species; e.g., year-round Habitat for permanent residents or breeding Habitat for migrant species.
- **Non-contiguous Habitat:** A block of Habitat not connected to other Habitat areas Block via a Linkage or Constrained Linkage.

The 2003 MSHCP wildlife corridor cores and linkages function as the baseline regional implementation layer of broader statewide habitat connectivity initiatives, including the 2010 California Essential Habitat Connectivity (CEHC) Project and 2024 CDFW Areas of Conservation Emphasis (ACE). The later statewide CEHC and ACE frameworks independently identified many of the same corridors and linkage areas, effectively validating and reinforcing the MSHCP's earlier conservation design (CDFW 2024a). The MSHCP connectivity framework identifies movement pathways between major habitat blocks (e.g., the Santa Ana

Mountains, Elsinore Mountains, and Peninsular Ranges) that are consistent with CEHC's identification of priority landscape-scale corridors necessary for species dispersal, genetic exchange, and climate adaptation. Similarly, many MSHCP conservation cores and riparian linkages overlap or directly support ACE priorities by protecting multi-species habitat values, riparian and riverine movement corridors, and upland–lowland ecological gradients. Together, these frameworks operate at complementary scales: the MSHCP provides regulatory, project-level conservation and survey triggers, while CEHC and ACE provide statewide planning context and prioritization, reinforcing the regional importance of maintaining habitat connectivity within Western Riverside County.

In addition to evaluating MSHCP-designated wildlife core areas and linkages to determine the extent the Planning Area intersects these feature, MIG queried the 1) CDFW Ungulate Migration Viewer to evaluate potential overlap with recognized home ranges, migration corridors, or seasonal habitats of big game species, specifically mule deer (Odocoileus hemionus spp.; CDFW 2023), and 2) CDFW wildlife movement barrier which identifies and maps anthropogenic features such as highways, major roads, railways, urban development, and engineered channels that impede or constrain wildlife movement across the landscape (CDFW 2021).

3.0 EXISTING CONDITIONS

The following sections discuss the biological characteristics of the Planning Area based on agency database queries and remotely sensed GIS data. Another resource for detailed accounting of existing physical and environmental characteristics of the Planning Area including natural resources, environmental, and social-economic factors is found in the Existing Conditions Atlas (MIG 2024).

3.1 Land Cover Types and Sensitive Plant Communities

3.1.1 Land Cover Types

Using the 1994 dataset, primary land cover within the City Boundary is dominated by Developed or Disturbed Land (28%), Coastal Sage Scrub (25%), and Grassland (21%), which together account for nearly three-quarters of the landscape. Chaparral comprises an additional 16%, reflecting a substantial block of native shrubland habitat. Open water features, most notably Lake Elsinore represent 9% of the area, while riparian habitats, agricultural land, Riversidean alluvial fan sage scrub, woodlands, and meadows/marshes each occur in only trace amounts (≤1%). The distribution indicates a landscape primarily influenced by anthropogenic disturbance but retaining large, contiguous patches of shrubland and grassland suitable for regional wildlife movement and ecological processes. Contiguous patches of natural land cover types include Lake Elsinore and the eastern adjoining grassland and areas located further from the developed areas surrounding Lake Elsinore (**Table 2, Figure 2**).

The SOI is dominated by Chaparral, which comprises nearly half of the landscape (8,485 acres; 47%), indicating a largely intact block of native shrubland with high habitat value for regional wildlife movement and fire-adapted ecological processes. Additional major native communities include Coastal Sage Scrub (3,699 acres; 20%) and Grassland (1,006 acres; 6%), together forming a substantial open-space matrix that

supports foraging, dispersal, and refugia for special-status species. Developed or Disturbed Land accounts for 3,625 acres (20%), reflecting existing or anticipated growth areas but a notably lower relative level of urbanization than within the incorporated city boundary.

Several minor land cover types occur in trace amounts, including Agricultural Land (3%), Woodlands and Forests (2%), Riversidean Alluvial Fan Sage Scrub (1%), and Riparian Scrub/Woodlands/Forest (1%); while limited in extent, these provide important localized structural diversity and microhabitat niches. Open water resources are minimal (0%) and meadows/marshes are absent. Overall, the SOI contains significantly higher proportions of intact native vegetation compared to the city proper, functioning as an ecologically important transition zone between the developed core and surrounding regional conservation lands.

Table 2. Comparison of MSHCP Land Cover Types within the Planning Area.

	1994		2005		2012[1]		% Difference
Land Cover Type	Acres	% Comp	Acres	% Comp	Acres	% Comp	2012 - 1994
City Boundary							
Agricultural Land	114	0.4	1,195	4.3	1,024	3.7	3%
Chaparral	4,394	15.8	1,553	5.6	1,344	4.9	-11%
Coastal Sage Scrub	7,005	25.1	8,674	31.1	8,956	32.3	7%
Developed or Disturbed Land	7,734	27.7	8,791	31.5	9,030	32.6	5%
Grassland	5,754	20.6	3,335	12.0	2,753	9.9	-11%
Meadows and Marshes	32	0.1	21	0.1	54	0.2	0%
Riparian Scrub, Woodland, Forest	274	1.0	618	2.2	960	3.5	2%
Riversidean Alluvial Fan Sage Scrub	112	0.4	56	0.2	30	0.1	0%
Water	2,378	8.5	3,460	12.4	3,415	12.3	4%
Woodlands and Forests	78	0.3	174	0.6	125	0.5	0%
Subtotal	27,876		27,876		27,691		
Sphere of Influence							
Agricultural Land	488	2.7	358	2.0	465	4.3	2%
Chaparrel	8,485	46.7	6,292	34.6	1,214	11.2	-35%
Coastal Sage Scrub	3,699	20.3	4,765	26.2	4,196	38.8	18%
Developed or Disturbed Land	3,625	19.9	4,589	25.2	3,690	34.2	14%
Grassland	1,006	5.5	418	2.3	448	4.1	-1%
Meadows and Marshes	-	0.0	6	<0.1	6	0.1	0%
Riparian Scrub, Woodland, Forest	190	1.0	302	1.7	241	2.2	1%
Riversidean Alluvial Fan Sage Scrub	205	1.1	102	0.6	77	0.7	0%
Water	29	0.2	242	1.3	186	1.7	2%
Woodlands and Forests	454	2.5	1,103	6.1	281	2.6	0%
Total	18,178		18,178		10,804		
Grand Total	46,054		46,054		38,496		

[1] Incomplete mapping extent of land cover data in the Planning Area, particularly in the SOI, and not comparable to 1994 2005 data or 2015 update (CDFW 2025d)

Source: RCA 1994, 2005, 2012, CDFW 2025d

3.1.2 *Sensitive Natural Communities*

Sensitive Natural Communities are those that are listed to the CDFW CNDDB due to the rarity of the community in the state. Sensitive riparian natural communities are located within the Planning Area. Riparian habitat tracked in CNDDB as a Sensitive Natural Community is subject to layered federal, state, and local protections, including Clean Water Act Sections 404/401, the Porter-Cologne Act, CDFW's Lake and Streambed Alteration Program, CESA, and CEQA, making impacts to these features highly regulated, potentially significant, and often a major permitting or feasibility constraint.

Approximately 1,800 acres of five sensitive natural communities occur within the Planning Area, with 77% occurring in the SOI and 23% inside the City Boundary **(Table 3**; CDFW 2025c). The majority of natural communities are located along the incised drainages and slopes to the south and north of the City Boundary. Within the City Boundary, natural communities are located along major rivers such as the San Jacinto River, a tributary to Lake Elsinore, but can also be found in low-density residential areas (**Figure 3**). The dominant community is Southern Sycamore Alder Riparian Woodland, comprising 1,088 acres (61% of all sensitive community acreage), followed by Southern Cottonwood Willow Riparian Forest at 300 acres and Southern Coast Live Oak Riparian Forest at 292 acres. Two high-value communities including Canyon Live Oak Ravine Forest and Southern Willow Scrub are present only in the SOI, emphasizing the SOI's disproportionate role in supporting rarer riparian habitat types. Overall, the SOI contains the majority of the Planning Area's sensitive natural riparian resources, highlighting this area as the primary location where project-related constraints, permitting considerations, and mitigation requirements would most likely apply.

Table 3. Sensitive Natural Plant Communities within the Planning Area.

		City Boundary		SOI		
Sensitive Natural Community Type	**Rank**	**Acres**	**% Comp.**	**Acres**	**% Comp.**	**Total**
Canyon Live Oak Ravine Forest	S3.3	0	0	60	100	60
Southern Coast Live Oak Riparian Forest	S4	37	13	256	87	292
Southern Cottonwood Willow Riparian Forest	S3.2	91	30	209	70	300
Southern Sycamore Alder Riparian Woodland	S4	277	25	810	75	1,088
Southern Willow Scrub	S2.1	0	0	56	99	56
Total		405	23	1,391	77	1,796

Source: CNDDB 2025

CNDDB State Rank
S2 (Imperiled): High risk due to restricted range, few occurrences (e.g., 6-20 occurrences).
S3 (Vulnerable): Moderate risk due to restricted range, moderate occurrences (e.g., 21-100 occurrences).
S4 (Apparently Secure): Uncommon but not rare, some long-term concern.
Rank Modifier: 0.1 = seriously threatened in California; 0.2 = moderately threatened in California; 0.3 = not very threatened in California.

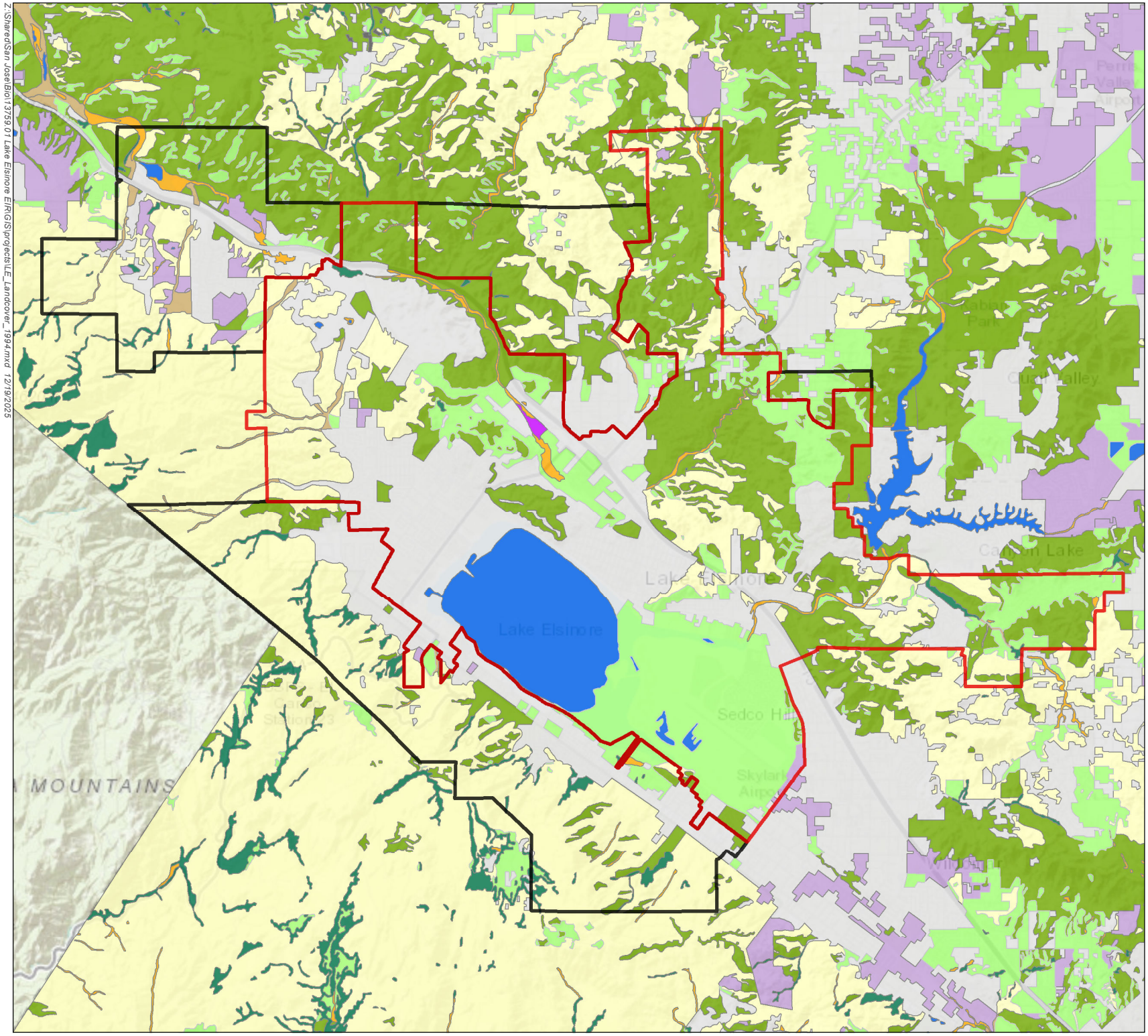

Figure 2. 1994 Land Cover
Lake Elsinore GPU
Riverside County, CA

- City Boundary
- Sphere of Influence

1994 Vegetation Baseline

MSHCP Category

- Agricultural Land
- Chaparrel
- Coastal Sage Scrub
- Developed or Disturbed Land
- Grassland
- Meadows and Marshes
- Pennisular Juniper Woodland & Scrub
- Riparian Scrub, Woodland, Forest
- Riversidean Alluvial Fan Sage Scrub
- Water
- Woodlands and Forests

Source: RCA

Author: E. Jansen

0 0.5 1 2 mi

1:109,000

NAD 1983 UTM Zone 11N

N W E S

M I G

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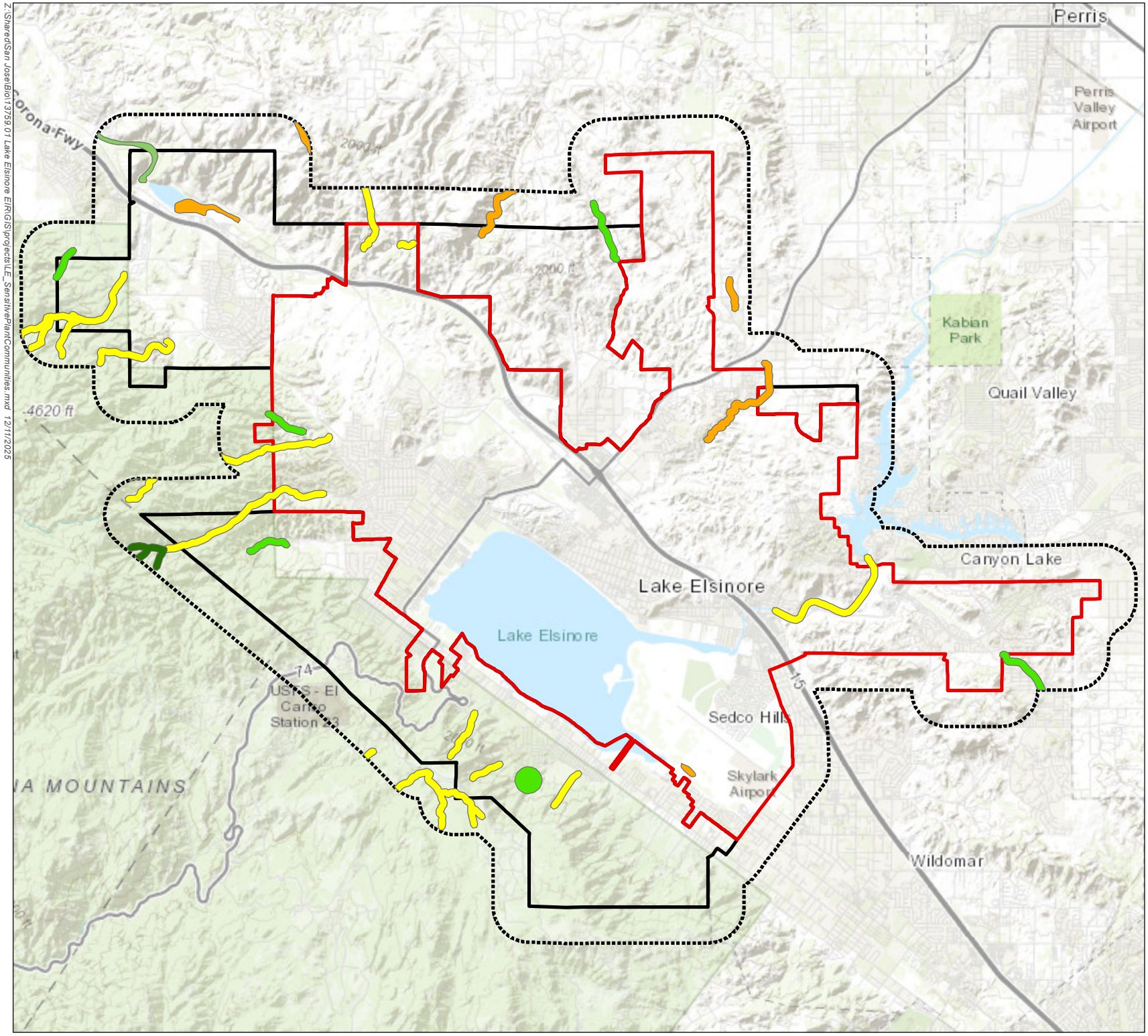

CNDDB Sensitive Natural Communities
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

SOI 0.5 mi Buffer

Sensitive Natural Community

CNDDB Common Name

- Canyon Live Oak Ravine Forest
- Southern Coast Live Oak Riparian Forest
- Southern Cottonwood Willow Riparian Forest
- Southern Sycamore Alder Riparian Woodland
- Southern Willow Scrub

Source: CNDDB, ESRI, RCA Author: E. Jansen

0 0.5 1 2 mi

1:113,000

NAD 1983 UTM Zone 11N

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3.2 Special-Status Plants

Based on CNDDB and Calflora spatial data and species records in the CNPS 9-quadrant area surrounding the Planning Area, 61 special-status plant species were identified that had previously recorded occurrences (Appendix B). Spatial data contained 32 (52.5%) species with historical records of occurrence within the Planning Area and 0.5 mi buffer. Four sensitive plant species accounted for over 50% of the 76 records in the Planning Area including long-spined spineflower (12 records; *Chorizanthe polygonoides* var. *longispina*), smooth tarplant (11 records; *Centromadia pungens* ssp. *laevis*), Munz's onion (9 records; *Allium munzii*), and Parry's spineflower (8 records; *Chorizanthe parryi* var. *parryi*). Thirteen (21.3%) species were classified as May Occur and 16 (26.2%) species were classified as Absent with no likelihood to occur based on vegetation types, habitat quality, topography, range, elevation, soil types, and other species-specific habitat requirements (Appendix B). The list included 32 species that were designated by the MSHCP as a covered species1, of which 18 species have historical records of occurrence in the Planning Area (**Appendix B**).

In contrast, special-status plant species that are not likely to occur (i.e., Absent) are associated with habitat types and ecological conditions that are not well represented within the Planning Area. These conditions include:

- Specialized microhabitat conditions, such as vernal pools, alkali or clay flats, riverbanks, and alluvial fans;
- Higher-elevation habitats characterized by topographically rugged terrain, generally in the peninsular mountain ranges that included San Jacinto Mountains, Santa Rosa Mountains, and Laguna Mountains; and
- Large structural basins such as the Coachella Valley with interwoven alluvial plains and bajadas.

Patterns of occurrence for special-status plant species within the Planning Area are generally clustered in areas of intact natural habitat, including the foothills of the Elsinore Mountains, Temescal Wash wetland complex, San Jacinto River floodplain, and the rugged topography of the Sedco Hills. Habitat associations of special-status plant species are typically linked to unfragmented chaparral, aquatic habitats, intact grasslands east of Lake Elsinore, and unfragmented coastal scrub within the Sedco Hills. These patterns reflect the persistence of higher-quality, less-disturbed habitats in these areas relative to surrounding developed or fragmented landscapes.

As a broad intermountain basin at the terminus of the San Jacinto River watershed, the Lake Elsinore area supports a diversity of habitats that contribute to the occurrence of special-status plant species. Hydrologic inputs from the San Jacinto River and associated alluvial processes have created a mosaic of wetlands, seasonally saturated soils, and adjacent upland grasslands and scrub that provide suitable conditions for special status plant, and of them endemic to California. These habitats are functionally connected to surrounding intact natural landscapes, including the Temescal Wash wetland complex to the northwest and

[1] MSHCP covered plant species are assigned to conservation and survey categories such as Narrow Endemic Species Survey Areas (NESSA), Additional Species Survey Areas (ASSA), and Criteria Area–based conservation units (MSHCP Vol. I, §6.1, 6.2, and 6.3).

the coastal scrub, chaparral systems of the Sedco Hills to the west, and the Elsinore Mountains to the south which together facilitate ecological continuity across the basin. The convergence of hydrology, topography, and relatively unfragmented habitat distinguishes the Lake Elsinore area as an important regional context for special-status plant species persistence. The uniqueness of the Lake Elsinore area is reflected in the application of multiple administrative boundaries under the MSHCP, including Narrow Endemic Species Survey Areas and Criteria Area survey designations, which guide focused survey requirements and conservation planning within and adjacent to the Planning Area (see Chapter 4).

3.3 Special-Status Wildlife

Based on CNDDB spatial data and species records in the CNDDB 9-quadrant area surrounding the Planning Area, 62 special-status wildlife species were identified that had previously recorded occurrences (Appendix C). Spatial data contained 39 (61%) species with historical records of occurrence within the Planning Area and 0.5 mi buffer. Five sensitive wildlife species accounted for over 50% of the 173 records in the Planning Area including coastal California gnatcatcher (26 records; *Polioptila californica californica*), orange-throated whiptail (22 records; *Aspidoscelis hyperythra*), least Bell's vireo (19 records; *Vireo bellii pusillus*), Stephens' kangaroo rat (18 records; *Dipodomys stephensi*), and western spadefoot (18 records; *Spea hammondii*). Seventeen (27.4%) species were classified as May Occur and 6 (9.7%) species were classified as Absent or no likelihood to occur based on vegetation types, habitat quality, topography, range, elevation, soil types, and other species-specific habitat requirements (Appendix C). The list included 36 species that were designated by the MSHCP as a covered species2, of which 28 species have historical records of occurrence in the Planning Area Appendix C).

Similar to the biological characteristics that support a diversity of special-status plant species, environmental conditions within the Planning Area also provide suitable habitat for a wide variety of special-status wildlife species. Hydrologic inputs from the San Jacinto River, Temescal Wash, and associated alluvial and lacustrine processes have created a mosaic of open water, wetlands, seasonally inundated depressions, riparian corridors, and adjacent upland grasslands and scrub. These habitats support MSHCP-covered aquatic and semi-aquatic species such as western spadefoot (*Spea hammondii*), California red-legged frog (*Rana draytonii*), arroyo toad (*Anaxyrus californicus*), and vernal pool branchiopods including Riverside fairy shrimp (*Streptocephalus woottoni*) where suitable conditions occur.

Upland grasslands, coastal sage scrub, and chaparral surrounding the basin provide habitat for MSHCP-covered reptiles and mammals, including San Diego horned lizard (*Phrynosoma blainvillei*), Stephens' kangaroo rat, Dulzura kangaroo rat (*Dipodomys simulans*), and associated predator species such as northern red-diamond rattlesnake (*Crotalus ruber ruber*). The Lake Elsinore shoreline, wetlands, and adjacent open habitats also function as regionally important foraging, nesting, and migratory stopover habitat for MSHCP-

[2] MSHCP covered wildlife species are assigned to conservation and survey categories such as Protection of Species Associated with Riparian/Riverine Areas, Species-Specific Survey Areas, Vernal Pools and Other Ephemeral Wetlands, Riparian Scrub, Woodland, and Forest Natural Communities, Core Wildlife Movement Areas and Linkages, or species designated as those that require Additional Survey Needs and Procedures (MSHCP Vol. I, §6.1, 6.2, and 6.3).

covered bird species, including coastal California gnatcatcher, burrowing owl (*Athene cunicularia*), least Bell's vireo (*Vireo bellii pusillus*), and a variety of sensitive raptors and waterbirds.

These habitats are functionally connected to surrounding intact natural landscapes, including the Temescal Wash wetland complex to the northwest, the coastal scrub and chaparral systems of the Sedco Hills to the west, and the Elsinore Mountains to the south. Together, these areas support wildlife movement, dispersal, and genetic exchange consistent with MSHCP wildlife corridor cores and linkages. The convergence of hydrology, topography, and relatively unfragmented habitat distinguishes the Lake Elsinore area as an important regional context for the persistence of special-status wildlife species. This ecological significance is reflected in the application of multiple administrative and conservation designations under the Western Riverside County MSHCP, including species-specific survey triggers for riparian/riverine-associated wildlife, amphibians and reptiles, and movement-dependent mammals, as well as Criteria Area and wildlife linkage designations that guide focused survey requirements and consistency analysis within and adjacent to the Planning Area (see Chapter 4).

USFWS designated critical habitat (16 U.S.C. §1533) for the coastal California gnatcatcher, Munz's onion, and San Diego ambrosia occurs within portions of the Planning Area (**Appendix A**). These critical habitat units overlap and are concentrated in the topographically rugged northern portion of the Planning Area, including areas north of Interstate 15, Walker Canyon, and the Temescal Valley. Designated critical habitat indicates areas supporting the physical or biological features essential to the conservation of the species and warrants focused review for potential indirect or direct effects per MSHCP and CEQA standards.

3.4 Nesting Birds

The Lake Elsinore area functions as a regionally important avian resource due to its position as a large perennial waterbody within an otherwise semi-arid intermountain basin at the terminus of the San Jacinto River watershed. Inland lakes, wetlands, and associated riparian corridors in Southern California are critical migratory stopover, foraging, and nesting habitat for resident and migratory bird species, particularly where surface water is limited elsewhere in the landscape (e.g., Shuford et al. 2007; Warnock 2010; CDFW 2015b). Lake Elsinore and its associated marshes, mudflats, and riparian features support waterfowl, shorebirds, raptors, and passerines, including several federal- and state-listed or special-status species, by providing reliable open water, emergent vegetation, and prey resources throughout seasonal hydrologic cycles.

Habitat connectivity further enhances the ecological value of the Planning Area for birds. The Temescal Wash corridor provides a north–south riparian linkage connecting Lake Elsinore with upstream and downstream aquatic and riparian habitats, facilitating movement of riparian-associated bird species and supporting migratory pathways within the Pacific Flyway. Upland habitats in the Sedco Hills, characterized by relatively intact coastal sage scrub and chaparral, provide adjacent nesting, roosting, and foraging opportunities for upland and edge-associated bird species, complementing aquatic habitats at the lake margin. Rocky outcrops, steep slopes, and canyon system of the Elsinore Mountains provide extensive tracts of relatively intact chaparral, coastal sage scrub, oak woodland, and riparian canyon habitats where special-status and conservation-priority bird species, including the coastal California gnatcatcher, coastal cactus wren

(*Campylorhynchus brunneicapillus cousei*), and Bell's sage sparrow (*Artemisiospiza belli belli*) occur. This combination of aquatic, riparian, and upland habitats within close proximity contributes to high avian diversity and repeated use of the area, as documented in regional bird surveys and long-term community science datasets such as eBird, which identify Gunnerson Marsh, Temescal Creek, Yarborough Lake, Canyon Lake, and the Lake Elsinore shoreline as consistent birding hotspots.

Together, these features underscore the importance of the Lake Elsinore area as a multifunctional avian habitat complex within Western Riverside County and provide context for evaluating biological resources under CEQA and consistency with the MSHCP's regional conservation and connectivity objectives. Nesting birds are also protected under CFGC 3503, 3503.5, and 3512 and the federal Migratory Bird treaty Act, which prohibits the take of active bird nests.

3.5 Wildlife Movement and Habitat Connectivity

The Planning Area overlaps multiple regional and local habitat connectivity frameworks that collectively inform future land use and guide biological resource protection (**Table 4**). Regional connectivity designations under the CEHC Project identify essential connectivity areas and natural landscape blocks linking the Planning Area to the Santa Ana Mountains, Lake Matthews, and the Palomar Mountain region via the Temecula Valley. State-level data from CDFW ACE indicate limited connectivity opportunities in low-elevation areas surrounding Lake Elsinore, with connectivity importance increasing substantially toward the Santa Ana Mountains and Elsinore Mountain foothills (CDFW 2024a). Wildlife movement barriers, including Ortega Highway (SR-74), are recognized within the southern SOI as significant impediments to regional species movement (CDFW 2024a). At the local scale, the MSHCP identifies multiple existing and proposed wildlife core areas, core extensions, and linkages within the Planning Area, including several constrained linkages concentrated in the northwestern portion (**Figure 4**). Collectively, these overlapping designations highlight the Planning Area's role as both a functional habitat mosaic and a critical transition zone between lowland basin habitats and surrounding upland core areas, requiring careful consideration of connectivity, open space preservation, and biological resource constraints in future planning decisions.

Table 4. Wildlife Movement and Habitat Connectivity Features within the Planning Area.

Project / Agency[1]	Feature[2]	Overlapping Planning Area?	Note
CEHC	Essential Connectivity Areas (ds620)	Yes	Northern Planning Area connecting to Lake Matthews, southern Planning Area connecting to Palomar Mountain via the Temecula Valley.
CEHC	Natural Landscape Blocks (ds621)	Yes	Santa Ana Mountain Range including Elsinore Mountain foothills and Temescal Valley region.
CEHC	Potential Riparian Connections (ds622)	No	No corridors identified within 5 miles of Planning Area. Closest feature is the Santa Ana River.
CEHC	Natural Small Areas (ds1073)	Yes	Numerous areas through the Planning Area around Lake Elsinore, Elsinore Mountains, North Elsinore Hills, and Walker Canyon areas.
CDFW	Areas of Conservation Emphasis (ACE) – Terrestrial Connectivity (ds2734)	Yes	Connectivity rank increases with elevation. Surrounding Lake Elsinore = Rank 1 - Limited Connectivity Opportunity; Santa Ana Mountains = Rank 5 - Irreplaceable and Essential Corridors.
CDFW	Wildlife Movement Barriers (ds2867)	Yes	Ortega Highway (SR 74) within the southern SOI.
CDFW	Mule Deer Use Area (multiple)	No	No data within 5 miles for big game species.
MSHCP	Core – Existing and Proposed	Yes	Multiple existing and proposed cores in Planning Area .
MSHCP	Proposed Extension of Existing Core	Yes	Multiple proposed extensions of existing cores in Planning Area.
MSHCP	Non-contiguous Habitat Block	No	No areas identified within Planning Area.
MSHCP	Proposed Linkage – Existing and Proposed	Yes	Multiple proposed linkages throughout Planning Area. No existing linkages identified.
MSHCP	Constrained Linkage	Yes	Multiple proposed constrained linkages in the NW corner of the Planning Area.

[1] Sources: CDFW BIOS Habitat Connectivity Viewer and Ungulate Migration Viewer; LSA Environmental Consultants 2019
[2] Features with (ds#) reference specific GIS layers maintained by CDFW in BIOS; link to MSHCP connectivity GIS layer provided in References Section 7.

3.5.1 MSHCP Existing Core Areas

The Planning Area encompass and abut several Existing Wildlife Core Areas, including Existing Core B, Core C, and Core E (**Figure 4**). These cores represent large, relatively intact blocks of natural habitat that function as foundational components of the regional conservation strategy, supporting population viability for wide-ranging mammals, upland and riparian bird species, reptiles, and other covered wildlife (**Table 5**). Within the Lake Elsinore area, Existing Core B extends into the Cleveland National Forest and the Elsinore Mountains, providing substantial upland chaparral, oak woodland, and montane habitat, while Existing Core E encompasses Lake Elsinore and associated wetland habitats that are critical for migratory and resident bird species. The MSHCP identifies these cores as areas where long-term habitat value is maintained primarily through avoidance, conservation, and management, rather than piecemeal mitigation, and emphasizes their importance for maintaining regional ecological integrity (MSHCP Vol. I, §2.2 and 6.1).

Table 5 Conservation Objectives and Focal Species of MSHCP Existing Core Areas within the Planning Area.

Feature	General Location & Context	Primary Conservation Objectives	Key Habitat Types	Representative Covered / Focal Species*
Existing Core B	Santa Ana Mountains, Cleveland National Forest; western and southwestern SOI of Lake Elsinore	• Maintain large, intact blocks of coastal sage scrub, chaparral, oak woodland, and forest • Provide regional north–south and east–west wildlife movement and genetic exchange • Support wide-ranging and area-sensitive species	Coastal sage scrub, chaparral, oak woodland, riparian corridors, forested canyons	Mountain lion, bobcat, coastal California gnatcatcher, Bell's sage sparrow, orange-throated whiptail
Existing Core C	Northern Planning Area and Temescal Valley interface; linkage between Santa Ana Mountains and inland valleys	• Preserve connectivity between mountain blocks and inland habitats • Protect riparian-associated and valley-edge habitats • Support species movement through constrained landscapes	Riparian corridors, valley scrub, grasslands, alluvial fans, oak woodland	Least Bell's vireo, arroyo toad, western spadefoot, San Diego horned lizard
Existing Core E	Lake Elsinore shoreline, floodplain, and San Jacinto River interface	• Conserve aquatic, wetland, and floodplain habitats • Maintain habitat for water-dependent and migratory species • Support connectivity between uplands and basin wetlands	Open water, freshwater marsh, riparian woodland, seasonally inundated areas	California red-legged frog, western pond turtle, great blue heron, white-faced ibis, various migratory waterbirds

3.5.2 Proposed Core Areas and Core Extensions

In addition to existing cores, the Planning Area includes several Proposed Core Areas and Proposed Extensions of Existing Cores, reflecting areas recognized by the MSHCP as necessary to enhance habitat contiguity and long-term conservation outcomes (**Table 6**). Proposed Core Areas and extensions identified in the Lake Elsinore vicinity expand the functional footprint of Existing Core B Core C, and Core E into adjacent undeveloped lands, including portions of the Temescal Valley, Sedco Hills, and lands south and east of the lake (**Figure 4**). These areas are intended to capture habitat features not fully incorporated into the original core configuration but that are essential for species movement, genetic exchange, and climate resilience. Under the MSHCP, proposed cores and extensions are evaluated during project-level review to determine whether development would compromise the ability to assemble the planned reserve configuration or preclude future conservation opportunities (MSHCP §6.1.4 and 6.3.2).

Table 6. Conservation Objectives and Focal Species of MSHCP Proposed Core Areas and Core Extensions within the Planning Area.

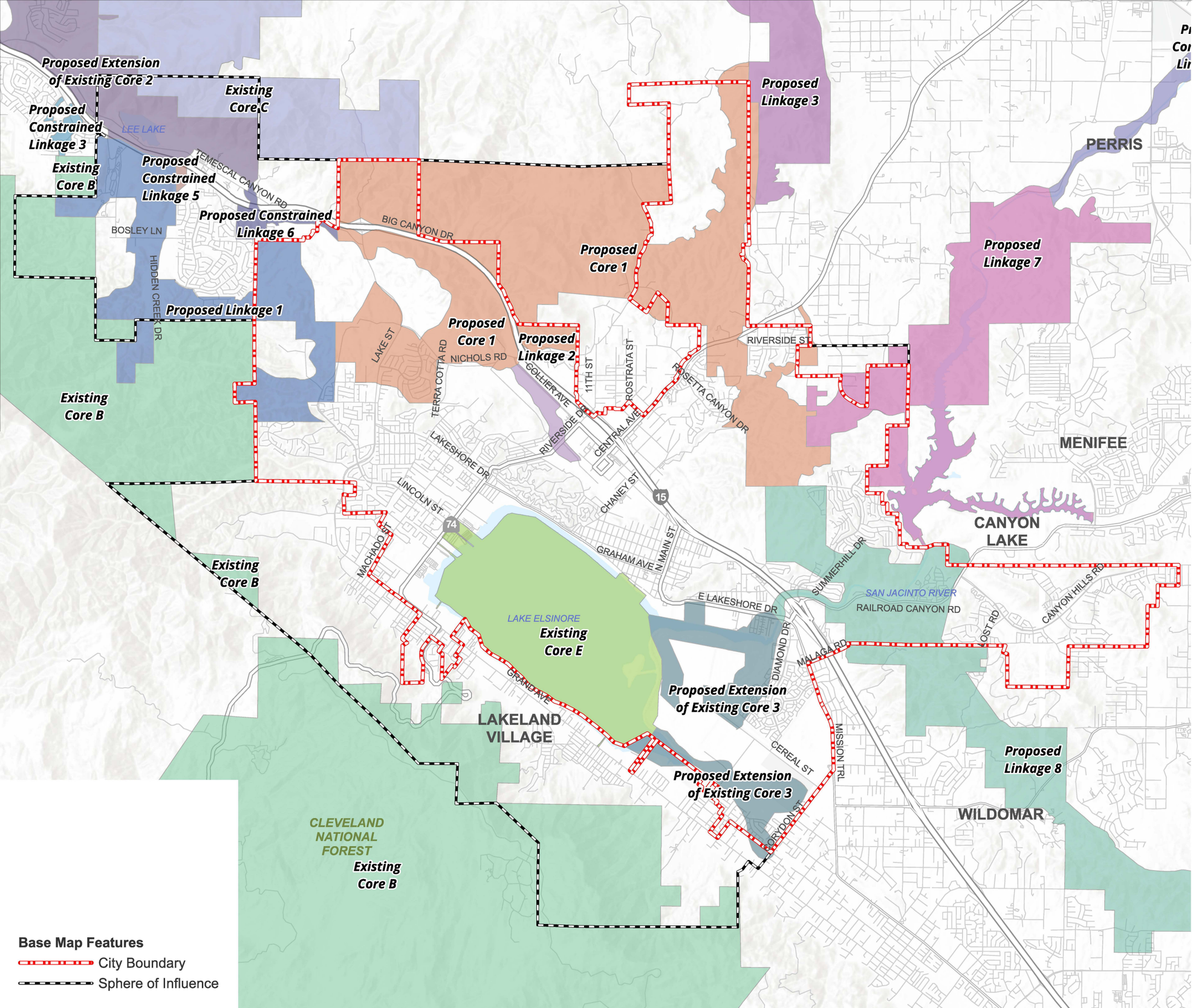
Feature	General Location / Context	Primary Conservation Objectives	Key Habitat Types	Representative Focal / Covered Species
Proposed Core 1	Northern and northeastern portions of the Planning Area	• Expand core habitat representation in under-conserved portions of the MSHCP area • Consolidate fragmented uplands; improve linkage efficiency between existing cores and regional corridors	Chaparral, grassland, coastal sage scrub	Coastal California gnatcatcher, San Diego horned lizard, bobcat
Proposed Extension of Existing Core 2	Northwest Planning Area, near Temescal Wash and adjacent uplands	• Strengthen connectivity between existing core lands and riparian systems • Buffer and reinforce movement corridors • Reduce edge effects from urban encroachment	Riparian corridors, coastal sage scrub, grassland	Least Bell's vireo, western spadefoot, arroyo toad
Proposed Extension of Existing Core 3	Southern and southeastern Planning Area, linking Lake Elsinore basin to adjacent uplands	• Enhance functional connectivity between basin habitats and surrounding foothills • Support elevational and hydrologic gradients; improve dispersal opportunities for aquatic-associated and upland species	Grassland, scrub, riparian/wetland transitions	Southwestern pond turtle, California red-legged frog, mule deer

3.5.3 Proposed Linkages and Constrained Linkages

The Planning Area is intersected by multiple Proposed and Constrained Linkages that collectively maintain regional habitat connectivity across an otherwise fragmented urban and infrastructure-dominated landscape (**Figure 4, Table 7**). These linkages connect Existing Core E, which encompasses Lake Elsinore, with Existing Core B, Proposed Core 1, and associated Core Extensions, facilitating wildlife movement between the Elsinore Mountains, Sedco Hills, and inland valley habitats. Proposed Linkage 7 provides an important eastward connection between Proposed Core 1 and biologically significant open-space areas in the Perris and Menifee region, supporting large-scale wildlife dispersal and landscape-level connectivity. Proposed Linkage 8 extends this framework southward and eastward by linking Existing Core E and adjacent core extensions with Canyon Lake and the San Jacinto River corridor, which function as regionally important riparian and movement pathways. Constrained Linkages identify locations where existing development, transportation infrastructure, or topography have reduced corridor width and permeability, increasing sensitivity to incremental disturbance. Under the MSHCP, these linkage areas are considered essential for supporting wildlife movement, dispersal, and recolonization, particularly for covered medium- and large-bodied mammals such as mountain lion, mule deer, bobcat, and coyote, as well as riparian- and upland-associated birds and reptiles (MSHCP Vol. I, §2.3 and 6.1.5). Consequently, projects located within or adjacent to these linkage areas are subject to focused evaluation during planning and CEQA review to ensure that functional connectivity within and beyond the Lake Elsinore Planning Area is maintained and not substantially impaired.

Table 7. Conservation Objectives of MSHCP Proposed Wildlife Linkages and Constrained Linkages within and adjacent to the Planning Area.

Feature	General Location / Context	Primary Conservation Objectives	Relevance to Planning Area
Proposed Linkage 1	Western portion of the Planning Area, connecting Existing Core B in the Cleveland National Forest foothills to Proposed Core 1 and adjacent conservation lands west of Lake Elsinore.	Maintain west–east and north–south regional wildlife movement between large Core Areas; support dispersal and genetic exchange for wide-ranging mammals and upland species. Representative focal species include mountain lion, mule deer, bobcat, coyote, and associated upland birds and reptiles.	Anchors Lake Elsinore's western edge connectivity, ensuring continued functional movement between the Cleveland National Forest and interior planning areas; it constrains urban edge expansion and informs project siting and grading design along the City's western SOI.
Proposed Linkage 2	Central–north Lake Elsinore area, extending between Proposed Core 1 and upland habitats north of the City, crossing developed and semi-developed landscapes.	Preserve connectivity across fragmented landscapes, emphasizing linkage width, habitat permeability, and avoidance of complete pinch-points. Focal species include medium and large mammals, as well as grassland and coastal sage scrub species requiring landscape-scale movement.	Directly overlaps areas of future growth pressure and therefore plays a key role in CEQA impact analysis, requiring avoidance, reduced footprint design, and/or mitigation to maintain linkage functionality within the Planning Area.
Proposed Linkage 7	Northeastern portion of the Planning Area, linking Proposed Core 1 with regional open space (Canyon Lake) toward Perris and Menifee, largely east of I-15.	Provide regional-scale connectivity between inland valleys cores, supporting long-distance dispersal routes and climate-driven range shifts. Focal species include mountain lion, mule deer, and other large mammals, as well as raptors using open landscapes.	Represents a critical east-side connection for Lake Elsinore, ensuring the City does not become a barrier between inland valley cores; informs transportation planning, undercrossing opportunities, and large-scale land use decisions.
Proposed Linkage 8	Southeastern Lake Elsinore area near Wildomar, connecting Existing Core E and Proposed Extensions of Existing Core 3 with habitats south and east of the City.	Maintain connectivity around Lake Elsinore and the San Jacinto River corridor, supporting riparian-associated movement and upland–riparian linkages. Focal species include riparian mammals, amphibians, reptiles, and large mammals using valley bottoms as movement corridors.	Relevant to projects near Lake Elsinore shoreline, Railroad Canyon, and the San Jacinto River, requiring careful integration of flood control, infrastructure, and habitat movement objectives.
Proposed Constrained Linkage 5	Northwestern edge of the Planning Area, situated between Existing Core B and Proposed Core 1, narrowed by existing development and infrastructure.	Maintain minimum viable linkage functionality in constrained settings by preserving remaining habitat width, reducing barriers, and enhancing crossing opportunities. Focal species include bobcat, coyote, mule deer, and other adaptable mammals.	Signals a high-sensitivity constraint area where future development must be carefully designed; often triggers focused biological analysis and avoidance or restoration-based mitigation within Lake Elsinore projects.
Proposed Constrained Linkage 6	Northern–central Lake Elsinore area, constrained by urban development, roadways, and topography between Proposed and Existing Core areas.	Prevent complete severance of movement corridors in developed landscapes; prioritize permeability and functional movement rather than pristine habitat conditions. Focal species emphasize generalist and wide-ranging mammals.	Highlights areas where Lake Elsinore's growth could irreversibly sever regional connectivity if not managed; directly informs General Plan policies, roadway improvements, and CEQA mitigation strategies.



Riverside MSHCP Wildlife Corridor Cores and Linkages

- Existing Constrained Linkage B
- Existing Core B
- Existing Core C
- Existing Core E
- Proposed Constrained Linkage 16
- Proposed Constrained Linkage 17
- Proposed Constrained Linkage 19
- Proposed Constrained Linkage 3
- Proposed Constrained Linkage 5
- Proposed Constrained Linkage 6
- Proposed Core 1
- Proposed Core 2
- Proposed Extension of Existing Core 2
- Proposed Extension of Existing Core 3
- Proposed Extension of Existing Core 4
- Proposed Linkage 1
- Proposed Linkage 2
- Proposed Linkage 3
- Proposed Linkage 7
- Proposed Linkage 8

Figure 4

Base Map Features

- City Boundary
- Sphere of Influence

Prepared by MIG, December 2025.
Source: Riverside County, State of California

0 ¼ ½ 1 1½ 2 Miles

3.5.4 ***Known Movement Barriers***

CDFW identified the Ortega Highway (State Route 74) as a significant wildlife movement barrier (Barrier ID W137) spanning approximately 25 miles) from the south shore of Lake Elsinore to San Juan Capistrano. This highway segment bisects an important regional wildlife linkage within the Santa Ana Mountains, including lands managed as part of the Cleveland National Forest, and has been documented as a roadkill hotspot, particularly for mountain lion, with movement data indicating frequent crossing attempts by wide-ranging mammals (CDFW 2024b). Target species affected include mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), bobcat (*Lynx rufus*), kit fox (*Vulpes macrotis*), and several mesocarnivores such as skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and gray fox (*Urocyon cinereoargenteus*). Identified remediation goals focus on improving landscape permeability by expanding and enhancing existing culverts and creek bridges, constructing new wildlife undercrossings, and installing wildlife exclusion fencing at high-risk locations to reduce mortality and improve functional connectivity.

3.6 Jurisdictional Waters/Wetlands

The Planning Area is located within the San Jacinto and Santa Ana Watersheds (Hydrologic Unit Code 8). Aquatic habitats within the Planning Area total approximately 4,360 acres, with the majority occurring within the City Boundary (3,568 acres) and a smaller but ecologically important portion within the SOI (792 acres; **Table 8**). Within the City Boundary, lake habitat dominates (2,624 acres; 74%), reflecting the extent of Lake Elsinore, followed by riverine features (380 acres; 11%). Freshwater forested/shrub wetlands (292 acres; 8%), freshwater emergent wetlands (205 acres; 6%), and freshwater ponds (67 acres; 2%) occur in smaller, localized areas along drainages and low-lying topographic features (**Figure 5**).

In contrast, wetlands within the SOI are predominantly riverine (467 acres; 59%), associated with the San Jacinto River, Temescal Wash, and incised drainages along the foothills of the Santa Ana and Elsinore Mountains. Freshwater forested/shrub wetlands (225 acres; 28%) also comprise a substantial component of the SOI, reflecting linear riparian corridors outside the urban core. Lake habitat is limited (59 acres; 7%), while freshwater emergent wetlands (32 acres; 4%) and ponds (9 acres; 1%) occur only as minor, scattered features.

Table 8. Wetland Habitats within the Planning Area.

	City Boundary		SOI		
Wetland Type	**Acres**	**% Comp.**	**Acres**	**% Comp.**	**Total**
Freshwater Emergent Wetland	205	6%	32	4%	237
Freshwater Forested/Shrub Wetland	292	8%	225	28%	517
Freshwater Pond	67	2%	9	1%	76
Lake	2,624	74%	59	7%	2,683
Riverine	380	11%	467	59%	847
Total	3,568		792		4,360

Source: USFWS NWI

Vernal pools are an underrepresented aquatic feature in publicly available wetland and aquatic habitat datasets, as these small, seasonally inundated depressional wetlands are frequently below the minimum mapping thresholds of regional inventories. Vernal pools provide disproportionately high ecological value by supporting specialized and often endemic plant and wildlife species adapted to seasonal hydrology, and approximately six to eight MSHCP Covered Species, including federally listed fairy shrimp and rare plants, are exclusively associated with this habitat type. The Planning Area is located within a USFWS-designated Western Riverside County Recovery Unit, underscoring the regional conservation significance of these habitats. Vernal pools may qualify as Waters of the United States and waters of the State of California, and where jurisdictional, may be subject to authorization under Clean Water Act Section 404, Section 401 Water Quality Certification, and California Department of Fish and Wildlife Fish and Game Code Section 1602. Within Western Riverside County, the presence of vernal pools also intersects with the MSHCP, which requires that special-status species and habitats not fully addressed through plan-level modeling or Criteria Cell mapping be evaluated through project-specific surveys (MSHCP §6.1 and 6.3). Survey requirements for covered species potentially associated with vernal pool habitats are outlined in MSHCP Table 6-1 (Species-Specific Survey Requirements), which establishes protocols for determining presence or absence prior to project implementation. Accordingly, the presence, extent, and functional characteristics of vernal pools should be assessed through focused field surveys conducted during appropriate hydrologic conditions to ensure compliance with federal and state permitting requirements and consistency with MSHCP conservation objectives and avoidance and minimization policies.

Based on publicly available data, several compensatory mitigation projects have restored wetland habitats within the Planning Area, primarily along the Interstate 15 corridor in association with residential development and transportation improvements. Documented examples of completed restoration efforts include projects associated with the North Ramsgate Development, Sycamore Creek Development, Rancho La Laguna Tract Map No. 28748, and the Collier Avenue Widening Project (EcoAtlas 2025).

Potential impacts to aquatic habitats within the Planning Area may affect Waters of the United States and waters of the State of California, thereby triggering federal and state regulatory oversight. Discharges of dredged or fill material into jurisdictional waters would require authorization under Clean Water Act (CWA) Section 404 from the U.S. Army Corps of Engineers and Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), while activities that substantially alter the bed, bank, or channel of rivers, streams, or associated riparian corridors may require notification to the California Department of Fish and Wildlife (CDFW) pursuant to Fish and Game Code Section 1602. In Western Riverside County, these permitting requirements intersect with the MSHCP, which is implemented through a Cooperative Organizational Structure involving the RCA, Participating Special Entities, CDFW, and the U.S. Fish and Wildlife Service, as described in MSHCP §1.6 and 6. The MSHCP establishes Conservation Objectives and Criteria Cells for riparian, riverine, and lacustrine habitats (MSHCP §2.3, 3.1, and 3.2), which guide the conservation, management, and mitigation of aquatic resources supporting covered species. While projects that are consistent with the MSHCP may fulfill certain biological mitigation obligations through compliance with plan policies and payment of development fees, project-level approvals under the

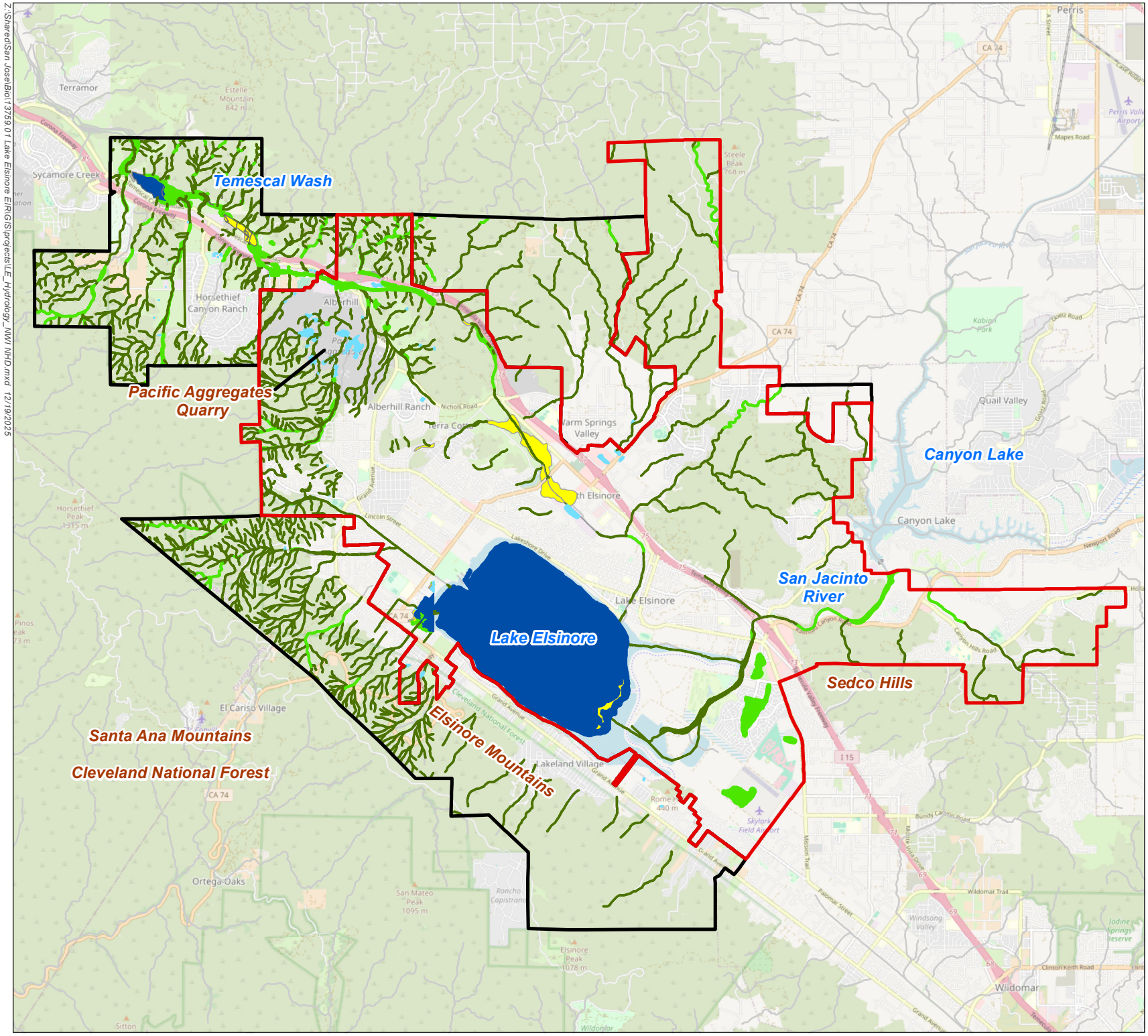


Figure 5. USFWS NWI Aquatic Habitat
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

NWI Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Source: ESRI, RCA, USFWS Author: E. Jansen

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CWA, RWQCB, and CDFW remain independently applicable, and coordination among agencies is required to ensure consistency with both regulatory mandates and the regional conservation framework.

4.0 FUTURE LAND USE AND MSHCP ELEMENTS

This section is organized in a format similar to an MSHCP Consistency Analysis but incorporates the anticipated future land use designations proposed by the Lake Elsinore GPU. The purpose of this assessment is to summarize applicable MSHCP elements within the Planning Area and evaluate the extent to which those elements intersect with and may influence the proposed future land use designations. Given the size and unique biological characteristics of Lake Elsinore and the surrounding intermountain region, numerous MSHCP elements are present within the Planning Area (**Table 9**). Management and conservation of these resources would be implemented in accordance with the MSHCP conservation framework

Table 9. Applicability of MSHCP Elements in the Planning Area.

Factor	Not Applicable	Applicable	Justification of Applicability/Inapplicability
Covered Roads		X	Located throughout the Planning Area.
Covered Public Access Activities		X	Multiple public access opportunities (e.g., trails, aquatic access) in Planning Area
Reserve Assembly Analysis		X	Planning Area overlaps multiple reserve elements
Constrained Linkages		X	Mapped in Planning Area
Core Areas		X	Mapped in Planning Area
Linkages		X	Mapped in Planning Area
Habitat Block		X	Mapped in Planning Area
Criteria Cell		X	Mapped in Planning Area
Other Conservation Area		X	Additional reserve lands (ARL) acquired post MSHCP certification within Planning Area
PQP Lands		X	Mapped in Planning Area
Vegetation Mapping		X	Project-specific mapping required in Planning Area
Riparian/Riverine Resources		X	Present and mapped in the Planning Area
Vernal Pools		X	Not mapped but assumed present in the Planning Area
Fairy Shrimp		X	Historical records of Riverside fairy shrimp in Planning Area
Riparian Birds		X	Documented occurrence in Planning Area
Other Section 6.1.2 Species		X	Documented occurrence in Planning Area
Narrow Endemic Plant Species		X	Documented occurrence and multiple survey areas overlap Planning Area
Stephens' Kangaroo Rat HCP		X	Modeled suitable habitat, core serve areas and fee areas mapped in Planning Area
Criteria Area Plant Species		X	Documented occurrence and multiple survey areas overlap Planning Area
Amphibians	X		Adjacent to the southern boundary of Planning Area
Burrowing Owl		X	Documented occurrence and survey area overlaps the majority of Planning Area
Mammals	X		Not mapped or described in Planning Area
Delhi Sands Flower Loving Fly	X		Not mapped or described in project area.
Species Not Adequately Conserved		X	Documented occurrence mapped in Planning Area
Guidelines Pertaining to the Urban /Wildlife Interface		X	Documented occurrence described in Planning Area

Table 9. Applicability of MSHCP Elements in the Planning Area.

Factor	Not Applicable	Applicable	Justification of Applicability/Inapplicability
Construction Guidelines		X	Applicable to projects within the Planning Area
Best Management Practices		X	Applicable to projects within the Planning Area (MSHCP Vol I App. C)

4.1 Future Land Use in the Planning Area

For mapping and analytical clarity, the Planning Area was divided into northern and southern portions to improve visualization of Future Land Use designations and MSHCP Criteria Cells, which represent the finest standardized spatial planning unit used in the MSHCP reserve assembly hierarchy (**Figure 6 and Figure 7**).

In the northern portion of the Planning Area, Future Land Use designations are characterized by a transition from established and planned urban land uses in the south to predominantly open space and recreational designations toward the northern and northwestern extents (**Figure 6 and 7**). Residential land uses dominate much of the central and southern part of the northern planning area, with pockets of Mixed-Use, Commercial, Industrial, and Specific Plan designations associated with existing or planned urbanized areas and transportation corridors. In contrast, the northernmost areas, including foothill and canyon landscapes, are largely designated Open Space or Recreational, reflecting topographic constraints and regional conservation priorities

MSHCP Criteria Cells in the northern portion are widespread and frequently overlap areas designated as Open Space and Recreational, where long-term habitat conservation and connectivity objectives are most readily achieved (**Figure 6**). These criteria cells also extend into areas designated for Residential and Specific Plan land uses, particularly along the urban–wildland interface. In these locations, the overlap indicates that future development would be subject to MSHCP consistency requirements, including focused siting, habitat avoidance, and potential mitigation, rather than precluding development outright. The spatial pattern reflects the MSHCP's intent to maintain regional habitat values while accommodating planned urban growth within the City and SOI.

The southern portion of the Planning Area exhibits a more complex mosaic of Residential, Mixed-Use, Commercial, Industrial, and Specific Plan designations concentrated around Lake Elsinore, major roadways, and existing developed areas (**Figure 7**). Extensive Residential land uses surround the lake and extend east and southeast, while Commercial and Industrial designations are clustered near major transportation corridors. Open Space and Recreational designations are more limited in extent but remain prominent along the southwestern foothills and peripheral areas outside the primary urban core

MSHCP Criteria Cells in the southern portion overlap extensively with Specific Plan and Residential designations, particularly east and southeast of Lake Elsinore, reflecting areas where planned growth intersects with regional conservation priorities. Criteria cell coverage is comparatively denser in this portion of the Planning Area, underscoring the need for careful project-level planning and MSHCP compliance during future development. Overlaps with Floodway and Open Space designations occur along lake margins and drainage corridors, reinforcing the role of these areas in supporting habitat connectivity, hydrologic function,

and species movement. Overall, the southern Planning Area illustrates the MSHCP's integration into an actively urbanizing landscape, where conservation objectives are implemented through project design, mitigation, and long-term reserve assembly rather than large contiguous preserved blocks.

4.2 Proposed Changes in Land Use Designations

The GPU proposes a substantial reorientation of land use patterns that collectively advance long-term conservation and open space objectives while accommodating focused urban growth. The most consequential land use changes occur at a landscape scale, with the largest acreage conversions resulting in a significant net increase in designated Open Space (**Figure 8, Appendix D**). The dominant change is the re-designation of approximately 4,490 acres of Hillside Residential to Open Space, supplemented by additional conversions from low-, low-medium-, and medium-density residential categories, as well as mixed residential and institutional lands. These changes are concentrated along the basin margins and surrounding foothills, forming large, contiguous open space areas that frame the urban core and function as a permanent conservation backdrop.

The proposed Open Space designations in the Planning Area are not isolated or fragmented but instead establish a coherent system of conserved lands across the southern, western, and northern hillsides (**Figure 8**). This approach reflects a deliberate policy choice to remove development potential from environmentally constrained and visually prominent hillside areas, thereby supporting conservation goals related to resource protection, slope stability, hazard avoidance, and the preservation of open space connectivity. From a Conservation and Open Space Element perspective, the scale and continuity of these changes reinforce the City's commitment to protecting natural landscapes that define the Lake Elsinore basin and contribute to regional ecological and visual integrity.

In contrast, land use changes involving commercial, mixed-use, industrial, and higher-density residential designations occur in comparatively smaller acreages and are spatially focused within the existing urban fabric, particularly along major transportation corridors and around the lake shoreline. These localized adjustments facilitate infill, redevelopment, and land use refinement in areas already served by infrastructure, while avoiding expansion into newly conserved hillside areas. Small, linear, and nodal changes within the city core directly are reflected in Appendix D which reflect the proposed growth is being directed inward rather than outward.

Collectively, the GPU implements a net conservation strategy, balancing targeted urban intensification with large-scale open space preservation. By converting extensive hillside and peripheral lands to Open Space while concentrating future development in appropriate locations, the plan advances the Conservation and Open Space Element's objectives of long-term land stewardship, protection of environmental constraints, and maintenance of the natural setting that surrounds and defines the community.

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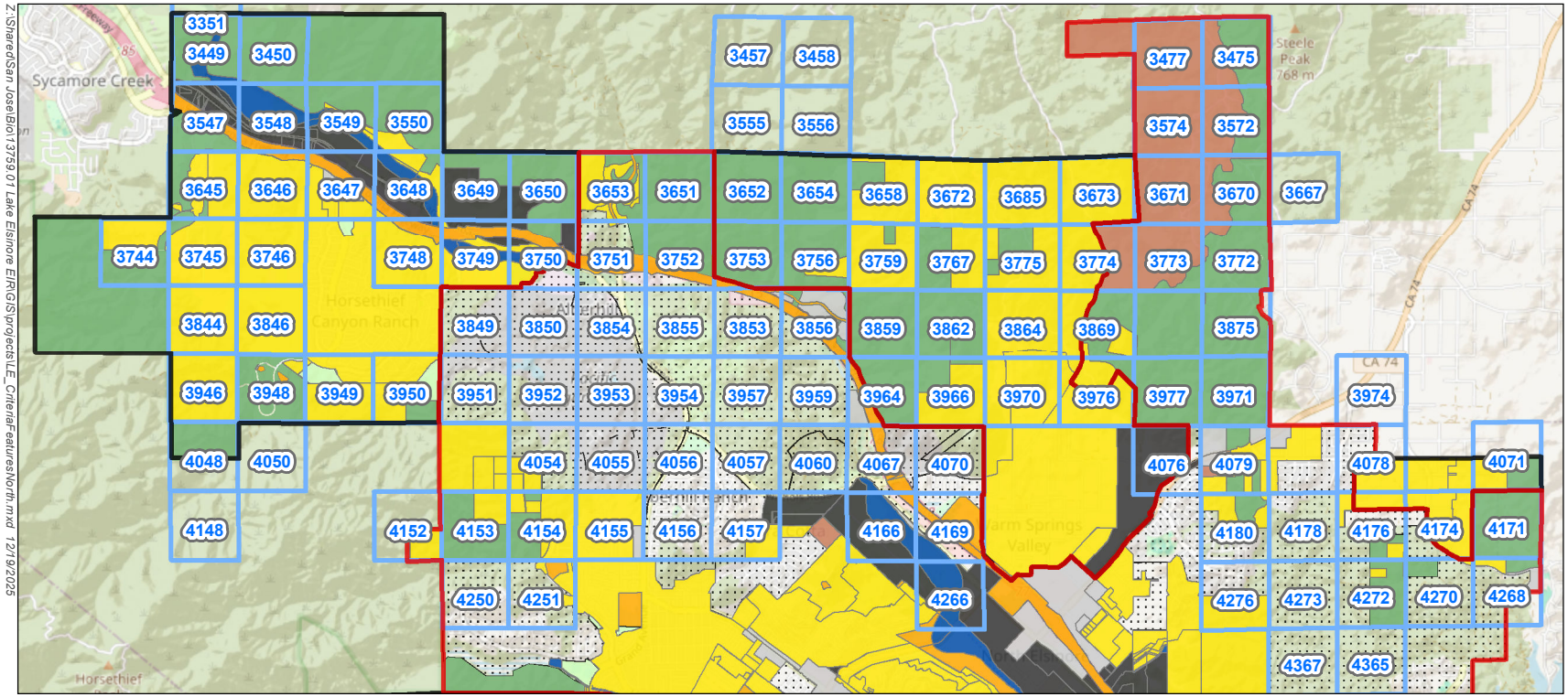

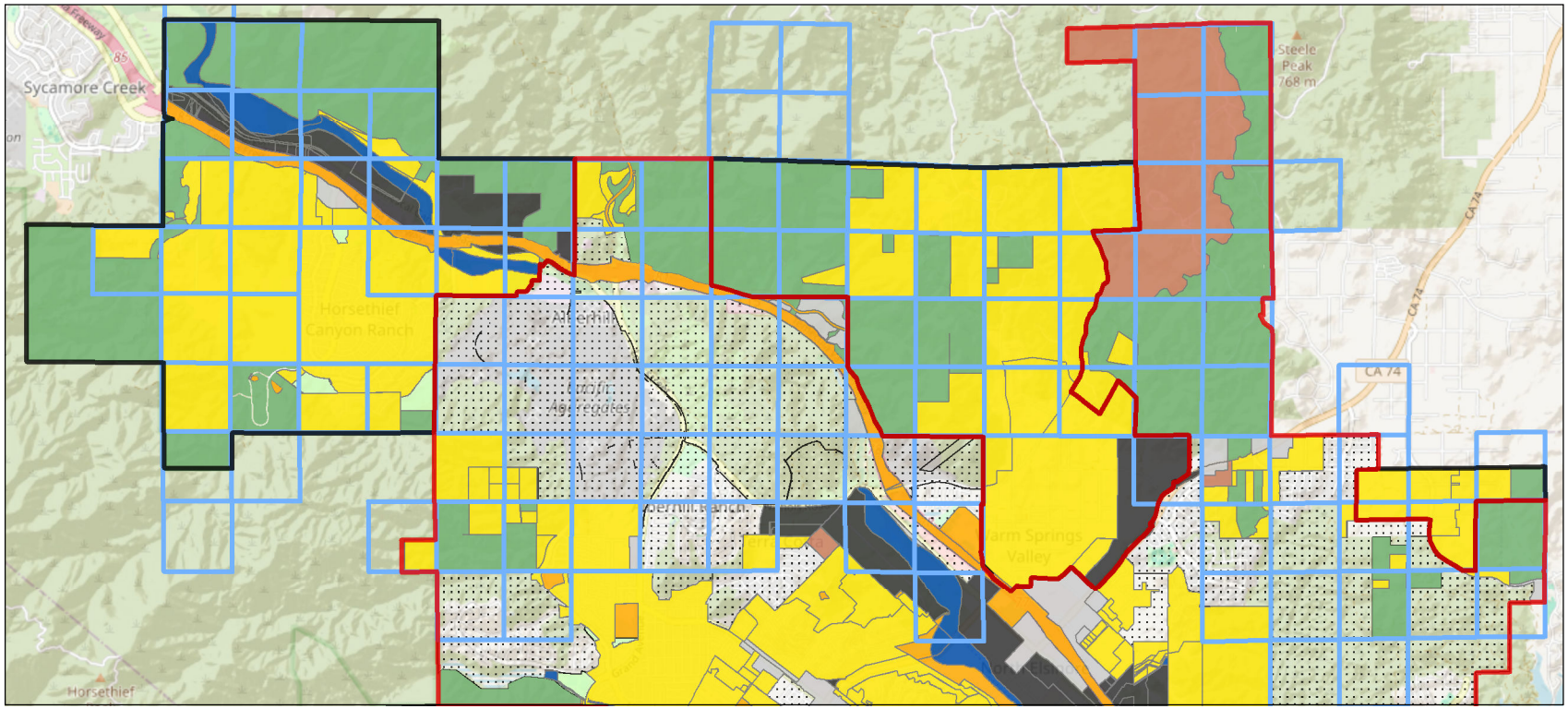

Figure 6. Future Land Use & Criteria Cells North Lake Elsinore GPU Riverside County, CA

- City Boundary
- Sphere of Influence
- MSHCP Criteria Cell

Future Land Use Designation

- Mixed-Use
- Residential
- Commerical
- Industrial
- Open Space
- Recreational
- Floodway
- Public / Institutional
- Specific Plan

Source: ESRI, RCA

Author: E. Jansen

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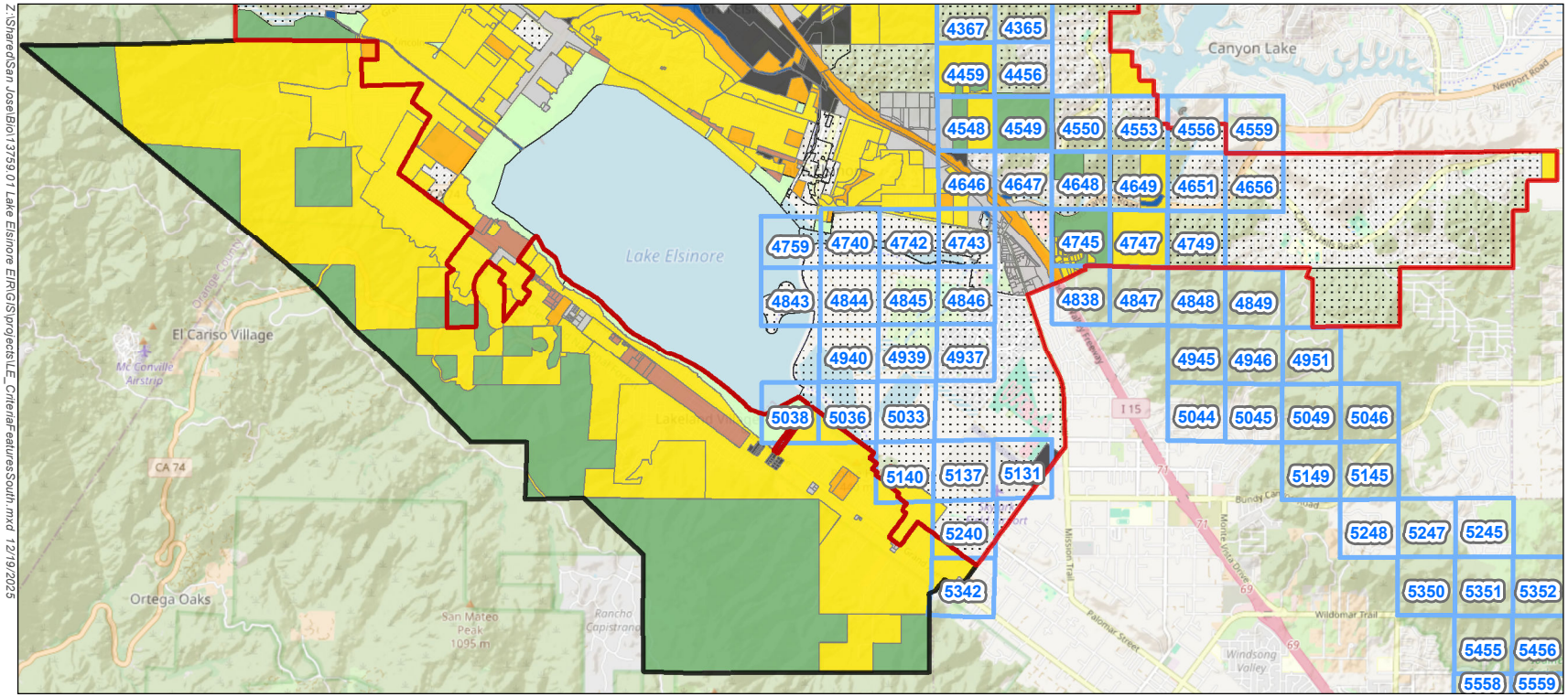

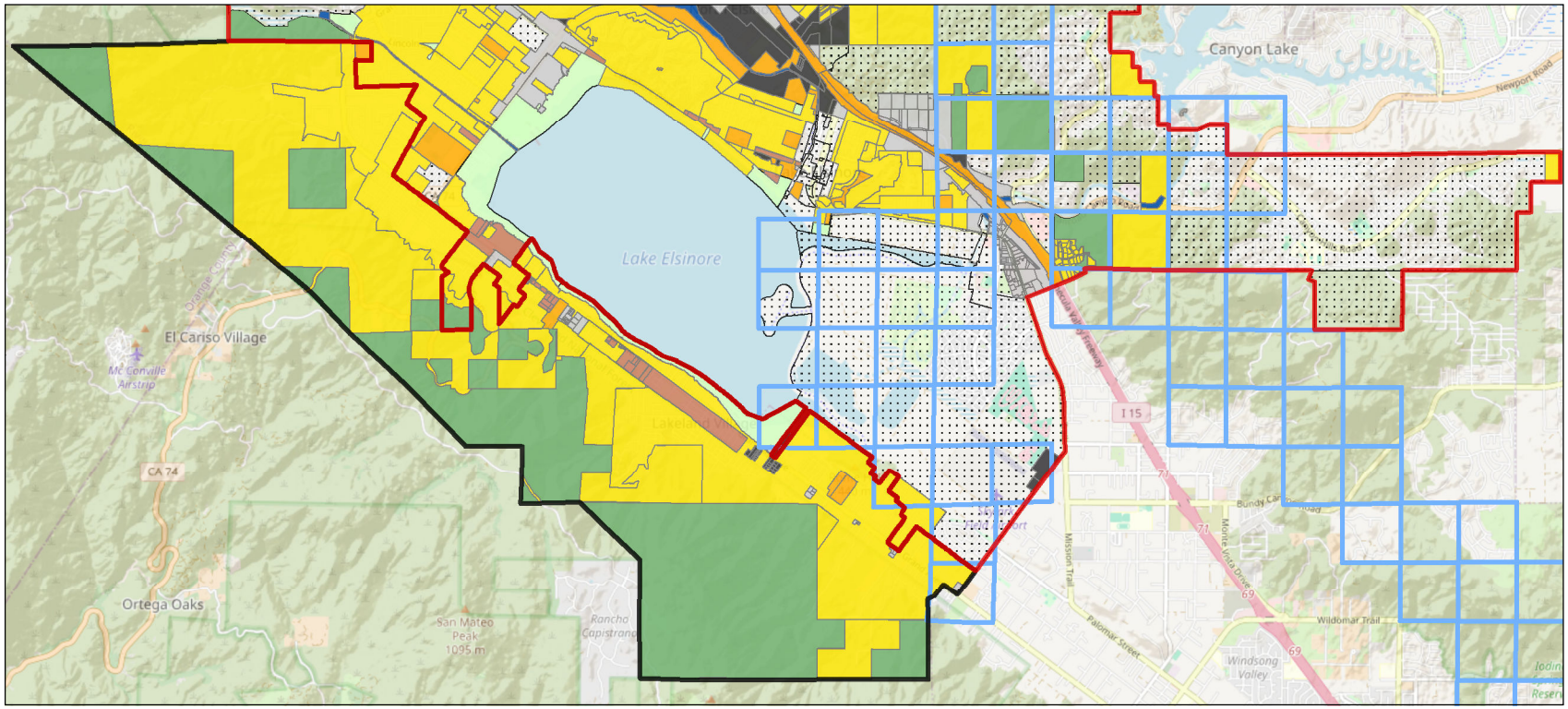

Figure 7. Future Land Use & Criteria Cells South Lake Elsinore GPU Riverside County, CA

City Boundary

Sphere of Influence

MSHCP Criteria Cell

Future Land Use Designation

- Mixed-Use
- Residential
- Commerical
- Industrial
- Open Space
- Recreational
- Floodway
- Public / Institutional
- Specific Plan

Source: ESRI, RCA

Author: E. Jansen

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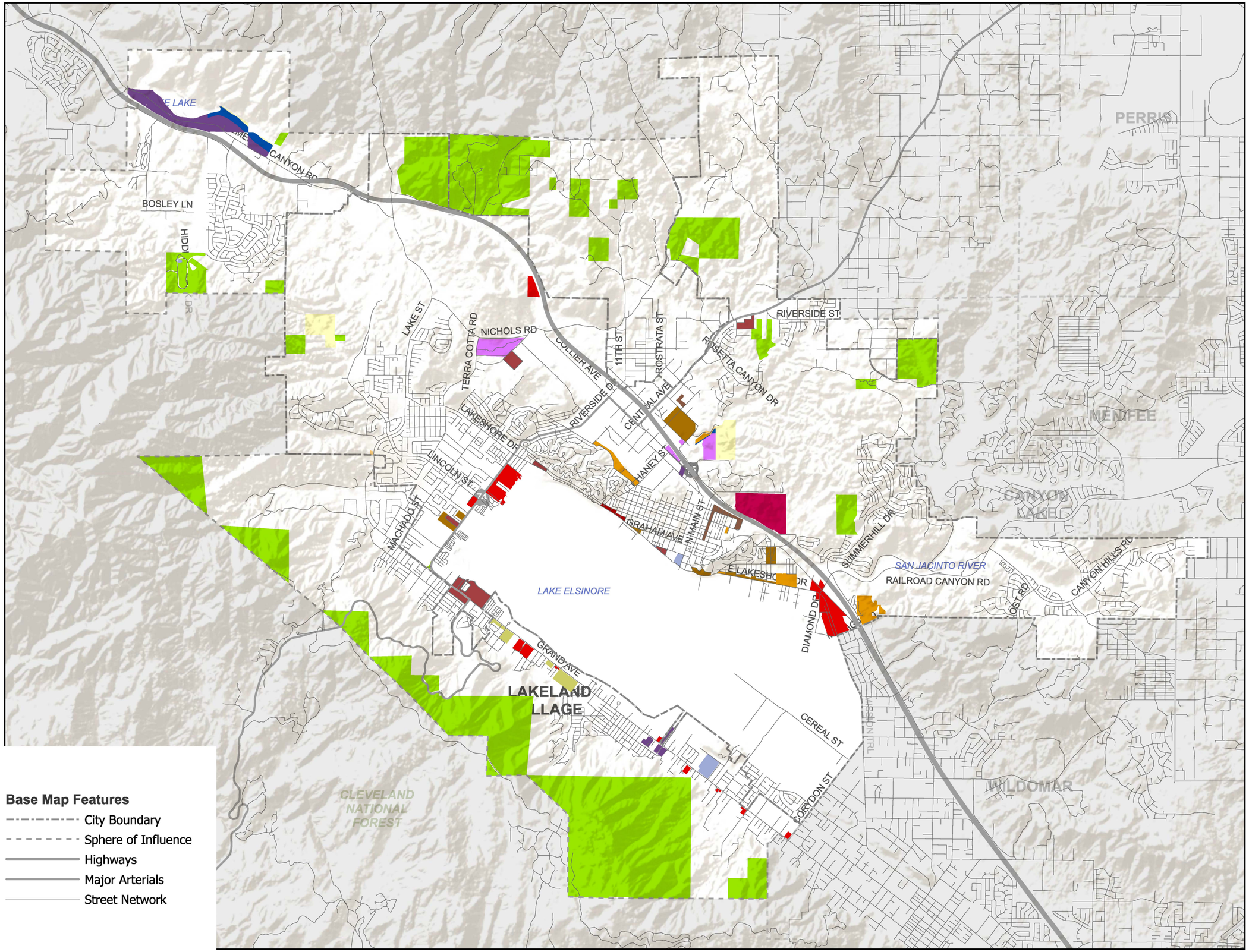
Figure 8

LAND USE PLAN



General Plan Designations Changes Only

Residential
- LOW DENSITY RESIDENTIAL
- LOW-MEDIUM RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL

Mixed Use
- MIXED USE
- RESIDENTIAL MIXED USE
- COMMERCIAL MIXED USE

Commercial
- GENERAL COMMERCIAL
- GENERAL COMMERCIAL - AUTO MALL OVERLAY

Industrial
- BUSINESS PROFESSIONAL
- LIMITED INDUSTRIAL

Other
- SPECIFIC PLAN
- FLOODWAY
- OPEN SPACE
- PUBLIC/INSTITUTIONAL

Base Map Features
- City Boundary
- Sphere of Influence
- Highways
- Major Arterials
- Street Network

Prepared by MIG, September 2025

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4.3 MSHCP Covered Roads Rights-of Way

Under the MSHCP, Covered Roads are identified transportation corridors whose construction, improvement, operation, and maintenance are anticipated and programmatically covered, allowing roadway infrastructure to proceed while avoiding, minimizing, and mitigating impacts to biological resources through defined right-of-way (ROW) limits, conservation objectives, and consistency requirements (MSHCP §3.2.1, 6.1.3, and 6.6). Covered road are spatially concentrated within the existing urbanized basin surrounding Lake Elsinore, where arterial, collector, and expressway corridors form a dense grid supporting established development and planned growth (**Figure 9**).

These covered facilities generally follow valley bottoms and gentle terrain adjacent to Lake Elsinore and established neighborhoods, reflecting historic and planned circulation patterns. In contrast, covered road ROW become more linear, sparse, and topographically constrained toward the SOI margins, particularly along the foothills and mountainous areas to the west and south, where major and mountain arterials extend into less developed landscapes that also contain higher-value natural habitats and linkage functions.

These spatial patterns are consistent with the MSHCP's framework of directing infrastructure into already disturbed or urban contexts while managing unavoidable overlap with sensitive resources through programmatic coverage and mitigation. In the Lake Elsinore GPU area, covered roads frequently intersect or run adjacent to riparian corridors, coastal scrub and chaparral habitats identified as important for covered species movement, especially where arterials transition from the urban core into surrounding open space. The MSHCP anticipates these interactions and addresses them through fixed covered road footprints, species-specific avoidance and minimization measures, and mitigation obligations that contribute to reserve assembly and habitat function at a regional scale (MSHCP §3.2.1, 6.6, and 7.4). As a result, while covered road ROW represent a persistent interface between transportation infrastructure and biological resources in the Planning Area, their location, design, and regulatory treatment are structured to maintain overall conservation objectives and habitat connectivity under the MSHCP.

Several roads boarding the project (N. Warren Road, S. Warren Road and Cottonwood Road) to the west and north are considered Covered Roads Right-of Way (ROW). These arterial roads were explicitly included as "covered activities" when the MSHCP was adopted. If a project affects areas inside a covered ROW, it typically does not trigger new MSHCP mitigation, because those impacts were already covered. If impacts extend outside the ROW, further assessment under §1.2 (Riparian/Riverine), §6.1.3 (Narrow Endemic), or other parts of the MSHCP may apply; however, no MSHCP Covered Roads (existing or proposed) are planned to be improved via widening, staging or newly constructed at this time.

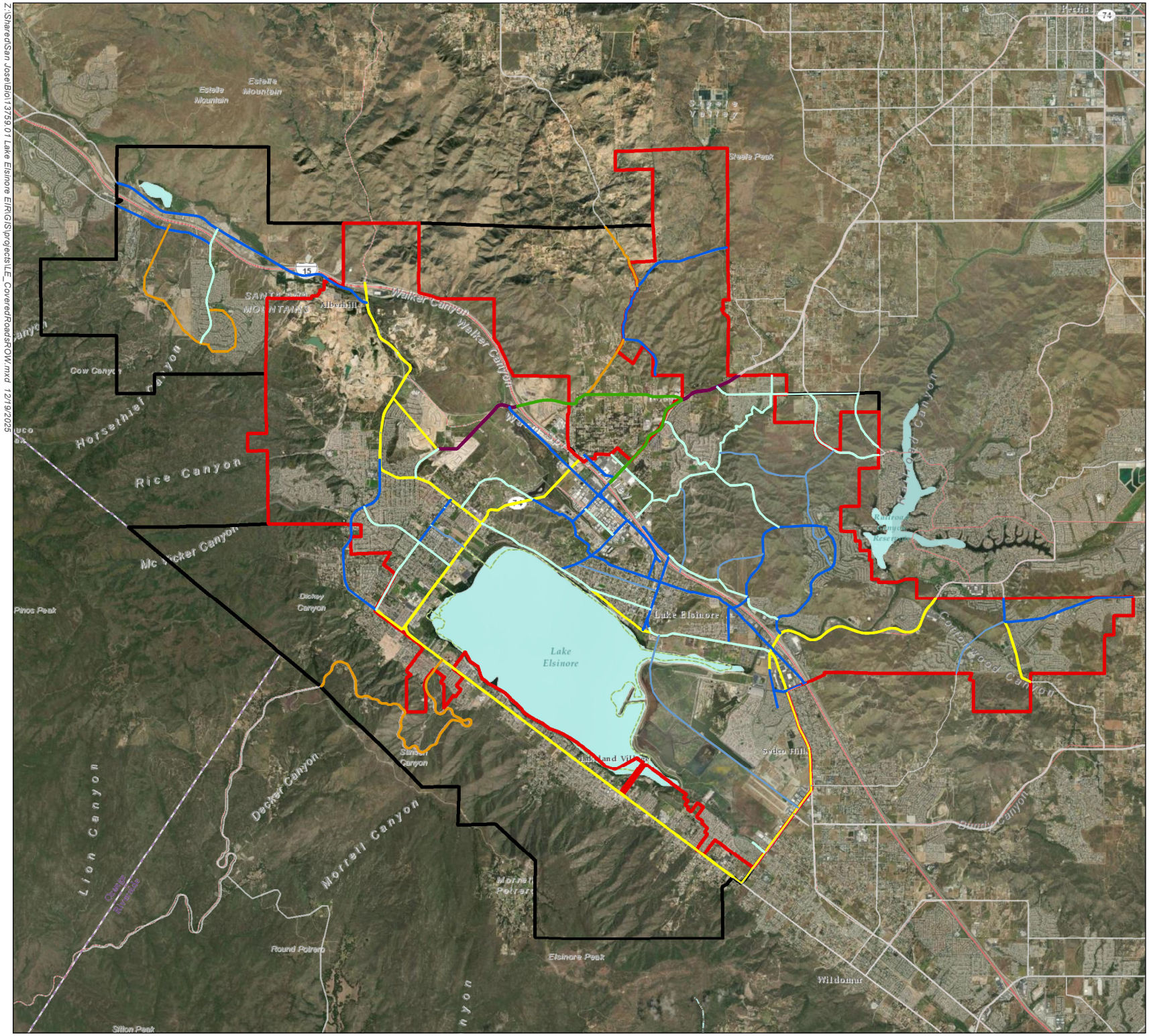

Figure 9. MSHCP Covered Roads Rights-of-Way
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

Covered Road ROW

- Arterial
- Collector
- Expressway
- Major
- Mountain Arterial
- Secondary
- Urban Arterial

Covered Roads Outside the ROW

Source: ESRI, RCA

Author: E. Jansen

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4.4 MSHCP Covered Public Access Activities

Within the Lake Elsinore Planning Area, the Western Riverside County MSHCP allows for a range of Covered Public Access Activities that may occur in areas designated for Open Space, Recreation, Floodway, and conserved lands, particularly where these uses are integrated into the City's lake-oriented and foothill open space network. Public access in this area is shaped by Lake Elsinore's role as a regional recreation destination, with activities occurring both on the water and on surrounding uplands, subject to management requirements intended to ensure consistency with MSHCP conservation objectives (MSHCP §3 and – Covered Activities; §7 – Public Access and Recreation).

On Lake Elsinore, public access activities include a variety of water-based recreational uses, such as motorboating, personal watercraft (jet skis), water skiing, wakeboarding, tubing, kayaking, and stand-up paddleboarding (SUP). These activities are generally concentrated within designated lake use areas and established access points and may be considered Covered Public Access Activities where they occur in accordance with MSHCP policies and do not adversely affect adjacent shoreline habitats or species movement areas (MSHCP §7.3 – Public Access Policies). Recreational fishing, which requires a valid California freshwater fishing license, is also a common lake use and is typically managed to avoid shoreline degradation and disturbance to sensitive biological resources. Swimming and shoreline use, including seasonal or program-based access in designated areas, may also occur where such uses are consistent with conservation objectives for shoreline and nearshore habitats.

Shoreline access and supporting facilities, including those at Launch Pointe and Elm Grove Beach, function as controlled public access points that help concentrate recreational use in established areas. Facilities such as boat launches, parking areas, shelters, signage, and managed shoreline access are consistent with the MSHCP's allowance for ancillary facilities associated with public access, provided they are sited and designed to minimize impacts on covered species and habitats (MSHCP §7.4 – Design and Management of Public Access).

Beyond the lake itself, upland and foothill areas surrounding Lake Elsinore, particularly south and southwest of the lake, support land-based Covered Public Access Activities such as hiking, walking, equestrian use, and non-motorized bicycling on designated trails. Trail systems connecting to the Ortega Mountains and nearby portions of the Cleveland National Forest provide regional recreational opportunities while also serving potential habitat movement and linkage functions when properly aligned and managed. These trails may traverse or adjoin MSHCP Criteria Cells, and their implementation is subject to avoidance, siting, and management standards intended to protect biological core areas and maintain connectivity (MSHCP §7.2 – Trails and Access; §6 – Reserve Design and Assembly).

Additional recreational and visitor activity occurs in downtown Lake Elsinore, including historic and cultural attractions, museums, restaurants, venues such as Lake Elsinore Storm baseball, and commercial destinations like the Lake Elsinore Outlets. While these uses are generally outside conserved lands, they influence recreational demand and access patterns to nearby open space areas. Extreme sports activities, such as skydiving and hang gliding in the broader region, may contribute to regional recreation but are

typically spatially separated from core MSHCP conservation areas and would not occur within conserved lands unless explicitly authorized and consistent with the MSHCP.

Overall, Covered Public Access Activities in the Lake Elsinore Planning Area are expected to be carefully sited, regulated, and managed to balance intensive lake-based recreation and regional visitor use with the MSHCP's conservation objectives, including protection of shoreline habitats, maintenance of habitat connectivity through Criteria Cells (the finest standardized planning unit of the MSHCP), and long-term reserve system integrity (MSHCP §6 and 7).

4.5 MSHCP Reserve Assembly Analysis

The MSHCP establishes a comprehensive, regional conservation strategy intended to conserve biological diversity, protect covered species and their habitats, and maintain ecological processes while accommodating long-term growth and development within western Riverside County. Central to the MSHCP is the concept of reserve assembly, which is the phased, criteria-based hierarchical process by which conservation lands are identified, acquired, dedicated, and managed over time to meet the Plan's biological conservation objectives (MSHCP §1.2, 3.1, and 6.1).

The Planning Area is located entirely within the MSHCP Elsinore Area Plan. Unlike a fixed preserve boundary, the MSHCP relies on a multi-layered spatial framework composed of Area Plan Subunits, Rough Step Units, Habitat Management Units, Cell Groups, and Criteria Cells. As a supplemental anchor to the Conservation Reserve Assembly design, Public Quasi-Public Lands were also evaluated for their potential to support reserve configuration, buffering, and connectivity (**Appendix A**). Together, these elements guide where conservation is required, how much habitat must be conserved, which species and habitat types are targeted, and how ecological connectivity and landscape functionality are maintained across the Plan Area (MSHCP §3.2, 3.3, and 6.2).

The Planning Area is characterized by multiple overlapping MSHCP reserve assembly elements that collectively shape the region's open space and conservation framework. Rough Step Units and Habitat Management Units extend across the entirety of the City Boundary and SOI, while Area Plan Subunits, Criteria Cells, Cell Groups, and Public Quasi-Public Lands occur in varying proportions throughout the landscape (**Table 10**). Together, these elements provide the broader conservation context that informs long-term open space planning and resource stewardship within the Planning Area.

Table 10. Summary of MSHCP Reserve Assembly Elements overlapping the Planning Area.

	City Boundary		SOI	
MSHCP Element	**Acres**	**% Comp**	**Acres**	**% Comp**
Area Plan Subunit	14,579	52%	7,501	41%
Rough Step Unit	27,876	100%	18,178	100%
Habitat Management Unit	27,876	100%	18,178	100%
Cell Group	7,655	27%	5,334	29%
Criteria Cell	14,546	52%	7,459	41%
Public Quasi-Public Lands	3,798	14%	4,663	26%

% Composition based on total area of City Boundary = 27,876 acres and SOI = 18,178 acres.

Reserve assembly under the MSHCP functions as an integrated, hierarchical, and cumulative process. Conservation actions implemented at the criteria cell level contribute to the protection of cell groups, which in turn support HMU-level ecological objectives. These actions collectively satisfy rough step acreage requirements and advance conservation goals within the applicable Area Plan Subunit (MSHCP §6.1 and 6.2). Through this multi-tiered structure, the MSHCP ensures that reserve assembly is biologically driven, spatially distributed, and adaptable over time, while providing regulatory certainty and predictability for project-level compliance. Under the MSHCP, conservation objectives and reserve assembly targets are established at the time of Plan adoption and do not change over time; however, the location, configuration, and extent of conserved lands evolve incrementally as projects are implemented and conservation actions accumulate across the landscape. The most recent publicly available MSHCP implementation data were reviewed to summarize the status of reserve assembly elements within Area Plan Subunits and Rough Step Units that intersect the Planning Area, providing the current accounting of conservation status for the area (RCA 2023b). Below is an analysis of the elements associated with the reserve assembly framework found in the Planning Area.

4.5.1 MSHCP Area Plan Subunits – A Policy and Planning Framework

Area Plan Subunits (APS) represent the highest-level geographic planning and implementation units within the MSHCP and generally correspond to subregional planning or jurisdictional areas. Area Plan Subunits provide the administrative and planning context for reserve assembly by allocating conservation obligations, mitigation fees, and implementation responsibilities across western Riverside County (MSHCP §3.1.1). While Area Plan Subunits do not define specific reserve boundaries, they establish the framework within which reserve assembly occurs and ensure that conservation responsibilities are distributed across the region in a coordinated manner.

Six MSHCP Area Plan Subunits overlap the Planning Area (**Table 11**). Within the City Boundary, the largest subunit is SU2 – Alberhill (3,762 acres; 26%), followed by SU3 – Elsinore (3,543 acres; 24%) and SU5 – Ramsgate (2,604 acres; 18%). SU1 – Estelle Mountain/Indian Canyon and SU6 – Steele Peak each account for approximately 11% of the City Boundary, while SU4 – Sedco Hills represents 10% (**Appendix A**).

Within the SOI, the largest subunit is SU1 – Estelle Mountain/Indian Canyon (5,748 acres; 77%), reflecting the large expanses of undeveloped uplands and linkage lands north and northeast of the City. Smaller portions of the SOI occur in SU2 – Alberhill (15%), SU5 – Ramsgate (5%), and SU3 – Elsinore (3%), with negligible or no SOI overlap in SU4 – Sedco Hills and SU6 – Steele Peak (**Table 11**).

Table 11. Area Plan Subunits overlapping the Planning Area.

	City Boundary		SOI	
Unit ID - Name	Acres	% Comp.	Acres	% Comp.
SU1 - Estelle Mtn/Indian Cyn	1,576	11	5,748	77
SU2 - Alberhill	3,762	26	1,129	15
SU3 - Elsinore	3,543	24	230	3
SU4 - Sedco Hills	1,508	10	-	0
SU5 - Ramsgate	2,604	18	390	5
SU6 - Steele Peak	1,586	11	3	<0.1
Total	14,579		7,501	

The relatively even distribution of Area Plan Subunits within the City Boundary indicates that no single subunit exerts a disproportionate influence on reserve assembly or conservation emphasis within the City limits. In contrast, SU1 (Estelle Mountain–Indian Canyon) represents a substantially higher percentage of the SOI, indicating that conservation objectives associated with this subunit are likely to have a greater influence on future land use planning, infrastructure siting, and reserve assembly decisions within the SOI.

Within each Area Plan Subunit, the overarching emphasis of MSHCP conservation objectives differs based on the subunit's ecological setting, functional role in the reserve system, and relationship to regional cores and linkages (**Table 12**). Accordingly, conservation planning and land use decisions within each subunit should be tailored to address the specific conservation objectives identified for that subunit, ensuring that reserve assembly, project design, and mitigation measures collectively support the MSHCP's subunit-specific and regional conservation goals.

Table 12. Overarching MSHCP Conservation Objectives by Area Plan Subunit

Area Plan Subunit	Primary Conservation Role	Overarching MSHCP Conservation Objectives
SU1 – Estelle Mountain / Indian Canyon	Regional Core & Linkage Backbone	Preserve large, contiguous upland habitat blocks; maintain regional wildlife connectivity between mountain systems and Temescal Wash; conserve riparian corridors, wetlands, and special-soil plant habitats supporting multiple covered species.
SU2 – Alberhill	Coastal Sage Scrub Core & Cross-Freeway Linkage	Conserve core coastal sage scrub habitat (including coastal California gnatcatcher); maintain northwest–southeast connectivity, including movement across and around I-15; protect wetlands, drainages, and sensitive soil habitats while accommodating planned development.
SU3 – Elsinore	Lake-Associated Wetland & Urban Interface	Protect and manage Lake Elsinore, associated marsh, floodplain, and riparian systems; maintain open grassland and raptor foraging habitat; integrate habitat conservation with urban development consistent with MSHCP assumptions.
SU4 – Sedco Hills	Upland Linkage Area	Maintain upland linkage functions connecting Sedco Hills with adjacent conserved lands; conserve coastal sage scrub and chaparral habitats; avoid fragmentation of remaining natural upland areas.
SU5 – Ramsgate	Ridgeline & Upland Transition Zone	Conserve upland ridgelines and habitat corridors linking valley floors with higher-elevation reserves; maintain habitat continuity between developed areas and regional conservation lands; support reserve assembly consistent with rough step requirements.
SU6 – Steele Peak	Eastern Upland Core	Preserve large upland habitat blocks supporting wide-ranging species; maintain regional connectivity with adjacent conservation areas; limit fragmentation to support long-term reserve configuration.

4.4.1.1 Status of Area Plan Subunits within the Planning Area (2004–2023)

Since issuance of the MSHCP permits in 2004, reserve assembly within the Elsinore Area Plan has occurred unevenly across subunits, reflecting differences in land availability, development pressure, and acquisition opportunity (**Table 13**). As of December 31, 2023, cumulative Additional Reserve Lands (ARL) conservation within the Elsinore subunits has been concentrated primarily in the Alberhill (SU2) and Elsinore (SU3) subunits, which together account for the majority of post-MSHCP ARL gains and continue to contribute incrementally through development-related and strategic acquisitions. In contrast, the Estelle Mountain/Indian Canyon (SU1) and Sedco Hills (SU4) subunits—while biologically important for core habitat and linkage functions—have experienced comparatively limited reserve assembly since Plan inception, indicating ongoing constraints to acquisition and continued prioritization under the MSHCP reserve assembly strategy. The Ramsgate (SU5) and Steele Peak (SU6) subunits show little to no ARL acquisition recorded since 2004, reflecting either reliance on pre-existing Public/Quasi-Public (PQP) lands or limited opportunities for ARL expansion. Overall, conservation patterns within the Elsinore Area Plan are consistent with regional MSHCP implementation trends, whereby reserve assembly progresses most effectively where development-driven mechanisms or willing-seller opportunities align with MSHCP conservation criteria, while other biologically valuable areas remain longer-term acquisition priorities.

Table 13. Elsinore Area Plan Subunit Comparison to Area Plan–Wide Assembly Reserve Land (ARL) Targets (2004–2023).

Subunit	Subunit Name	ARL Conserved 2004–2023 (ac)*	2023 ARL Contribution (ac)	Relative Progress Toward Area Plan Target
SU1	Estelle Mountain / Indian Canyon	~939	0	Moderate contribution; below proportional share of Area Plan target
SU2	Alberhill	~1,261	62	One of the strongest contributors within the Area Plan
SU3	Elsinore	~630	84	Moderate, development-driven contribution
SU4	Sedco Hills	~190	0	Limited progress despite linkage importance
SU5	Ramsgate	~0	0	No measurable ARL contribution since 2004
SU6	Steele Peak	~0**	0	Relies primarily on existing PQP lands
Elsinore Area Plan (Total)	—	**~7,421**	**738**	Approximately mid-range progress toward ARL goal

* Area Plan ARL target range = 11,700 - 18,515 acres (MSHCP §3.3; RCA 2023b)

** Steele Peak is a designated MSHCP Core Area; limited ARL is reported post-2004 because conservation

4.5.2 *MSHCP Rough Step Units – A Measure of Reserve Quantity and Distribution Control*

Rough Step Units (RSUs) are a primary mechanism used by the MSHCP to control the quantity and geographic distribution of conserved lands. Rough Step Units establish minimum acreage conservation targets within broad landscape units to ensure that reserve assembly occurs incrementally and evenly across the Plan Area rather than being concentrated in isolated locations (MSHCP, Vol. I, §3.2.1 and 6.1.3). The rough step approach prevents piecemeal conservation and ensures that habitat protection keeps pace with development, thereby supporting landscape-scale conservation objectives and reducing habitat fragmentation.

Four MSHCP Rough Step Units (RSUs 5, 7, 8, and 9) overlap the Planning Area (**Appendix A**). Within the City Boundary, reserve assembly is overwhelmingly influenced by RSU 8, which accounts for approximately 25,227 acres (90%) of the total Rough Step Unit area. RSUs 7 and 9 represent comparatively minor portions of the City Boundary at 6% and 3%, respectively, while RSU 5 is negligible (<0.1%; **Table 14**).

In contrast, the SOI is more evenly split between RSU 9 (47%) and RSU 8 (45%), with RSU 7 accounting for 7% and RSU 5 remaining negligible (<0.1%; **Table 14**). This distribution indicates that while reserve assembly within the City Boundary is primarily governed by a single rough step framework (RSU 8), reserve assembly within the SOI must respond to multiple rough step units, increasing the importance of coordinated, forward-looking conservation planning to ensure that minimum reserve acreage and spatial distribution requirements are met over time.

Table 14. MSHCP Rough Step Units within the Planning Area.

	City Boundary		SOI	
Unit ID	Acres	% Comp.	Acres	% Comp.
5	40	<0.1	61	<0.1
7	1,660	6	1,313	7
8	25,227	90	8,230	45
9	949	3	8,574	47
Total	27,876		18,178	

The Rough Step Unit distribution indicates that reserve assembly within the City Boundary is primarily governed by RSU 8, while reserve assembly within the SOI is relatively evenly distributed between RSU8 and RSU 9, highlighting the need for coordinated long-term planning to satisfy MSHCP conservation acreage and spatial distribution requirements across multiple rough step frameworks.

Within each Rough Step Unit, the role and influence on MSHCP reserve assembly varies based on the unit's relative extent within the City Boundary and SOI and its function in meeting minimum conservation acreage and spatial distribution requirements (**Table 15**). Accordingly, conservation planning and land use decisions within each Rough Step Unit should be tailored to support the unit's specific reserve assembly role, ensuring that project design, conservation dedication, and mitigation measures collectively advance both Rough Step compliance and the MSHCP's broader habitat management, connectivity, and regional conservation objectives.

Table 15. Overarching MSHCP Conservation Objectives by Rough Step Units.

Rough Step Unit	Primary Conservation Role	Overarching MSHCP Objectives
RSU 5	Incidental Reserve Assembly Component	Ensure complete reserve accounting for small or isolated conservation areas; prevent gaps in rough step tracking; contribute marginally to overall conservation acreage without driving reserve configuration.
RSU 7	Supplemental Reserve Assembly Area	Provide additional opportunities for reserve assembly that contribute incrementally to regional conservation targets; maintain spatial balance in conservation efforts; allow flexibility in siting conserved lands where biological and planning considerations align.
RSU 8	Primary City-Focused Reserve Assembly Framework	Serve as the principal mechanism for incremental reserve assembly within the City; ensure conservation lands are distributed and aggregated in a contiguous manner; support Habitat Management Unit objectives, including cores and linkages; maintain flexibility for urban development while meeting minimum conservation acreage requirements.
RSU 9	SOI-Focused Reserve Assembly Driver	Guide long-term reserve assembly in less urbanized and transitional areas; ensure conservation keeps pace with future development; support regional connectivity and long-term reserve configuration; inform General Plan land use and infrastructure planning within the SOI.

4.4.2.1 Status of Rough Step Units within the Planning Area (2004–2023)

Between 2004 and 2023, Rough Step Units 5 and 7 have remained in Rough Step3, reflecting conservation that has generally kept pace with authorized development across all key vegetation communities (**Table 16**). Unit 7, in particular, demonstrated strong cumulative performance, with substantial ARL conserved across coastal sage scrub, grasslands, and woodland habitats, and was brought fully back into balance through acquisitions and an absence of new losses in 2023. Rough Step Unit 8 is the only unit among those evaluated that remains out of Rough Step, due solely to a grassland deficit of approximately 153 acres, a condition that has persisted since Plan inception as a result of pre-MSHCP development and the accounting treatment of PQP lands that do not contribute to Rough Step gains. Notably, other vegetation communities within Unit 8 remain in balance, and the RCA has identified pending grassland conservation that would reduce or eliminate the deficit once conveyed. Metrics for Rough Step Unit 9 was not reported in the 2023 annual report couple not be incorporated in the analysis. Rough Step Unit 9 overlaps the southern SOI that extending into the Elsinore Mountain foothills and comprised primarily of natural, unfragmented habitats. Overall, the Rough Step status for the applicable units indicates general consistency with the MSHCP's "in-step" reserve assembly framework through 2023, with targeted acquisition needs limited to grasslands within Unit 8.

[3] "In Rough Step" indicates that conservation of key vegetation communities has kept pace with, or exceeded, authorized development under the MSHCP framework.

Table 16. Elsinore Area Plan Rough Step Unit Comparison to Area Plan–Wide Assembly Reserve Land (ARL) Targets (2004–2023).

Rough Step Unit[1]	2023 ARL Contribution (ac)	ARL Conserved 2004–2023 (ac)[2]	2023 ARL Target Range (ac)[3]	Relative Progress Toward Area Plan Target
5	145 Included in unit-wide gains (no deficit)	~3,100 ac	~3,800–4,500	In Rough Step – conservation exceeds authorized development across all key vegetation communities
7	608 Net positive (acquisitions; no new losses)	~9,410 ac	~9,800–10,500	In Rough Step – strong cumulative surplus; unit returned fully to balance
8	320 No net correction to grassland deficit	~7,160 ac	~7,600–8,200	Out of Rough Step (Grasslands only) – approx. 153-acre deficit; other vegetation communities remain in balance

[1] Rough Step Unit 9 not reported in the 2023 Annual Report (RCA 2023b)

[2] ARL acreage reflects rounded cumulative "Amount Conserved" reported in Table 4-2 by RCA (2023b). Acreage represents conservation credited February 2000-December 31, 2023, with development accounting beginning June 22, 2004.

[3] Rounded target ranges were derived from the summed Additional Reserve Land Goals by vegetation community within each Rough Step Unit (Table 4-2 in RCA 2023b).

4.5.3 MSHCP Habitat Management Units – Framework for Ecological Function and Management

Habitat Management Units (HMUs) are large, biologically coherent areas that serve as the primary ecological framework for implementing species and habitat conservation under the MSHCP. HMUs are designed around major landforms, watersheds, and ecological systems and are used to define conservation objectives for covered species, habitat composition, connectivity, and long-term management priorities (MSHCP, Vol. I §3.3.1 and §3.3.2). Reserve assembly within HMUs is intended to produce functionally connected reserves that support ecological processes, species movement, and population viability, rather than isolated preserved parcels.

Four MSHCP Habitat Management Units (HMUs) overlap the Planning Area (**Appendix A**). Within the City Boundary, the Planning Area is dominated by the Santa Ana Mountains HMU (HMU 12), which accounts for approximately 16,590 acres (60%), reflecting the City's strong association with upland, mountain, and foothill conservation lands. The Menifee HMU (HMU 7) represents the second-largest portion of the City Boundary at 7,905 acres (28%), followed by the Gavilan HMU (HMU 6) at 12%. The Forest Service Trabuco HMU (HMU 5) is negligible within the City Boundary (**Table 17**).

In contrast, the SOI is shared primarily between the Santa Ana Mountains HMU (46%) and the Gavilan HMU (31%), with a substantial additional contribution from the Forest Service Trabuco HMU (21%). The Menifee HMU is minimally represented in the SOI (2%; **Table 17**). This distribution indicates that future planning within the SOI is more strongly influenced by regionally significant mountain and upland conservation systems, whereas the City Boundary includes a greater mix of mountain, valley, and urban-interface HMUs.

Table 17. MSHCP Habitat Management Units overlapping the Planning Area.

		City Boundary		SOI	
Unit Name	Unit ID	Acres	% Comp.	Acres	% Comp.
Forest Service Trabuco	5	9	0%	3,762	21%
Gavilan	6	3,371	12%	5,668	31%
Menifee	7	7,905	28%	357	2%
Santa Ana Mountains	12	16,590	60%	8,390	46%
Total		27,876		18,178	

Habitat Management Unit distribution within the Planning Area indicates that conservation planning within the City Boundary is primarily guided by the Santa Ana Mountains and Menifee HMUs, while the SOI is more strongly influenced by the Santa Ana Mountains, Gavilan, and Forest Service Trabuco HMUs, underscoring the need to align future land use and infrastructure planning with HMU-specific conservation objectives to support regional reserve assembly and ecological connectivity.

Similar to other higher-order components of the MSHCP reserve assembly framework, HMUs are defined by specific overarching conservation goals and objectives that reflect their geographic position within the regional landscape and their intended ecological function within the reserve system (**Table 18**). HMU objectives are informed by the dominant land cover types, watershed and hydrologic features, topographic setting, and habitat connectivity functions present within each unit, as well as the role each HMU plays in supporting core habitats, regional and local linkages, and long-term ecological processes. As a result, conservation planning and reserve assembly within each HMU are designed to emphasize the protection of biologically cohesive habitat blocks, maintenance of hydrologic and ecological function, and reinforcement of landscape-scale connectivity in a manner tailored to the unique environmental characteristics of each HMU.

Table 18. MSHCP Habitat Management Units within the Planning Area.

Habitat Management Unit	Primary Ecological Role	Overarching MSHCP Conservation Objectives
HMU 12 – Santa Ana Mountains	Regional Core Habitat Backbone	Conserve large, contiguous mountain and foothill habitat blocks; maintain regional north–south and east–west wildlife connectivity; support wide-ranging species and long-term ecological processes; function as a primary structural component of the MSHCP reserve system.
HMU 7 – Menifee	Valley Floor & Urban-Interface HMU	Conserve low-elevation grassland and coastal sage scrub habitats; maintain linkages between upland core areas; protect sensitive soils and species-specific habitats; integrate habitat conservation with urban development consistent with MSHCP assumptions.
HMU 6 – Gavilan	Regional Connectivity & Transitional HMU	Maintain landscape-scale connectivity between mountain systems and valley habitats; conserve coastal sage scrub, chaparral, and grassland mosaics; protect movement corridors for medium- and large-bodied wildlife; reinforce reserve continuity across developing landscapes.
HMU 5 – Forest Service Trabuco	Federal Lands & High-Integrity Upland HMU	Conserve high-quality upland habitats associated with U.S. Forest Service lands; maintain long-term habitat integrity through coordinated management; support connectivity between federal lands and the MSHCP reserve; contribute to large-block conservation objectives.

4.5.4 MSHCP Cell Groups – Aggregated Biological Performance Units

Cell Groups are aggregations of individual criteria cells that collectively represent biologically meaningful habitat blocks, cores, linkages, or constrained linkages within the MSHCP reserve design. Cell Groups are used as intermediate analytical and accounting units to track progress toward meeting habitat representation goals and species-specific conservation objectives (MSHCP §3.3.3 and §6.2). Cell Groups help translate HMU-level conservation objectives into measurable spatial units and provide a mechanism for evaluating whether reserve assembly is achieving intended biological outcomes.

A total of 7,655 acres of Cell Groups occur within the City Boundary, while 5,334 acres occur within the SOI (**Table 19**). Within the City Boundary, cell groups are widely distributed across many groups, with no single group dominating reserve assembly. The largest contributors within the City include Groups M (10%), J (9%), W (6%), X (5%), and E' (5%), while the majority of remaining groups each comprise approximately 2–4%, indicating a highly distributed reserve-assembly pattern.

In contrast, the SOI is more unevenly distributed, with Group L accounting for approximately 23% of SOI cell group acreage, followed by Group J (12%), and numerous additional groups each contributing 5–6%. Several cell groups occur exclusively or almost exclusively in the SOI (e.g., Groups A, C–F, H, K, P), reflecting the SOI's greater role in accommodating future reserve assembly associated with upland cores and regional linkages (**Table 19**). Overall, the distribution indicates that City-based reserve assembly is incremental and dispersed, whereas SOI-based reserve assembly is more strongly influenced by fewer, spatially larger cell groups (**Appendix A**).

Table 19. MSHCP Cell Groups overlapping the Planning Area.

	City Boundary		SOI	
Group ID	Acres	% Comp.	Acres	% Comp.
A	--	--	162	3
B	323	4	--	--
C	--	--	316	6
D	--	--	323	6
E	--	--	320	6
F	--	--	317	6
G	319	4	--	--
H	--	--	318	6
I	42	1	277	5
J	655	9	632	12
K	--	--	323	6
L	234	3	1,235	23
M	786	10	3	<0.1
N	320	4	--	--
O	162	2	159	3
P	--	--	337	6
Q	173	2	178	3
R	158	2	315	6
S	321	4	--	--
T	319	4	--	--
U	319	4	--	--
V	315	4	--	--
W	474	6	4	0
X	366	5	111	2
Y	274	4	2	0
Z	320	4	--	--
A'	320	4	--	--
B'	301	4	--	--
C'	299	4	--	--
D'	302	4	--	--
E'	393	5	--	--
F'	160	2	--	--
G'	<0.5	<0.1	--	--
Total	7,655		5,334	

Under the MSHCP, Cell Groups do not have specific conservation objectives similar to HMUs or Area Plan Subunits. Instead, Cell Groups function as biological accounting and reserve-assembly units, aggregating individual criteria cells to implement species-, habitat-, and connectivity-based objectives established at the HMU and Plan-wide scale. The objectives within the Planning Area therefore describe the intended role of each group as defined by the MSHCP framework, not speculative, group-specific biological priorities and reflect the uniform role cell groups play under the MSHCP, regardless of location.

Within the City Boundary, cell groups primarily support incremental reserve assembly within urban and urban-interface settings, where conservation actions are typically smaller, dispersed, and closely tied to project-level mitigation. In contrast, SOI cell groups play a proportionally larger role in future reserve configuration,

particularly for upland cores, regional linkages, and habitat blocks that require larger, contiguous areas to meet MSHCP objectives. Together, City and SOI cell groups ensure that reserve assembly progresses consistently across planning horizons, aligning near-term development with long-term regional conservation goals.

4.5.5 MSHCP Criteria Cells – Specific Biological Triggers and Compliance Units

Criteria Cells represent the most fine-grained planning and compliance unit under the MSHCP. Typically mapped as one-square-kilometer grid cells, criteria cells contain species-specific and habitat-specific conservation criteria that identify where conservation is required to meet Plan objectives (MSHCP §3.3.4 and §6.2.2). At the project level, criteria cells are used to determine conservation obligations, guide avoidance and mitigation measures, and assess consistency with the MSHCP. Conservation of individual criteria cells cumulatively contributes to meeting cell group, HMU, rough step, and Area Plan Subunit requirements.

A total of 155 MSHCP criteria cells overlap the Planning Area, encompassing approximately 22,005 acres, or 48 percent of the Planning Area (**Table 20**). Of these, 100 criteria cells occur within the City Boundary, accounting for approximately 14,546 acres, which represents 52 percent of the City Boundary. This indicates that more than half of the City's land area is located within mapped criteria cells where MSHCP biological criteria may apply at the project level (**Appendix A**).

Within the SOI, 55 criteria cells overlap approximately 7,459 acres, representing 41 percent of the SOI (**Table 20**). Although the SOI contains fewer criteria cells overall, these cells still comprise a substantial proportion of the SOI and reflect the importance of forward-looking conservation considerations in areas subject to future urban expansion.

Table 20. Summary of Criteria Cells within the Planning Area.

GPU Area	# Cells	Total Cell Area (ac)	GPU Area (ac)	% Comp. in GPU Area
City Boundary	100	14,546	27,886	52%
SOI	55	7,459	18,165	41%
Total	155	22,005	46,051	48%

Overall, the distribution of criteria cells demonstrates that both the City Boundary and SOI are substantially influenced by MSHCP biological criteria, with a slightly higher concentration within the City. This pattern indicates that project-level planning and General Plan policies must consistently account for criteria cell-based conservation triggers to ensure compliance with the MSHCP and to support incremental reserve assembly across the Planning Area.

When a project is proposed within an MSHCP criteria cell, the occurrence of development within that cell triggers a project-level biological review to determine whether the project would affect habitats or species identified by the MSHCP's biological criteria. If MSHCP criteria are met, the project is required to implement

avoidance and minimization measures to the extent feasible, followed by appropriate mitigation to ensure consistency with the Plan. Required actions may include on-site conservation, where biologically important areas within the criteria cell are avoided and dedicated to the MSHCP reserve system; off-site conservation, where impacts are mitigated through acquisition or dedication of land elsewhere within the applicable cell group or Habitat Management Unit; or payment of MSHCP mitigation fees, which contribute to regional land acquisition and management when land dedication is not feasible. In all cases, conservation actions within criteria cells are designed to contribute incrementally to cell group performance, Habitat Management Unit objectives, rough step acreage requirements, and regional core and linkage assembly, ensuring that individual projects collectively advance the MSHCP's long-term conservation strategy while allowing for planned development.

4.5.6 Integrating the MSHCP Elements into the Planning Area

Future conservation and open space planning within the Lake Elsinore Planning Area will be guided by the integrated reserve assembly framework of the MSHCP, which functions through the coordinated application of Habitat Management Units, Area Plan Subunits, Rough Step Units, Cell Groups, and Criteria Cells (**Table 21**). Habitat Management Units establish the biological purpose and connectivity functions of conserved lands, while Area Plan Subunits provide the subregional planning context and Rough Step Units ensure that conservation occurs incrementally and is spatially distributed as development proceeds. Cell Groups aggregate project-level conservation actions to track cumulative progress toward regional conservation objectives. Together, these overlapping MSHCP elements require that land use, infrastructure, and open space decisions be evaluated for consistency across multiple implementation layers to maintain core habitat integrity, regional connectivity, and long-term reserve functionality.

Table 21. Cross-Reference of Habitat Management Units, Area Plan Subunits, Rough Step Units, Cell Groups, and Core/Linkage Functions

Habitat Management Unit	Associated Area Plan Subunits	Associated Rough Step Units	Associated / Representative Cell Groups*	Core / Linkage Role in the MSHCP Reserve System
HMU 12 – Santa Ana Mountains	SU1 – Estelle Mountain / Indian Canyon; SU4 – Sedco Hills; portions of SU5 – Ramsgate	RSU 8 (primary); RSU 9 (southern/western margins)	J, L, M, O, Q, R, X, Y, W	Functions as a regional core habitat backbone, supporting large, contiguous upland habitat blocks; anchors multiple designated and functional core areas; provides major north–south and east–west connectivity between the Santa Ana Mountains, uplands north of Lake Elsinore, and adjacent HMUs.
HMU 7 – Menifee	SU3 – Elsinore; portions of SU2 – Alberhill; SU5 – Ramsgate	RSU 8 (primary); RSU 5 (southern interface)	M, N, O, S, T, U, V, Z, A'–F'	Serves as a valley-floor and urban-interface HMU, supporting habitat mosaics and facilitating local-to-regional linkages between upland cores; plays a key role in accommodating incremental reserve assembly within urbanizing landscapes while maintaining connectivity around Lake Elsinore.
HMU 6 – Gavilan	SU1 – Estelle Mountain / Indian Canyon; SU2 – Alberhill; portions of SU5 – Ramsgate	RSU 9 (primary); RSU 7 (northern extent)	A, C, D, E, F, H, I, K, P	Provides a regional connectivity and transition function, linking mountain systems, uplands, and valley habitats; supports linkage and constrained-linkage functions for medium- and large-bodied wildlife across developing and future growth areas, particularly within the SOI.
HMU 5 – Forest Service Trabuco	SU1 – Estelle Mountain / Indian Canyon (SOI)	RSU 9 (primary); RSU 7 (minor)	A, C, D, E, F	Functions as a federal-land-associated core and linkage HMU, emphasizing long-term habitat integrity and continuity with U.S. Forest Service lands; contributes to large-block conservation and regional connectivity with minimal urban interface.

* Cell Groups listed are representative of those occurring within each HMU in the Planning Area and function as biological accounting units and do not establish independent conservation targets.

Integrating the MSHCP reserve assembly elements through a holistic, multi-scale approach ensures that conservation objectives are achieved in a coordinated and stepwise manner, while reducing the potential for planning missteps, protracted negotiations, or unintended impacts to future conservation opportunities. By evaluating conservation needs and project effects at variable spatial scales, from regional and subregional planning frameworks to project-level implementation, this approach enables more effective and strategic use of compensatory mitigation, allowing impacts to be addressed where conservation outcomes are maximized. In doing so, multi-scale planning supports efficient land use decision-making that balances the demands of a growing population with the need to maintain ecological function, resilience, and connectivity under increasingly challenging environmental conditions, thereby safeguarding long-term conservation objectives while accommodating future growth.

4.5.7 *MSHCP Public Quasi-Public Lands – Supplemental Lands for Reserve Assembly*

Public Quasi-Public Lands (PQPL) conserved under the MSHCP may contribute to reserve assembly when they are managed in a manner that supports the Plan's biological conservation objectives. While such lands are not automatically designated as conserved, they can play an important supplemental role in reserve configuration by providing habitat value, buffering, or connectivity, particularly in urban or constrained areas. Inclusion of Public Quasi-Public Lands in reserve assembly is contingent on long-term management commitments and does not substitute for required conservation of core habitats or compliance with rough step acreage requirements, ensuring that reserve assembly remains biologically functional and regionally consistent.

Conserved PQPL within the City Boundary total approximately 3,798 acres and are dominated by Lake Elsinore, which accounts for 2,787 acres (73%) of PQPL lands within the City (**Table 22; Figure 10**). Additional contributions include the Santa Ana Watershed Project (373 acres; 10%), Steele Peak Reserve (157 acres; 4%), and Alberhill Creek (79 acres; 2%), with smaller areas associated with the Temescal Trailhead Site and other minor facilities. Collectively, these lands reflect the City's emphasis on lake-associated, watershed, and recreational public lands that may provide supplemental habitat value, buffering, and localized connectivity when managed consistent with MSHCP conservation objectives.

Within the SOI, PQPL total approximately 4,663 acres and are overwhelmingly dominated by Cleveland National Forest, which comprises 3,829 acres (82%) of PQPL lands in the SOI (**Table 22**). Additional contributions include the Lake Mathews / Estelle Mountain Reserve (406 acres; 9%) and undefined public lands (360 acres; 8%), with only a minor portion of Lake Elsinore extending into the SOI (68 acres; 1%). This distribution indicates that PQPL lands within the SOI are primarily associated with large, contiguous federal and regional open space areas that support regional habitat integrity and connectivity rather than urban-interface public facilities.

Table 22. Conserved Public Quasi-Public Lands within the Planning Area.

	City Boundary		SOI	
PQP Project Name	Acres	% Comp.	Acres	% Comp.
Alberhill Creek	79	2	–	–
Cleveland National Forest	4	0	3,829	82
Lake Elsinore	2,787	73	68	1
Lake Mathews / Estelle Mountain Reserve	<0.1	<0.1	406	9
Santa Ana Watershed Project	373	10	<0.1	<0.1
Steele Peak Reserve	157	4	–	–
Temescal Trailhead Site	13	0	–	–
Undefined	385	10	360	8
Total	3,798		4,663	

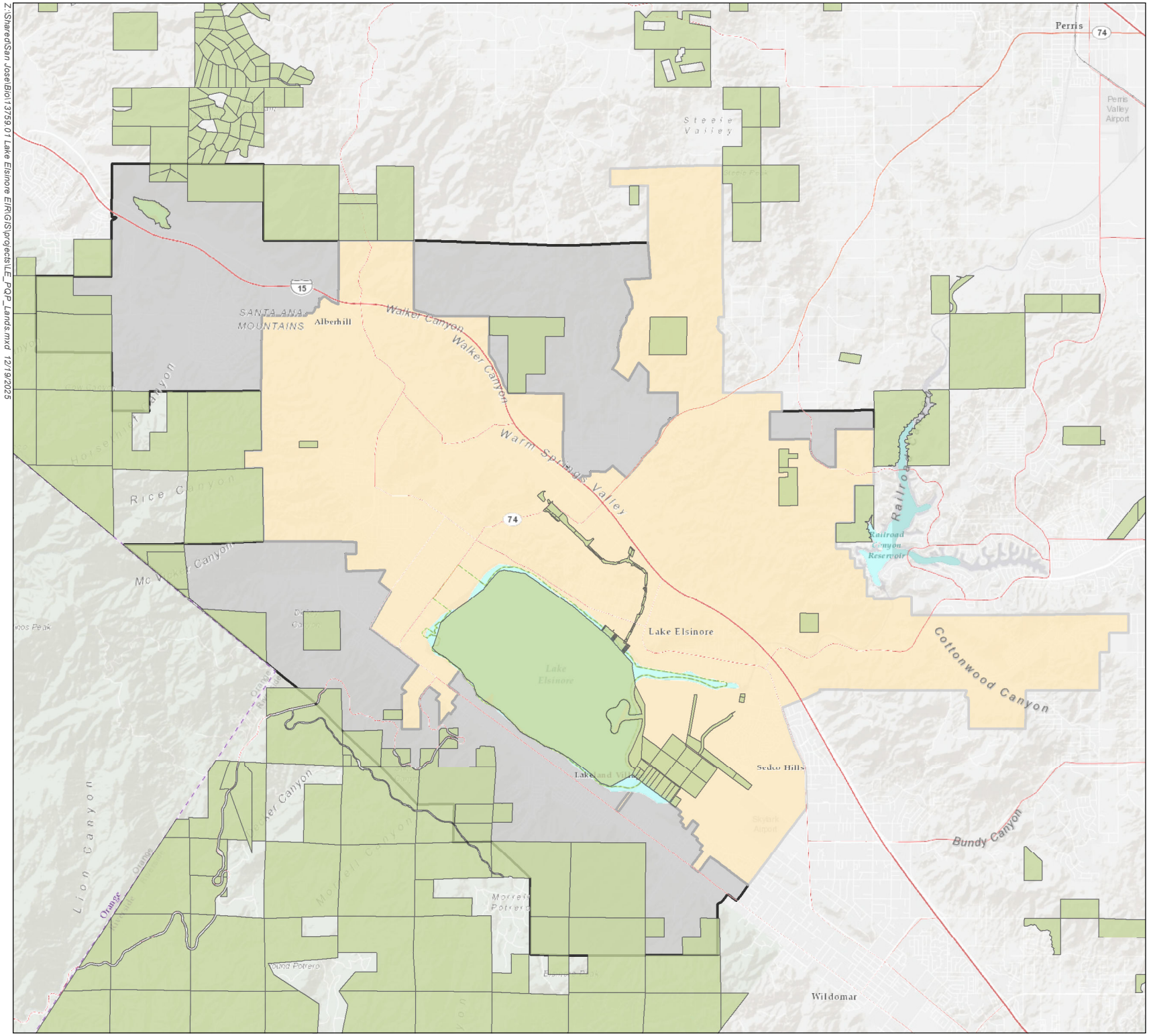

Figure 10. Public Quasi-Public Lands
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

Conserved Public Quasi-Public Lands

Source: ESRI, RCA

Author: E. Jansen

0 0.5 1 2 mi

1:108,000

NAD 1983 UTM Zone 11N

N W E S

MIG

Z:\Shared\San Jose\Jobs\13759.01 Lake Elsinore E\RG\S\projects\LE_PQP_Lands.mxd 12/19/2025

Public Quasi-Public Lands within the Planning Area generally occur along the periphery of the City and within the SOI, where they function as transitional open space, buffers, and supporting lands adjacent to larger regional conservation areas (**Figure 10**). These lands are often associated with lake margins, watershed corridors, canyon systems, and federal or regional open space, and collectively form a loose ring that can reinforce reserve configuration and edge connectivity when managed in a manner consistent with the Western Riverside County MSHCP. While Public Quasi-Public Lands may provide incidental habitat value and contribute to buffering or constrained linkage functions, they typically do not function as stand-alone core conservation areas and are most effective when strategically integrated with designated cores, linkages, and required reserve assembly mechanisms. Accordingly, land use and open space planning should leverage Public Quasi-Public Lands to complement, rather than substitute for, required conservation actions, ensuring long-term ecological function and connectivity as the City accommodates future growth under changing environmental conditions.

Conserved Public Quasi-Public Lands within the Planning Area provide important supplemental contributions to the MSHCP reserve system, with City-based PQPL lands emphasizing lake-associated and watershed functions and SOI-based PQPL lands supporting large, contiguous regional open space and connectivity, subject to management consistency with MSHCP conservation objectives.

4.6 Protection of Species Associated with Riparian / Riverine Areas and Vernal Pools (MSHCP Section 6.1.2)

The MSHCP establishes a comprehensive framework for the protection of species associated with riparian and riverine areas and vernal pools, recognizing that these aquatic and semi-aquatic resources provide essential habitat functions for a suite of covered species. MSHCP §6.1.2 is intended to ensure that the biological functions and values of these resources are maintained across the Plan Area so that covered species dependent on them are conserved as the MSHCP Conservation Area is assembled and managed over time. Within the Lake Elsinore Planning Area, regionally important riparian and wetland features include Temescal Wash, Collier Marsh, Alberhill Creek, Lake Elsinore, and the floodplain east of Lake Elsinore (including marsh habitats), as well as the lower San Jacinto River and Wasson Creek.

MSHCP §6.1.2 defines riparian and riverine areas as lands supporting habitat dominated by trees, shrubs, persistent emergent vegetation, or associated plant communities that occur adjacent to, or are dependent upon, freshwater sources, including areas with perennial, intermittent, or episodic surface flow. Vernal pools are defined as seasonal wetlands that occur in natural depressions and exhibit indicators of wetland soils, vegetation, and hydrology during the wetter portion of the growing season, but typically lack hydrology and/or vegetation indicators during the dry season. Vernal pool determinations, including consideration of contributing watersheds and hydrologic support, are made on a case-by-case basis using site-specific information such as soils, vegetation, drainage patterns, and climatic conditions.

MSHCP §6.1.2 places emphasis not solely on the acreage of riparian or wetland features, but on the functions and values these resources provide to covered species. These functions and values include, but are not limited to, maintenance of hydrologic regimes, flood storage and flow modification, sediment and nutrient

retention, water quality protection, aquatic and terrestrial wildlife habitat, and habitat connectivity. Preservation of these ecological functions is fundamental to sustaining covered species such as arroyo toad, California red-legged frog, mountain yellow-legged frog, Santa Ana sucker, riparian-associated birds (including least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo), and several fairy shrimp species associated with vernal pools and seasonal wetlands.

Under the MSHCP, §6.1.2 review is triggered when a proposed project has the potential to result in direct or indirect impacts to riparian or riverine areas or vernal pools. As part of CEQA review, projects are required to map and document these resources using available information supplemented by project-specific field verification, with mapping and determinations reviewed by the Permittee's biologist. This requirement applies to projects both inside and outside Criteria Cells, as the MSHCP explicitly requires that projects throughout the Plan Area be evaluated for consistency with the riparian and vernal pool protection guidelines set forth in §6.1.2.

Where mapping identifies riparian or vernal pool habitats that provide suitable habitat for certain covered species and project design does not incorporate full avoidance, the MSHCP requires focused biological surveys and implementation of avoidance and minimization measures consistent with species-specific conservation objectives. In addition to direct impacts, §6.1.2 requires evaluation of indirect or "edge" effects, including changes in hydrology, runoff quality, lighting, noise, invasive species introduction, unauthorized access, and other disturbances that could degrade resource functions over time.

Consistent with CEQA and MSHCP policy, §6.1.2 applies a mitigation sequencing approach that prioritizes avoidance, followed by minimization, and finally compensation where impacts remain unavoidable. Where feasible, projects are required to avoid impacts to riparian/riverine areas and vernal pools altogether. Avoided resources are typically protected through long-term conservation mechanisms such as conservation easements, deed restrictions, or similar instruments to ensure their continued ecological function. When complete avoidance is not feasible, projects must be designed to minimize both direct and indirect impacts to the greatest extent practicable, including incorporation of project design features and operational controls to address edge effects.

If impacts to riparian or vernal pool resources cannot be avoided or fully minimized, the MSHCP requires that remaining impacts be mitigated such that the lost biological functions and values, as they relate to covered species, are replaced. This is accomplished through a Determination of Biologically Equivalent or Superior Preservation (DBESP), which documents the biological setting, impact quantification, infeasibility of full avoidance, and the mitigation measures or conservation actions that achieve biological equivalency or superiority. DBESP determinations are subject to Wildlife Agency review and are tracked for compliance and reporting under the MSHCP.

Section 6.1.2 also explicitly recognizes that compliance with the MSHCP does not replace other applicable wetland and water resource regulations. Projects affecting riparian or wetland vegetation communities remain subject to requirements under California Fish and Game Code Section 1600 et seq., the federal Clean Water Act (Sections 401, 402, and 404), the Porter-Cologne Water Quality Control Act, and other applicable state

and federal permitting programs. Coordination with these regulatory frameworks is required to ensure comprehensive protection of aquatic resources.

At a broader planning level, the objectives of MSHCP §6.1.2 are closely linked with the Urban/Wildlands Interface guidelines of §6.1.4, which address indirect effects associated with development adjacent to conserved lands. These guidelines emphasize drainage and stormwater controls, restrictions on lighting and noise, invasive species avoidance in landscaping, and measures to limit unauthorized access, dumping, and domestic animal intrusion. Together, these provisions ensure that riparian and vernal pool resources are not incrementally degraded by adjacent land uses.

Riparian, riverine and vernal pool resources function as important habitat areas, movement corridors, and water quality features within the Western Riverside County MSHCP landscape. Accordingly, the GPU should incorporate MSHCP §6.1.2 by identifying riparian and wetland resources as sensitive natural resources, committing future development to project-level mapping and functional assessment, and requiring application of avoidance, minimization, and biologically equivalent or superior mitigation measures consistent with the MSHCP. This programmatic approach ensures that future development within the City and SOI remains consistent with the MSHCP while supporting long-term conservation of riparian and vernal pool-associated species.

4.7 Protection of Narrow Endemic Plant Species (MSHCP Section 6.1.3) and Additional Needs and Procedures for Criteria Area Plant Species (MSHCP Section 6.3.2)

The MSHCP recognizes that certain plant species warrant focused consideration due to their limited distributions, specialized habitat requirements, and importance to achieving the Plan's conservation and reserve assembly objectives. The MSHCP addresses these resources through two related but distinct provisions: §6.1.3 (Protection of Narrow Endemic Plant Species) and §6.3.2 (Additional Survey Needs for Criteria Area Species). Together, these sections establish a coordinated framework for evaluating potential impacts to sensitive plant resources while allowing for planned growth within the Lake Elsinore Planning Area.

Narrow endemic plant species, addressed under MSHCP §6.1.3, are characterized by extremely restricted geographic distributions and strong associations with specific soils, landforms, hydrologic conditions, or microhabitats. Because these species often occur in localized and environmentally constrained settings, they are particularly vulnerable to habitat loss and indirect effects associated with development. To support early identification and avoidance where feasible, the Riverside RCA has mapped Narrow Endemic Plant Species Survey Areas, which function as a planning-level screening tool rather than a presumption of species presence.

The Planning Area overlaps with Narrow Endemic Plant Species Survey Areas associated with species such as Munz's onion (*Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), many-stemmed dudleya (Dudleya multicaulis), Orcutt grass (*Orcuttia californica*), Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*), San Diego savory (*Satureja chandleri*), and Hammitt's clay cress (*Sibaropsis hammittii*; **Figure 11**). Inclusion

within a narrow endemic plant survey area does not preclude development; rather, it establishes an expectation that suitable habitat be evaluated and that conservation considerations be integrated early into project planning.

Separate from narrow endemic plants, criteria area plant species are addressed under MSHCP §6.3.2, which identifies Criteria Area Plant Species Survey Areas as part of the Plan's additional survey requirements. These species are not necessarily narrow endemics, but they are closely associated with the Criteria Area and are important to achieving MSHCP conservation objectives. Criteria area plant species survey areas identify locations where one or more covered or special-status plant species may occur or where suitable habitat is present, thereby signaling the need for focused consideration during project review.

The Planning Area overlaps multiple Criteria Area Plant Species Survey Areas associated with species such as smooth tarplant (*Centromadia pungens* ssp. *laevis*), large-leaved filaree (*Erodium macrophyllum*), little mousetail (*Myosurus minimus*), San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*), Atriplex parishii, Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), and heart-leaved pitcher sage (*Lepichinia cardiophylla*; **Figure 12**). These mapped areas reflect the diversity of soils, landforms, and habitat conditions within the Elsinore Valley and surrounding foothills and serve as an important planning-level tool for identifying potential biological constraints.

Although MSHCP §6.1.3 and 6.3.2 are distinct, they rely on a similar tiered evaluation framework that is consistent with how other sensitive biological resources are addressed under the MSHCP. Projects proposed within either Narrow Endemic Plant Species Survey Areas or Criteria Area Plant Species Survey Areas are expected to undergo the same level of initial screening as other MSHCP natural resource survey areas. These mapped survey areas provide a planning-level framework for early identification of potential constraints and opportunities for conservation. Location of a project within a Narrow Endemic Plant Species Survey Area does not automatically require focused surveys; however, an assessment is needed and where suitable habitat is present and project impacts cannot be avoided, preconstruction special-status plant surveys conducted during the appropriate blooming period are required. Survey results are used to confirm presence or absence, document habitat conditions, and inform appropriate avoidance, minimization, or conservation measures. Results from these surveys should be incorporated into a formal MSHCP Consistency Analysis, using the structure provided by the RCA. This approach reflects the MSHCP's emphasis on avoiding impacts to sensitive plant resources where feasible and minimizing indirect effects where avoidance is not practicable.

By integrating the MSHCP's narrow endemic plant provisions into the Conservation/Open Space Element and GPU EIR, the City of Lake Elsinore establishes a proactive, policy-based framework for conserving botanical resources that contribute to regional biodiversity and the City's natural character. This approach ensures that future development remains consistent with the MSHCP while balancing long-term conservation of narrow endemic plant species with planned growth and community development objectives.

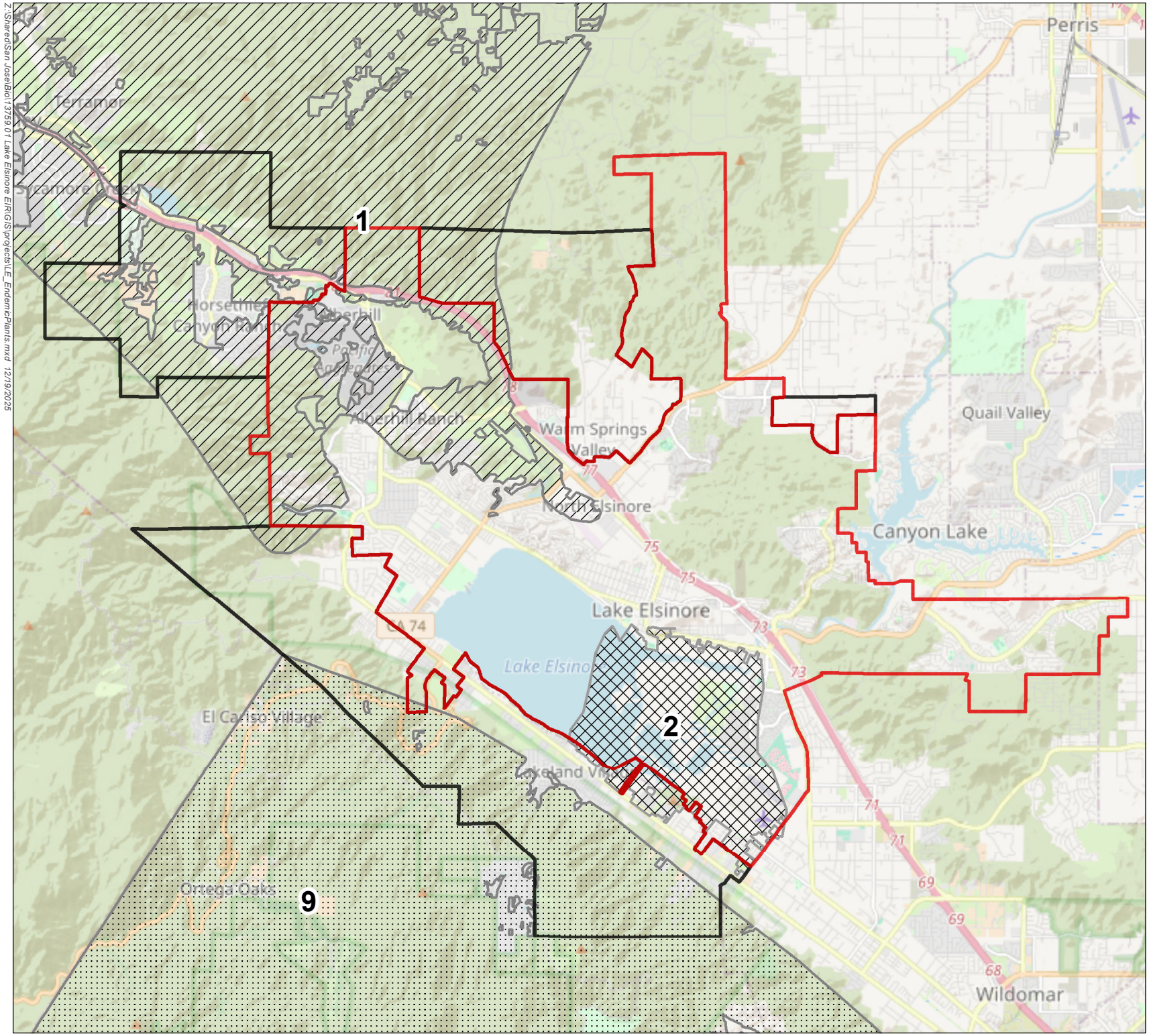

Figure 11. Narrow Endemic Plant Species Survey Areas
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

Area ID & Species of Concern

1 - Many stemmed dudleya, Munz's onion, San Diego ambrosia, Slender-horned spineflower

2 - California Orcutt grass, Many-stemmed dudleya, Munz's onion, San Diego ambrosia, Wright's trichocoronis

9 - Hammitt's clay cress, Many-stemmed dudleya, San Diego savory

Source: ESRI, RCA

Author: E. Jansen

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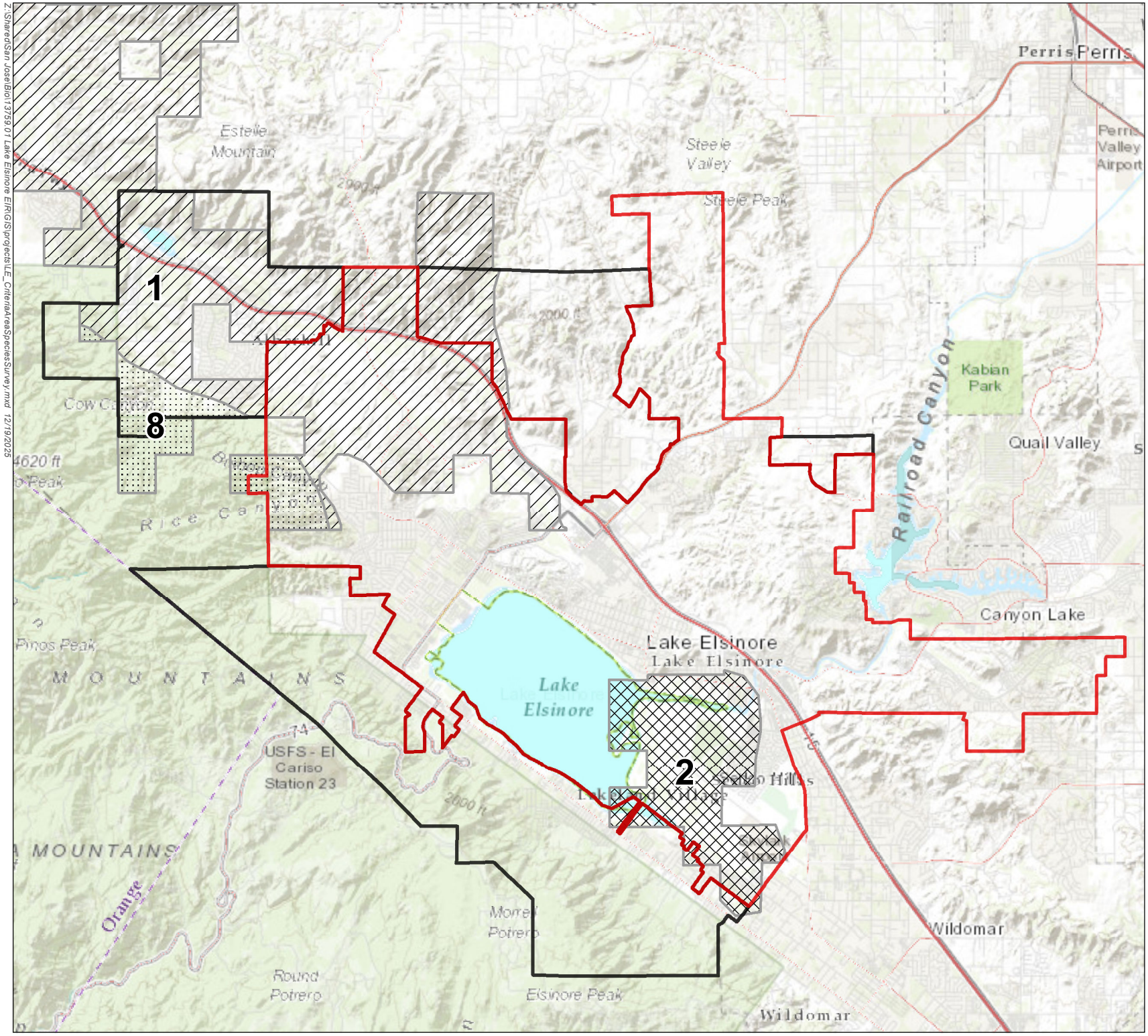

Figure 12. Criteria Area Species Survey Areas
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

Area ID & Species of Concern

Large leafed filaree, Little mousetail, Smooth tarplant

2 - Crowned saltbush, Davidson's saltbush, Little mousetail, Smooth tarplant, Parish's brittlescale

8 - Heart-leaved pitcher sage

Source: ESRI, RCA

Author: E. Jansen

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4.8 Stephens' Kangaroo Rat Conservation (MSHCP Section 6.2)

Stephens' kangaroo rat (SKR) is addressed under the MSHCP through integration of the pre-existing Stephens' Kangaroo Rat Habitat Conservation Plan (Riverside County Transportation and Land Management Agency 1996), which relies on modeled habitat, designated conservation areas, and fee-based mitigation rather than project-level survey requirements. Rather than relying on project-level surveys or survey-area triggers, SKR conservation under the MSHCP is implemented through a habitat-based and fee-based program grounded in modeled habitat, designated conservation areas, and long-term reserve assembly. As a result, compliance for SKR is determined by whether a project is located within modeled SKR habitat and/or an SKR Fee Area, and whether required mitigation fees or land dedication are provided. This approach avoids widespread trapping or survey requirements that could result in take of this federally endangered species and instead focuses on regional habitat conservation and management.

Modeled suitable SKR habitat occurs in several areas within and adjacent to the Planning Area, primarily along the Elsinore Valley floor and surrounding low-relief uplands (**Figure 13**). These areas represent habitat predicted through landscape-level modeling to support SKR based on soil type, landform, and vegetation characteristics. Presence of modeled habitat signals potential applicability of SKR conservation requirements but does not, by itself, indicate species occupancy.

Designated SKR Core Reserve Areas, originally established under the 1996 SKR HCP and carried forward into the MSHCP, are primarily outside but near the Planning Area, with limited overlap at the periphery (**Figure 13**). These areas represent lands intended for permanent conservation and long-term management of SKR populations. Development within these areas is generally avoided, and their proximity to the Planning Area underscores the importance of maintaining compatible land uses and open-space linkages.

Portions of the Planning Area fall within designated SKR HCP Fee Areas (**Figure 13**). Within these areas, impacts to modeled SKR habitat are mitigated through payment of SKR mitigation fees or approved land dedication, rather than through trapping surveys or species-specific avoidance measures. This fee-based approach supports acquisition and management of core reserve lands elsewhere in the region and is a central component of the SKR conservation strategy.

The distribution of modeled habitat, conservation areas, and fee-based mitigation zones highlights the role of the Planning Area in supporting regional SKR conservation objectives without relying on project-level surveys. With careful planning, the GPU can accommodate growth while remaining consistent with the MSHCP by directing development in a manner that respects SKR conservation boundaries, preserves open space where feasible, and ensures that future projects comply with applicable SKR fee and land-use provisions.

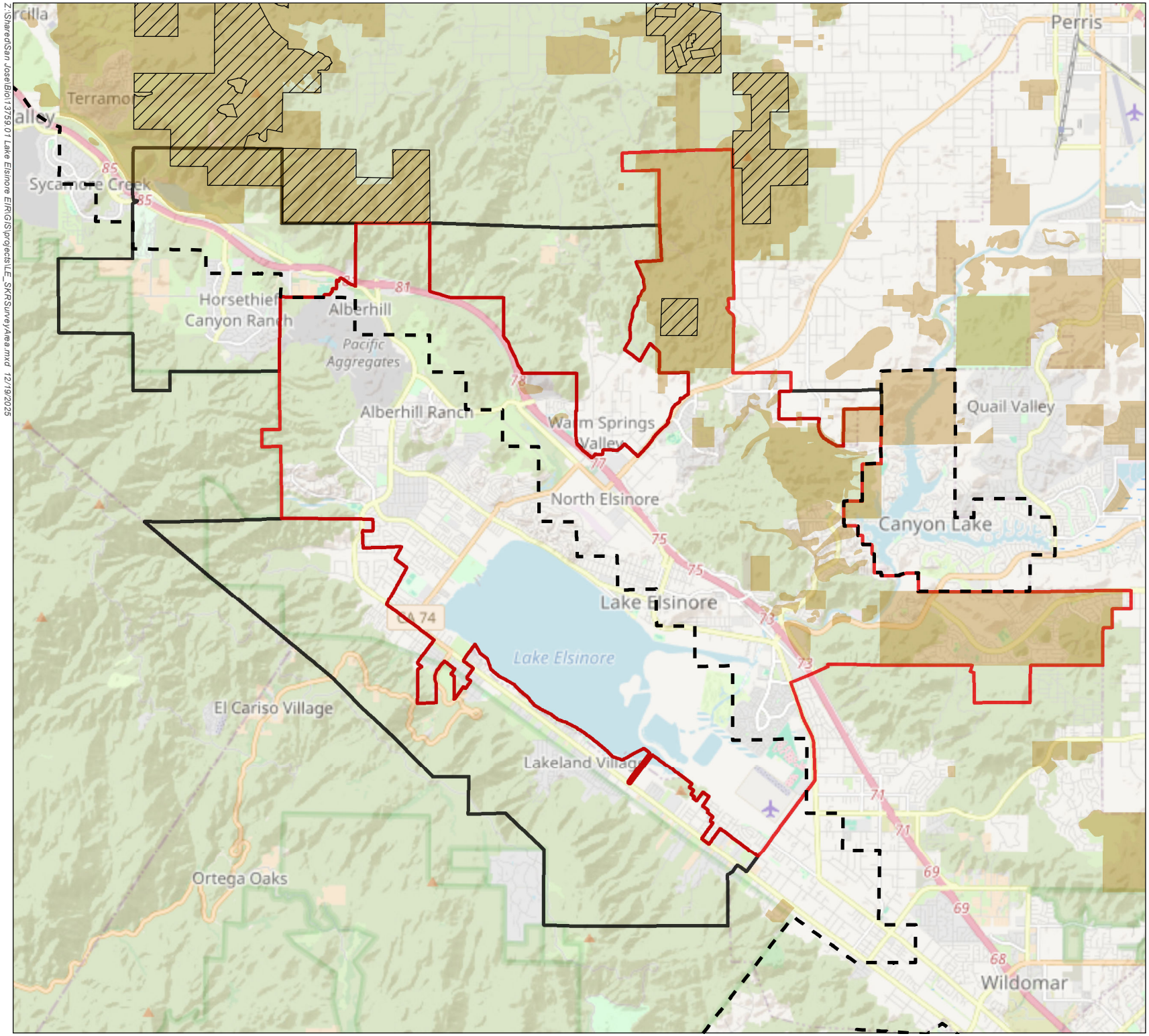

Figure 13. Stephens' Kangaroo Rat Survey Areas
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

1996 SKR HCP Boundaries

HCP Fee Area Boundary

Core Reserve Areas

Modeled Suitable Habitat

Source: ESRI, RCA

Author: E. Jansen

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4.9 Additional Survey Needs and Procedures (MSHCP Section 6.3.2)

MSHCP §6.3.2 establishes additional survey needs and procedures for criteria area species where suitable habitat may be present. The Planning Area overlaps multiple Criteria Area Species Survey Areas (see discussion with the narrow endemic species, above) and therefore requires the same level of biological consideration as other sensitive natural resources addressed by the MSHCP. Consistent with §6.3.2, future discretionary projects will implement a tiered evaluation approach beginning with a desktop assessment of available biological information, followed by habitat suitability determinations and focused, species-specific surveys conducted during appropriate seasonal windows where suitable habitat is present and impacts cannot be avoided. Survey results will be incorporated into formal MSHCP Consistency Analyses reviewed by the Riverside County RCA.

4.9.1 Amphibians

The Planning Area is not within a MSHCP-designated Amphibian Survey Area; however, the southern SOI that extends into the foothills of the Elsinore Mountains is adjacent to several survey areas that identify arroyo toad and California red-legged frog, a focal taxa where suitable habitat exists and additional surveys are required. The arroyo toad survey area is 0.19 miles from the SOI and includes a large 78 square mile area extending over the southern Santa Ana Mountain Range. The California red-legged frog survey area is 2.2 miles from the SOI and includes a relatively smaller 2 square mile survey area confined to drainage of San Juan Canyon, along the Ortega Highway that connects to downtown Lake Elsinore. Although the Planning Area is not located within a designated Amphibian Species Survey Area, the proximity of mapped survey areas and the availability of suitable upland and aquatic habitat within typical dispersal distances suggest an increased potential for occurrence.

4.9.2 Burrowing Owl Survey Area

Substantial portions of the Planning Area overlap MSHCP-designated Burrowing Owl Survey Areas (**Figure 14**). These survey areas are concentrated in the Elsinore Valley floor and surrounding low-relief landscapes characterized by open grassland, disturbed agricultural lands, and other habitats that can support burrowing owl nesting and foraging. The Burrowing Owl Survey Areas also overlap multiple MSHCP Criteria Cells, reflecting the importance of these areas to regional conservation objectives. In this circumstance, project review must address not only species-level impacts, but also effects on reserve assembly and long-term conservation objectives. In addition to completing focused burrowing owl surveys where habitat is present, a project must evaluate whether proposed development would preclude conservation of the Criteria Cell or interfere with its intended contribution to the MSHCP Conservation Area. Avoidance of occupied habitat within Criteria Cells is strongly emphasized, and where impacts cannot be avoided, mitigation must be structured to support Biologically Equivalent or Superior Preservation consistent with MSHCP requirements.

Projects within both a Burrowing Owl Survey Area and a Criteria Cell therefore require a more comprehensive MSHCP Consistency Analysis, integrating survey results, avoidance and minimization measures, and findings related to reserve assembly. This ensures that species-specific protections for burrowing owl are

addressed in tandem with the broader landscape-level conservation goals of the MSHCP (CDFW 2012, RCA 2006).

4.9.3 Desert Tortoise Survey Area

The Planning Area is not within a MSHCP-designated Desert Tortoise (*Gopherus agassizii*) Survey Area. The nearest survey area is greater than 60 miles east of the Planning Area in eastern Riverside County. The species is not expected to occur in the Planning Area.

4.9.4 Delhi Sands Flower-Loving Fly Survey Area

The Planning Area is not within a MSHCP-designated Delhi Sands Flower-Loving Fly (*Rhaphiomidas terminatus abdominalis*) Survey Area. The nearest survey area is greater than 15 miles from the Planning Area in the northwest corner of the Plan area. The Planning Area does not contain Delhi sands soil series, a rare, wind-deposited sandy soil and is not expected to occur in the Planning Area (USDA 2025).

4.9.5 Mammal Species Survey Area

The Planning Area is not within a MSHCP-designated Mammal Survey Area. The nearest survey area is greater than 5 miles from the Planning Area. Mammal Species Survey Areas identify designated areas where additional survey needs may apply for certain MSHCP-covered mammals, specifically Aguanga kangaroo rat (*Dipodomys merriami collinus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), and San Bernardino kangaroo rat (*D. merriami parvus*) and where focused surveys are conducted during project review when suitable habitat is present.

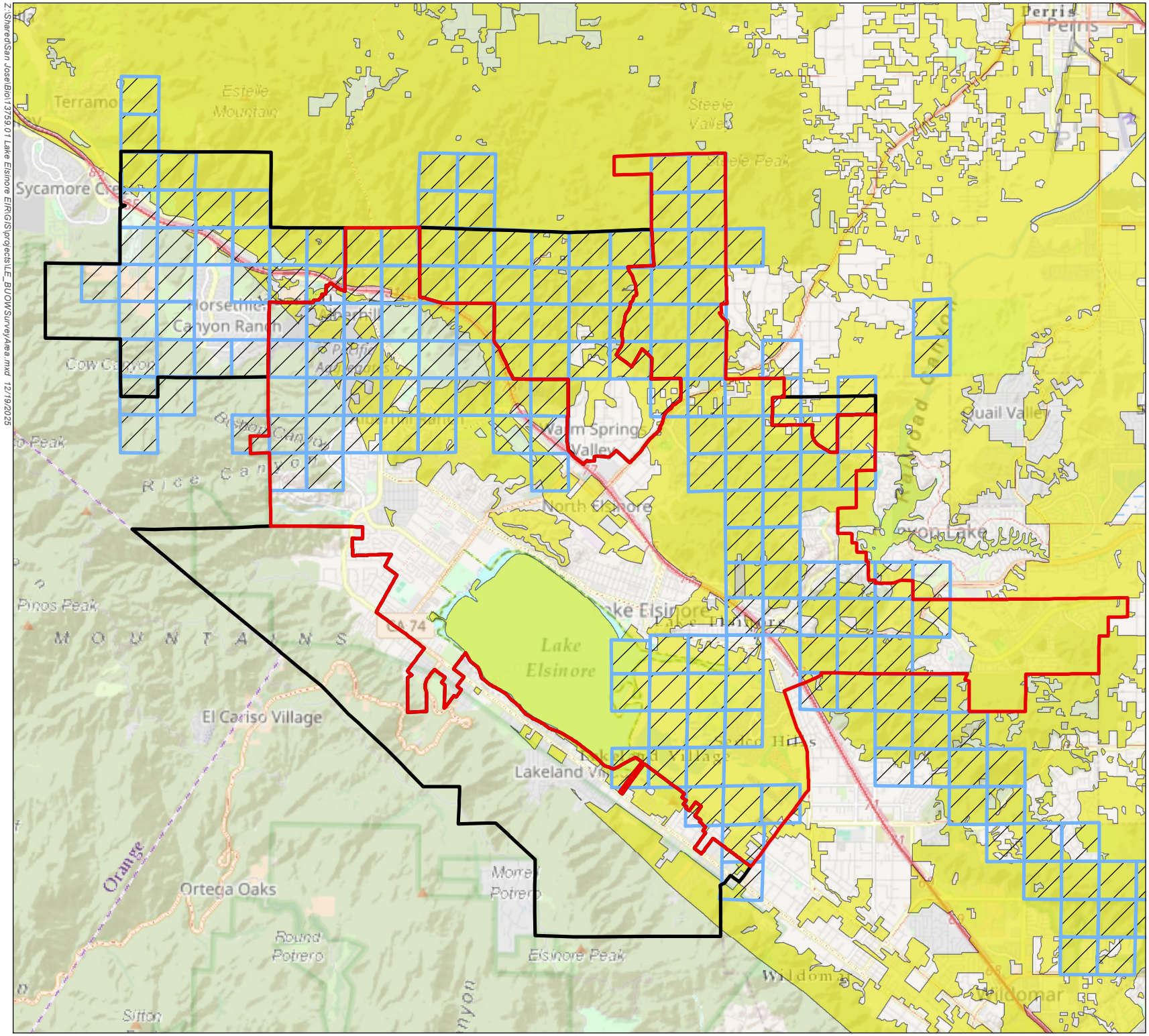

Figure 14. Burrowing Owl Survey Areas
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

MSHCP Criteria Cell

Burrowing Owl Survey Area

Author: E. Jansen

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4.9.6 Species Not Adequately Conserved (MSHCP "Table 9-3 Species")

The MSHCP identifies 28 Covered Species as not yet adequately conserved at the time of Plan adoption, with conservation adequacy to be achieved through species-specific regional objectives identified in MSHCP Table 9-3. Within the Planning Area, these Species Not Adequately Conserved are addressed programmatically through implementation of the MSHCP conservation strategy, reserve assembly, and long-term habitat management, rather than through project-specific determinations of conservation adequacy.

The MSHCP identifies these 28 SNAC species as covered species that require additional demonstrated conservation outcomes and/or Forest Service coordination before they are considered "adequately conserved" under the Plan's framework. Assessments for these SNACs typically includes an assessment of suitable habitat and other characteristics that would influence potential occurrence, identification of areas in the Planning Area that may be impacted from a proposed project or actions, and recommending specieis-specific project-level survey/avoidance expectations into policy language and mitigation frameworks consistent with MSHCP implementation. The MSHCP also clarifies that the Table 9-3 requirements are only one layer; species objectives and details in the species accounts are also part of the conservation standard.

As of January 21, 2022, the Riverside County Regional Conservation Authority has determined that the Table 9-3 conservation requirements have been met for nine Species Not Adequately Conserved, including beautiful hulsea (*Hulsea vestita*), Coulter's matilija poppy (*Romneya coulteri*), Fish's milkwort (*Polygala cornuta* ssp. *fishiae*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*),Parry's spineflower (*Chorizanthe parryi* var. *parryi*), peninsular spineflower (*Chorizanthe procumbens*), Plummer's mariposa lily (*Calochortus plummerae*), rainbow manzanita (Arctostaphylos rainbowensis), small-flowered microseris (*Microseris douglasii* ssp. platycarpha; RCA 2022). These species are still MSHCP Covered Species, but they are no longer considered "not adequately conserved" because their Table 9-3 conservation benchmarks have been achieved at the regional scale.

Species that have not met conservation thresholds remain the subject to ongoing regional conservation efforts. Within the Planning Area, this distinction reinforces the importance of maintaining and managing open space lands that support regionally significant habitats, particularly grasslands, chaparral, riparian corridors, and upland foothill areas. The GPU supports the MSHCP's long-term conservation strategy by preserving open space, maintaining habitat connectivity, and ensuring that future development remains compatible with regional conservation objectives, while recognizing that determinations of conservation adequacy for Table 9-3 species are made at the regional level rather than on a project-by-project basis.

4.10 Guidelines Pertaining to the Urban/Wildlands Interface (MSHCP Section 6.1.4)

The Planning Area occupies a distinctive intermountain basin setting within western Riverside County, characterized by a relatively more developed valley floor surrounded by upland foothills, ridgelines, and mountain blocks that support more extensive areas natural open space. This physiographic context creates a pronounced urban–wildlands interface, where existing and planned urban development along the valley margins directly abuts native habitats in the surrounding hills and conservation lands. MSHCP §6.1.4

recognizes that these interface areas are particularly susceptible to indirect impacts associated with urbanization, including edge effects, habitat fragmentation, altered fire regimes, invasive species introduction, increased human access, noise, lighting, and predation pressures.

Within an intermountain basin, these interface effects are intensified by topographic convergence. Development along the basin floor and lower slopes can influence ecological processes across a broader area, as drainage patterns, wildlife movement corridors, and fire behavior are shaped by surrounding uplands. Wildlife species that depend on both upland and lowland habitats—such as wide-ranging mammals, raptors, and species moving between seasonal resources—are more likely to encounter urban edges in basin settings. As a result, the MSHCP emphasizes the need to carefully manage the configuration and intensity of development at the urban–wildlands boundary to avoid incremental degradation of adjacent conserved lands.

MSHCP §6.1.4 provides guidelines intended to minimize indirect impacts at the urban edge, including consideration of development setbacks, buffering, access control, lighting and noise management, and long-term stewardship of conserved lands adjacent to development. In the Lake Elsinore Planning Area, these guidelines are particularly relevant where growth is directed toward the foothills, where open space lands often function as ecological buffers, movement corridors, and transition zones between urban uses and higher-elevation conservation areas. The intermountain basin context underscores the importance of maintaining these transition areas to preserve habitat connectivity between the surrounding mountain blocks and valley floor resources.

From a Conservation and Open Space Element perspective, the urban–wildlands interface guidelines reinforce the role of strategically located open space as an active component of land use planning rather than residual land. Open space within the basin and along its margins can serve multiple functions, including buffering conserved lands, accommodating passive recreation, managing wildfire risk, and maintaining visual and ecological separation between urban development and wildland habitats. Incorporating these interface considerations into the General Plan Update supports a land use pattern that respects the basin's natural constraints while aligning with regional conservation objectives under the MSHCP.

In this context, the GPU provides an opportunity to proactively integrate the principles of MSHCP §6.1.4 by guiding future development toward forms and locations that reduce edge effects, preserve functional open space networks, and maintain long-term compatibility between urban growth and surrounding wildlands. Application of these guidelines at the project level, through MSHCP consistency review and local entitlement processes, ensures that development within the intermountain basin contributes to a cohesive urban form while safeguarding the ecological integrity of adjacent conservation lands.

4.11 Construction Guidelines (MSHCP Section 7.5.3)

The City shall ensure that future development facilitated by the GPU is implemented consistent with the MSHCP §7.5.3 – Construction Guidelines, including practices that limit construction disturbance to approved impact areas, protect adjacent open space and sensitive biological resources, and minimize indirect effects

during construction. These guidelines shall be applied at the project level through MSHCP consistency review to support long-term conservation objectives while accommodating orderly growth within the Planning Area.

4.12 Best Management Practices (MSHCP Volume I, Appendix C)

MSHCP Best Management Practices (BMPs), provided in Volume I, Appendix C, establish a suite of standardized environmental protection measures intended to minimize indirect and construction-related impacts to biological resources associated with development activities. These BMPs address common sources of disturbance such as erosion, sedimentation, dust, invasive species introduction, noise, lighting, and accidental encroachment into adjacent natural areas. Collectively, they are designed to reduce avoidable secondary effects on conserved lands and sensitive habitats while allowing covered development to proceed in a predictable and consistent manner.

At the General Plan level, the BMPs function as programmatic implementation guidance, rather than as project-specific mitigation measures. For the Lake Elsinore GPU, they establish an expectation that future discretionary projects will incorporate BMPs appropriate to their location, scale, and proximity to biological resources as part of MSHCP consistency review and local entitlement processes. The BMPs are intentionally flexible, allowing them to be tailored at the project level based on site conditions while maintaining consistency with regional conservation objectives.

In project planning, BMPs are typically applied where development occurs near open space, riparian corridors, conserved lands, Criteria Cells, or other sensitive resources, and where construction or ongoing operations could generate indirect effects beyond the project footprint. Application of BMPs helps ensure that development remains compatible with adjacent conservation areas by controlling runoff and erosion, preventing the spread of invasive species, managing lighting and noise at the urban–wildland interface, and maintaining clear boundaries between developed areas and preserved open space.

Within the context of the Lake Elsinore GPU, incorporation of the MSHCP BMP framework supports a balanced growth strategy by embedding environmental stewardship into future project design and construction practices without constraining land use decisions at the plan level. By committing to implementation of BMPs through subsequent project review, the General Plan Update reinforces long-term conservation outcomes while providing flexibility for site-specific solutions as development proposals are evaluated.

6.0 CONCLUSION

The GBRA demonstrated that the Planning Area functions as a regionally important ecological basin supporting a diverse mosaic of upland, riparian, wetland, and lacustrine habitats within an otherwise semi-arid intermountain landscape. The presence of Lake Elsinore, the San Jacinto River, Temescal Wash, and associated wetlands creates a concentration of aquatic and riparian resources that are limited elsewhere in inland Southern California, resulting in disproportionately high biological value relative to surrounding developed areas. This setting supports sensitive natural communities, jurisdictional waters, and habitat for

numerous special-status plant and wildlife species, including MSHCP-covered species and migratory birds using the Pacific Flyway.

The assessment further indicated that biological resources are unevenly distributed, with the highest concentrations of intact native vegetation, sensitive communities, and habitat connectivity occurring in the SOI and along the foothills and drainage corridors surrounding the urban core. For example, chaparral, coastal sage scrub, and grassland habitats dominate the SOI, while the majority of sensitive riparian communities occur outside the City Boundary along incised drainages and river corridors. This spatial pattern underscores the SOI's role as a critical transition zone that supports wildlife movement between Lake Elsinore, Elsinore Mountains, Santa Ana Mountains, and adjacent regional conservation lands.

Because of the unique diversity of habitat types, and other environmental characteristics, the Planning Area supports a wide range of special-status plants and wildlife, reflecting the convergence of hydrology, topography, and relatively unfragmented open space. Notably, the area provides habitat for aquatic-associated species such as western spadefoot, California red-legged frog, and riparian birds, as well as upland species including Stephens' kangaroo rat, coastal California gnatcatcher, and burrowing owl. The application of multiple MSHCP administrative layers including Criteria Cells, Narrow Endemic Plant Species survey areas, wildlife cores, and proposed linkages, reflects the regional importance of these resources and establishes a structured framework for evaluating future development consistency rather than precluding growth outright.

Overall, the findings support the conclusion that future growth contemplated under the GPU can be accommodated while maintaining consistency with regional conservation objectives, provided that development is guided by the MSHCP framework and implemented through project-level review. The BRA establishes a comprehensive biological baseline that informs land use planning, highlights areas of heightened sensitivity, and reinforces the importance of open space preservation, habitat connectivity, and urban–wildland interface management. As such, the Planning Area represents both a biologically significant landscape and a managed growth environment where long-term conservation outcomes are achieved through coordinated planning, avoidance, and design rather than piecemeal mitigation.

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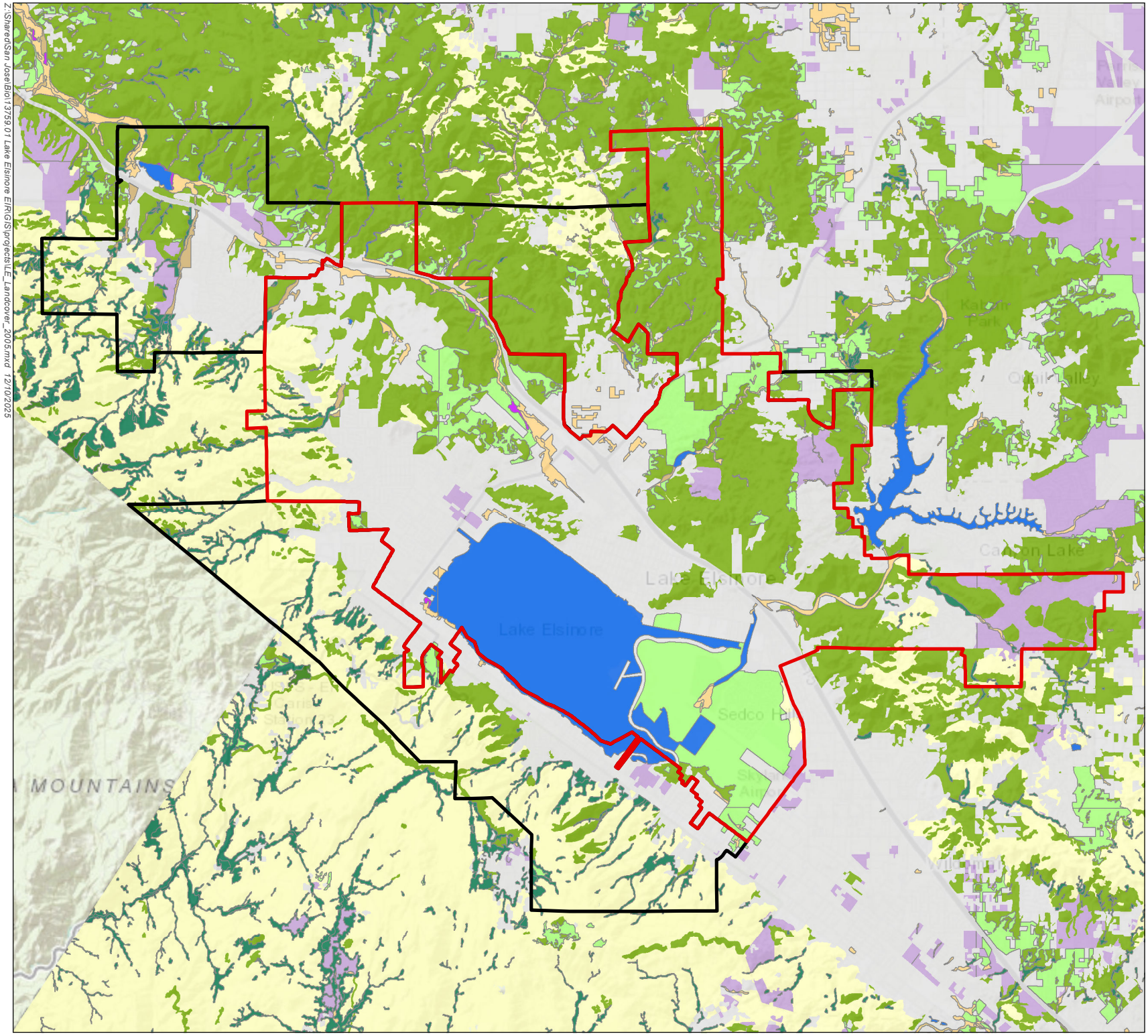
APPENDIX A. FIGURE ADDENDUM

- 2005 MSHCP Vegetation Map
- 2012 MSHCP Vegetation Map
- USFWS Designated Critical Habitat
- MSHCP Reserve Assembly – Landscape Planning Elements
- MSHCP Reserve Assembly – Performance and Survey Trigger Elements



2005 Land Cover
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

2005 CNPS Vegetation

MSHCP Catagory

- Agricultural Land
- Chaparral
- Coastal Sage Scrub
- Developed / Disturbed Land
- Grassland
- Meadows and Marshes
- Montane Coniferous Forest
- Riparian Scrub, Woodland, Forest
- Riversidean Alluvial Fan Sage Scrub
- Water
- Woodland and Forests

Source: RCA

Author: E. Jansen

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1:109,000

NAD 1983 UTM Zone 11N

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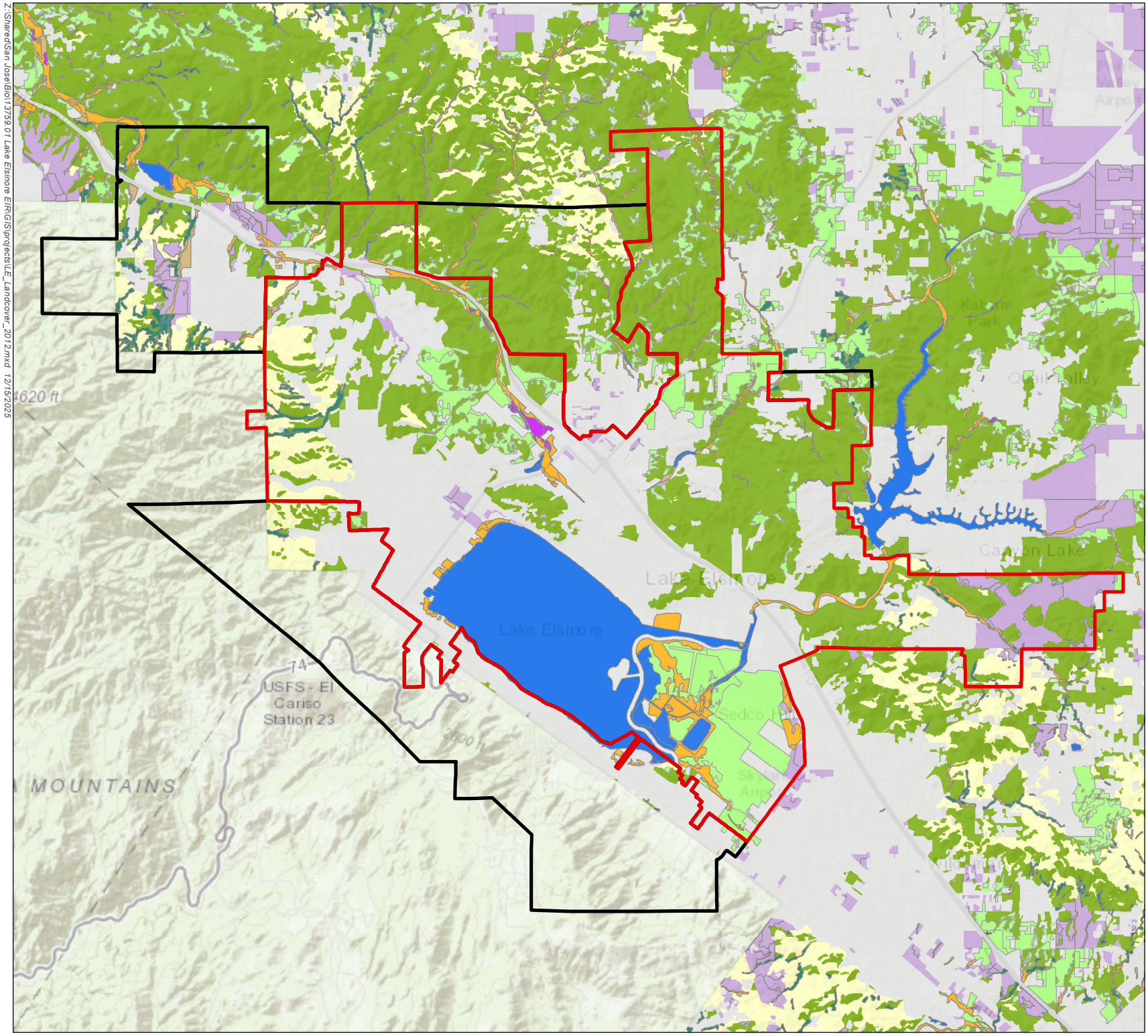

2012 Land Cover
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

2012 Vegetation

MSHCP Category

- Agricultural Land
- Chaparral
- Coastal Sage Scrub
- Developed / Disturbed Land
- Grassland
- Meadows and Marshes
- Riparian Scrub, Woodland, Forest
- Riversidean Alluvial Fan Sage Scrub
- Water
- Woodland and Forests

Note: Incomplete spatial extent compared to 1994, 2005 layers

Source: RCA *Author: E. Jansen*

0 0.5 1 2 mi

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NAD 1983 UTM Zone 11N

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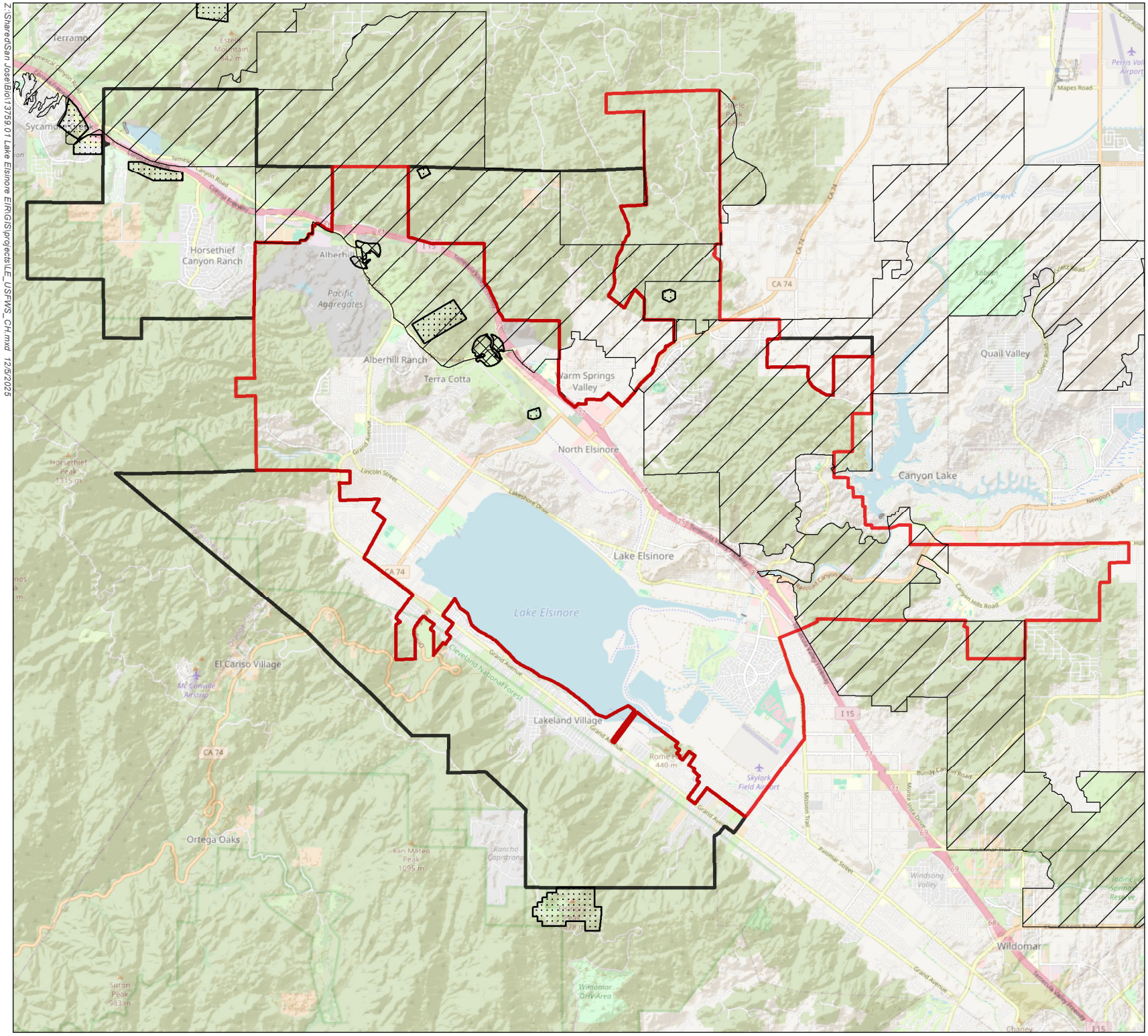

USFWS Designated Critical Habitat
Lake Elsinore GPU
Riverside County, CA

City Boundary

Sphere of Influence

USFWS Designated Critical Habitat

Coastal California gnatcatcher

Munz's onion

San Diego ambrosia

Source: ESRI, RCA, USFWS *Author: E. Jansen*

0 0.475 0.95 1.9 mi

1:107,000

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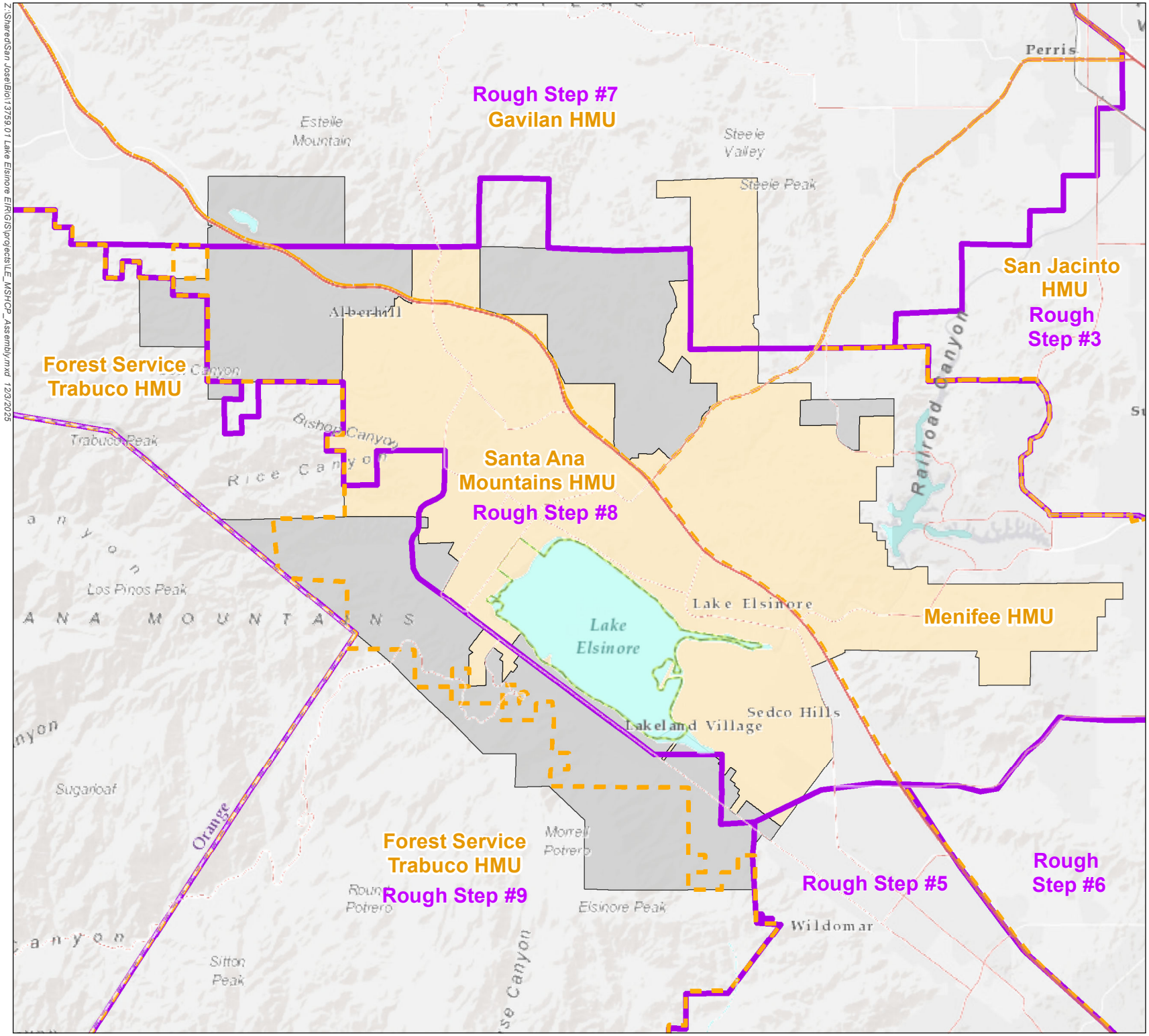

MSHCP
Reserve Assembly
Lake Elsinore GPU
Riverside County, CA

- City Boundary
- Sphere of Influence
- Habitat Management Unit
- Rough Step Unit

Source: RCA

0 0.5 1 2 mi

1:120,000

NAD 1983 UTM Zone 11N

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APPENDIX B. SPECIAL STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN THE PLANNING AREA

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Abronia villosa var. *aurita* chaparral sand-verbena	–	–	1B.1	Annual herb blooms from (Jan) Mar-Sep; generally found in Chaparral, Coastal scrub, and Desert dunes on sandy substrates at elevations of 245-5,250 ft.	**Present.** Four CNDDB records within the Planning Area.
Allium marvinii † Yucaipa onion	–	–	1B.2	Perennial bulbiferous herb blooms from Apr-May; generally found in Chaparral on clay substrates in openings at elevations of 2,495-3,495 ft.	**Present.** Four CNDDB records within the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
Allium munzii † Munz's onion	E	T	1B.1	Perennial bulbiferous herb blooms from Mar-May; generally found in Chaparral and Cismontane woodland on clay and mesic areas at elevations of 975-3,510 ft.	**Present.** Nine CNDDB records and Survey Area occurs within the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
Ambrosia pumila † San Diego ambrosia	E	–	1B.1	Perennial rhizomatous herb blooms from Apr-Oct; generally found in Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools at elevations of 65-1,360 ft.	**Present.** Four CNDDB records and Survey Area occurs within the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
Artemisia palmeri San Diego sagewort	–	–	4.2	Perennial deciduous shrub blooms May-Sep; generally found Chaparral, Coastal scrub, and Riparian habitats on mesic sandy areas at elevations of 15-3,000 ft.	**Absent.** Known species range oriented toward coastal habitats and inland of the greater San Diego area.
Astragalus hornii var. *hornii* Horn's milk-vetch	–	–	1B.1	Annual herb blooms from May-Oct; generally found in Meadows & seeps and Playas, on alkaline substrates and lake margins at elevations of 195-2,790 ft.	**Absent.** Known species range and occurrence east in the San Jacinto and Santa Rosa Mountain ranges.
Astragalus lentiginosus var. *borreganus* Borrego milk-vetch	–	–	4.3	Annual herb from Feb-May; generally found in Mojavean desert scrub and Sonoran desert scrub on sandy substrates at elevations of 100-2,935 ft.	**Absent.** Known species range and occurrence east toward the center of Riverside County
Astragalus lentiginosus var. *coachellae* Coachella Valley milk-vetch	E	–	1B.2	Annual/perennial herb blooms from Feb-May; generally found in Desert dunes and Sonoran desert scrub on sandy soils at elevations of 130-2,150 ft.	**Absent.** Known species range and occurrence east toward Cherry Valley and Coachella Valley.
Astragalus pachypus var. *jaegeri* † Jaeger's milk-vetch	–	–	1B.1	Perennial shrub blooms from Dec-Jun; generally found in Chaparral, Cismontane woodland, Coastal scrub, and Valley & foothill grassland on rocky or sandy substrates at elevations of 1,200-3,200 ft.	**Absent.** Known species range and occurrence east in the Cherry Valley, Mt. San Jacinto and Palomar Mtn areas.
Atriplex coronata var. *notatior* † San Jacinto Valley crownscale	E	–	1B.1	Annual herb blooms from Apr-Aug; generally found in Playas, Valley & foothill grassland (mesic), and Vernal pools in alkaline soils at elevations of 455-1,640 ft.	**Present.** One CNDDB record within the Planning Area in the Nichols wetlands.
Atriplex parishii † Parish's brittlescale	–	–	1B.1	Annual herb blooms from Jun-Oct; generally found in Chenopod scrub, Playas, and Vernal pools in alkaline soils at elevations of 80-6,235 ft.	**May Occur.** Suitable habitat present in Planning Area. Nearest historical record greater than 5 miles away in San Jacinto Valley. Criteria Area Survey Plant Species (MSHCP Section 6.1.3).

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Atriplex serenana var. *davidsonii* † Davidson's saltscale	–	–	1B.2	Annual herb blooms from Apr-Oct; generally found in Coastal bluff scrub and Coastal scrub in alkaline soils at elevations of 35-655 ft.	**May Occur.** Suitable habitat present in Planning Area. Nearest historical record greater than 5 miles away in San Jacinto Valley. Criteria Area Survey Plant Species (MSHCP Section 6.1.3).
Ayenia compacta California ayenia	–	–	2B.3	Perennial herb blooms from Mar-Apr; generally found in Mojavean desert scrub, Sonoran desert scrub on rocky substrate at elevations of 490-3,595 ft.	**Present.** One CNDDB record within the Planning Area.
Bahiopsis laciniata San Diego County viguiera	–	–	4.3	Perennial shrub blooms Feb-Jun, generally found in Chaparral, Coastal scrub at elevations 195-2,460 ft.	**Present.** Multiple Calflora records within the Planning Area.
Brodiaea filifolia † thread-leaved brodiaea	T	E	1B.1	Perennial bulbiferous herb blooms from Mar-Jun; generally found in Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley & foothill grassland, and Vernal pools, often on clay substrates at elevations of 80-3,675 ft.	**Present.** One CNDDB record within the Planning Area.
Brodiaea orcuttii † Orcutt's brodiaea	–	–	1B.2	Perennial bulbiferous herb looms May-Jul; generally found in Chaparral, Cismontane woodland, Closed-cone coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools at elevations 100-5,550 ft.	**May Occur.** Suitable habitat present in Planning Area. Nearest historical record greater than 5 miles away in Temecula region. Criteria Area Survey Plant Species (MSHCP Section 6.1.3).
Calochortus palmeri var. *palmeri* Palmer's mariposa-lily	–	–	1B.2	Perennial bulbiferous herb blooms from Apr-Jul; generally found in Chaparral, Lower montane coniferous forest, and Meadows & seeps, in mesic areas at elevations of 2,330-7,840 ft.	**Absent.** Known species range and occurrence east in the Cherry Valley and Mt. San Jacinto areas.
Calochortus plummerae † Plummer's mariposa-lily	–	–	4.2	Perennial bulbiferous herb blooms from May-Jul; generally found in Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, and Valley & foothill grassland, on granitic and rocky substrates at elevations of 330-5,580 ft.	**May Occur.** Suitable habitat present in Planning Area. Several records from the Cleveland National Forest greater than 5 miles from the Planning Area. Criteria Area Survey Plant Species (MSHCP Section 6.1.3).
Calochortus weedii var. intermedius intermediate mariposa-lily	–	–	1B.2	Perennial bulbiferous herb blooms May-Jul; Generally found in Chaparral, Coastal scrub, Valley and foothill grassland on calcareous, rocky habitats at elevations of 345-2,805 ft.	**Present.** One CNDDB record within the Planning Area.
Carex buxbaumii Buxbaum's sedge	–	–	4.2	Perennial rhizomatous herb generally found in Bogs and fens, Marshes and swamps, Meadows and seeps (mesic) at elevations of 10-10,825 ft.	**May Occur.** Limited suitable habitat in Planning Area; however, undisclosed Calflora record in Lake Elsinore 7.5 minute quadrant.

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Caulanthus simulans † Payson's wild cabbage	–	–	4.2	Annual herb blooms from (Feb) Mar-May (Jun); generally found in Chaparral and Coastal scrub often in disturbed areas on granitic and sandy substrates at elevations of 295-7,220 ft.	**May Occur.** Suitable habitat in Planning Area in Lake Elsinore Mountains and Lake Elsinore 7.5 minute quadrant.
Centromadia pungens ssp. *laevis* † smooth tarplant	–	–	1B.1	Annual herb blooms from Apr-Sep; generally found in Chenopod scrub, Meadows & seeps, Playas, Riparian woodland, and Valley & foothill grassland, in alkaline soils at elevations of 0-2,100 ft.	**Present.** 11 CNDDB records within the Planning Area. Criteria Area Survey Plant Species (MSHCP Section 6.1.3).
Chorizanthe leptotheca † Peninsular spineflower	–	–	4.2	Annual herb blooms from May-Aug; generally found in Chaparral, Coastal scrub, and Lower montane coniferous forest, in granitic alluvial fans at elevations of 985-6,235 ft.	**Present.** Historical Calflora records within the Planning Area. Suitable habitat in Planning Area in Lake Elsinore Mountains and Lake Elsinore 7.5 minute quadrant.
Chorizanthe parryi var. *parryi* † Parry's spineflower	–	–	1B.1	Annual herb blooms from Apr-Jun; generally found in Chaparral, Cismontane woodland, Coastal scrub, and Valley & foothill grassland, in openings with rocky or sandy soils at elevations of 900-4,005 ft.	**Present.** Eight CNDDB records within the Planning Area.
Chorizanthe polygonoides var. longispina long-spined spineflower	–	–	1B.2	Annual herb blooms from Apr-Jun; generally found Chaparral, Coastal scrub, Meadows and seeps, Grasslands, and Vernal pools at elevations of 100-5,020 ft.	**Present.** 12 CNDDB records within the Planning Area.
Chorizanthe xanti var. *leucotheca* white-bracted spineflower	–	–	1B.2	Annual herb blooms from Apr-Jun; generally found in Coastal scrub (alluvial fans), Mojavean desert scrub, and Pinyon & juniper woodland on gravelly or sandy soils at elevations of 985-3,935 ft.	**Absent.** Known species range and occurrence far east of the Planning Area in the Morongo Reservation and Whitewater Preserve areas.
Convolvulus simulans small-flowered morning-glory	–	–	4.2	Annual herb blooms from Mar-Jul; generally found in Chaparral (openings), Coastal scrub, Valley and foothill grassland at elevations of 100-2,430 ft.	**Present.** Six Calflora records within the Planning Area.
Deinandra mohavensis † Mojave tarplant	–	E	1B.3	Annual herb blooms from (Jan-May) Jun-Oct; generally found in Chaparral, Coastal scrub, and Riparian scrub in mesic areas at elevations of 2,100-5,250 ft.	**Absent.** Known species range and occurrence far east of the Planning Area in the San Jacinto Mountain ranges.
Deinandra paniculata paniculate tarplant	–	–	4.2	Annual herb blooms from (Mar) Apr-Nov; generally found in Coastal scrub, Valley & foothill grassland, and Vernal pools, in mesic areas often in sandy soils at elevations of 80-3,085 ft.	**Present.** Six Calflora records within the Planning Area.

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Delphinium parishii ssp. *subglobosum* Colorado Desert larkspur	–	–	4.3	Perennial herb blooms from Mar-Jun; generally found in Chaparral, Cismontane woodland, Pinyon & juniper woodland, and Sonoran desert scrub at elevations of 1,970-5,905 ft.	**Absent.** Known species range and occurrence far east of the Planning Area in the San Jacinto Mountain ranges.
Delphinium parryi ssp. *purpureum* Mt. Pinos larkspur	–	–	4.3	Perennial herb blooms from May-Jun; generally found in Chaparral, Mojavean desert scrub, Pinyon & juniper woodland at elevations of 3,280-8,530 ft.	**Absent.** Planning Area below elevation range species typically occurs.
Diplacus clevelandii † (Mimulus clevelandii) Cleveland's bush monkeyflower	–	–	4.2	Perennial rhizomatous herb blooms from Apr-Jul; generally found in Chaparral, Cismontane woodland, Lower montane coniferous forest in disturbed or open areas, generally on gabbroic and rocky substrates at elevations of 1,475-6,560 ft.	**May Occur.** Suitable habitat in Planning Area and dozens of Calflora records along foothills of the Cleaveland Forest northwest of the Planning Area.
Dodecahema leptoceras † slender-horned spineflower	E	E	1B.1	Annual herb blooms from Apr-Jun; generally found in Chaparral, Cismontane woodland, and Coastal scrub (alluvial fans) on sandy areas at elevations of 655-2,495 ft.	**Present.** Two CNDDB records and Survey Area occurs within the Planning Area. Narrow endemic plant species (MSHCP Section 6.1.3).
Dudleya multicaulis many-stemmed dudleya	–	–	1B.2	Perennial herb blooms from Apr-Jul; generally found in Chaparral, Coastal scrub, Valley and foothill grassland often found on clay at elevations of 50-2,590 ft.	**Present.** Four CNDDB records and Survey Area occurs within the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
Eriastrum densifolium spp. sanctorum † Santa Ana River woolly-star	E	E	1B.1	Perennial herb blooms from Apr-Sep; generally found in Chaparral, Coastal scrub (alluvial fans), sometimes of gravelly and sandy substrates at elevations of 300-2,000 ft.	**Absent.** Suitable habitat in Planning Area; however, very limited range and occurrences along the Santa Ana River west of Riverside.
Erythranthe diffusa † Palomar monkeyflower	–	–	4.3	Annual herb blooms from Apr-Jun; generally found in Chaparral and Lower montane coniferous forest in gravelly or sandy soils at elevations of 4,005-6,005 ft.	**Present.** Multiple Calflora records within Rice Canton west of Lake Elsinore in Planning Area.
Harpagonella palmeri Palmer's grapplinghook	–	–	4.2	Annual herb blooms from Mar-May; generally found in Chaparral, Coastal scrub, Valley and foothill grassland on clay soils in openings at elevations of 65-3,135 ft.	**Present.** Four CNDDB records within the Planning Area.
Hesperocyparis forbesii Tecate cypress	–	–	1B.1	Perennial evergreen tree; generally found in Chaparral, Closed-cone coniferous forest at elevations of 260-4,920 ft.	**Present.** One CNDDB record within the Planning Area.
Hordeum intercedens † vernal barley	–	–	3.2	Annual herb blooms from Mar-Jun; generally found in Coastal dunes, Coastal scrub, Valley & foothill grassland (depressions, saline flats), and Vernal pools at elevations of 15-3,280 ft.	**Present.** Multiple Calflora records north of Lake Elsinore in Planning Area.

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Horkelia cuneata var. *puberula* mesa horkelia	–	–	1B.1	Perennial herb blooms from Feb-Jul (Sep); generally found in Chaparral (maritime), Cismontane woodland, and Coastal scrub in gravelly or sandy soils at elevations of 230-2,660 ft.	**May Occur.** Suitable habitat in Planning Area; multiple records adjacent and south of the Planning Area along Highway 74 in the Cleveland Forest.
Imperata brevifolia California satintail	–	–	2B.1	Perennial rhizomatous herb blooms from Sep-May; generally found in Chaparral, Coastal scrub, Meadows & seeps (often alkali), Mojavean desert scrub, and Riparian scrub in mesic areas at elevations of 0-3,985 ft.	**Absent.** Suitable habitat and microhabitats limited in Planning Area. Restricted range known from the Palm Springs area.
Juglans californica † southern California black walnut	–	–	4.2	Perennial deciduous tree blooms from Mar-Aug; generally found in Chaparral, Cismontane woodland, Coastal scrub, and Riparian woodland in alluvium at elevations of 165-2,955 ft.	**Present.** Both naturalized and native plantings in Planning Area.
Lasthenia glabrata ssp. *coulteri* † Coulter's goldfields	–	–	1B.1	Annual herb blooms from Feb-Jun; generally found in Coastal salt marshes & swamps, Playas, and Vernal pools at elevations of 5-4,005 ft.	**Present.** Two CNDDB records within the Planning Area.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	–	–	4.3	Annual herb blooms from Jan-Jul; generally found in Chaparral and Coastal scrub at elevations of 5-2,905 ft.	**Present.** One CNDDB record within the Planning Area.
Mentzelia tricuspis spiny-hair blazing star	–	–	2B.1	Annual herb blooms from Mar-May; generally found in Mojavean desert scrub on gravelly or sandy soils in slopes or washes at elevations of 490-4,200 ft.	**Absent.** Suitable habitat and microhabitats limited in Planning Area. Restricted range known from the broader I-10 corridor and Palm Springs area.
Microseris douglasii ssp. platycarpha small-flowered microseris	–	–	4.2	Annual herb blooms Mar-May; generally found on Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pools on clay microhabitats at elevations of 50-3,510 ft.	**Present.** Multiple Clflora records in the Planning Area near the Terra Cotta and Alberhill districts.
Monardella hypoleuca ssp. Intermedia intermediate monardella	–	–	1B.3	Perennial rhizomatous herb blooms from Apr-Sep; generally found in Chaparral, Cismontane woodland and less often Lower montane coniferous forest at elevations of 1,310-4,100 ft.	**Present.** One CNDDB record within the Planning Area.
Muhlenbergia californica † California muhly	–	–	4.3	Perennial rhizomatous herb blooms from Jun-Sept; generally found in Chaparral, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, often at streambanks at elevations on 100-2,000 ft.	**Absent.** Restricted range on the northern slopes of the San Jacinto Mountain Range.
Myosurus minimus ssp. apus † little mousetail	–	–	3.1	Annual herb blooms from Mar-Jun; generally found in Valley & foothill grassland and Vernal pools in alkaline areas at elevations of 65-2,100 ft.	**Present.** Multiple Calflora records in the grasslands east of Lake Elsinore.

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Nama stenocarpa † mud nama	–	–	2B.2	Annual/perennial herb blooms from Jan-Jul; generally found in Marshes & swamps on lake margins and riverbanks at elevations of 15-1,640 ft.	**Absent.** Limited suitable habitat in the Planning Area. Highly restricted range of known occurrences in the Mystic Lake area, greater than 5 miles from the Planning Area.
Navarretia fossalis † spreading navarretia	T	–	1B.1	Annual herb blooms from Apr-Jun; generally found in Chenopod scrub, Shallow freshwater marshes & swamps, Playas, and Vernal pools at elevations of 100-2,150 ft.	**May Occur.** Suitable habitat present in the Planning Area; historical populations located along and adjacent to canals.
Navarretia prostrata † Prostrate navarretia	–	–	1B.2	Annual herb blooms Apr-Jul; generally found in Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools at elevations of 10-3,970 ft.	**May Occur.** Suitable habitat present in the Planning Area; several known populations on Mesa de Burro, in the Cleveland Forest.
Orcuttia californica † California Orcutt grass	E	E	1B.1	Annual herb blooms from Apr-Aug; found in vernal pools at elevations of 50-2,165 ft.	**Present.** One CNDDB record within the Planning Area. Survey Area occurs in the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
Petalonyx linearis narrow-leaf sandpaper-plant	–	–	2B.3	Perennial shrub blooms from (Jan-Feb) Mar-May (Jun-Dec); generally found in Mojavean desert scrub and Sonoran desert scrub on rocky or sandy substrates in canyons at elevations of -80-3,660 ft.	**Absent.** Suitable habitat absent from the Planning Area; populations found east of Planning Area in eastern Riverside County.
Pseudognaphalium leucocephalum white rabbit-tobacco	–	–	2B.2	Perennial herb blooms from (Jul) Aug-Nov (Dec); generally found in Chaparral, Cismontane woodland, Coastal scrub, and Riparian woodland on gravelly or sandy substrates at elevations of 0-6,890 ft.	**Present.** Four CNDDB records within the Planning Area.
Romneya coulteri † Coulter's matilija poppy	–	–	4.2	Perennial rhizomatous herb blooms from Mar-Jul (Aug); generally found in Chaparral, Coastal scrub, often in burned areas at elevations of 65-3,935 ft.	**Present.** Multiple Calflora records at mouths of Rice and McVicker Canyons west of Lake Elsinore.
Satureja chandleri † *(Clinopodium chandleri)* San Miguel savory	–	–	1B.2	Perennial shrub blooms from Mar-July; generally found in Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland, often in gabbroic or rocky substrates at elevations of 395-3,525 ft.	**May Occur.** Suitable habitat occurs in Clevland Forest foothills. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
Sibaropsis hammittii † Hammitt's clay-cress	–	–	1B.2	Annual herb blooms from Mar-Apr; generally found in Chaparral (openings), Valley and foothill grassland with clay soils at elevations of 2,360-3,495 ft.	**Present.** Two CNDDB records within the Planning Area. Survey Area occurs in the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

Species	Status[1]			General Ecological Information and Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CRPR		
Sidalcea neomexicana salt spring checkerbloom	–	–	2B.2	Perennial herb blooms from Mar-Jun; generally found in Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, and Playas in alkaline mesic areas at elevations of 50-5,020 ft.	**May Occur.** Suitable present in the Planning Area although microhabitat conditions are limited. Historical records in western Riverside County greater than 50 years old.
Symphyotrichum defoliatum San Bernardino aster	–	–	1B.2	Perennial rhizomatous herb blooms from Jul-Nov; generally found in Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marshes & swamps, Meadows & seeps, and vernally mesic areas of Valley & foothill grassland, near waters sources such as ditches, streams, springs, or streambanks at elevations of 5-6,695 ft.	**May Occur.** Suitable present in the Planning Area along foothills of the Elsinore Mountains.
Tortula californica California screw moss	–	–	1B.2	Moss generally found in Chenopod scrub and Valley & foothill grassland in sandy soils at elevations of 35-4,790 ft.	**May Occur.** Suitable present in the Planning Area along foothills of the Elsinore Mountains. One historical record in Cleveland Forest, outside the Planning Area.
Trichocoronis wrightii var. *wrightii* † Wright's trichocoronis	–	–	2B.1	Annual herb blooms from May-Sep; generally found in Marshes & swamps, Meadows & seeps, Riparian forest, and Vernal pools in alkaline substrates at elevations of 15-1,425 ft.	**Present.** Suitable habitat and Survey Area occurs in the Planning Area. Narrow Endemic Plant Species (MSHCP Section 6.1.3).
PLANT COMMUNITIES					
Canyon Live Oak Ravine Forest					**Present.** One CNND record within the Planning Area.
Southern Coast Live Oak Riparian Forest					**Present.** Six CNND records within the Planning Area.
Southern Cottonwood Willow Riparian Forest					**Present.** Six CNND records within the Planning Area.
Southern Sycamore Alder Riparian Woodland					**Present.** 12 CNND records within the Planning Area.
Southern Willow Scrub					**Present.** One CNND record within the Planning Area.

Appendix B. Special Status Plant Species with Potential to Occur in the Planning Area.

† A dagger indicates that this species is a Covered Species under the Western Riverside County MSHCP

Source: Calflora (2025), CNDDB (2025), CNPS (2025), Dudek and Associates (2003), USFWS (2025)

[1] Status Explanations:

FESA: Federal Endangered Species Act

E = Endangered under the FESA

T = Threatened under the FESA

PT = Proposed threatened under the FESA

CESA: California Endangered Species Act

E = Endangered under the CESA

T = Threatened under the CESA

PT = Proposed threatened under the CESA

CE = Candidate endangered under the CESA

California Rare Plant Rank (CRPR)

1B. = Plants rare, threatened, or endangered in California and elsewhere

2B. = Plants rare, threatened, or endangered in California but more common elsewhere

3. = Review List: Plants about which more information is needed

4. = Watch List: Plants of limited distribution

Threat Rank Modifier:

0.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

0.3-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

[2] Potential Occurrence Explanations:

Absent: There are no CNDDB records the species in the project area and/or no suitable habitat is present

May Occur: There are CNDDB records of the species within 0.5 mile of Planning Area and suitable habitat is present within the Planning Area

Present: There are recent CNDDB records (within ten years) of the species in the Planning Area. Species is known to occur within the project area

APPENDIX C. SPECIAL STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN THE PLANNING AREA

Appendix C. Special Status Wildlife Species with Potential to Occur in the Planning Area.

Species	Status[1]			Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CDFW		
FISH					
arroyo chub † *Gila orcuttii*	–	–	SSC	Slow-moving pools, runs, and intermittent streams, favoring sandy or muddy bottoms in small to medium rivers and creeks.	**Absent.** Suitable habitat absent in Planning Area.
steelhead southern California Pop. 10 *Oncorhynchus mykiss irideus*	E	E	–	Cool, clean freshwater rivers and streams.	**Absent.** Suitable habitat absent in Planning Area.
INVERTEBRATES					
Crotch's bumble bee *Bombus crotchii*	–	CE	–	Various; requires burrows for shelter and food plants to be within one mile of occurrence. Forages on nectar from a variety of native and non-native plants.	**Present.** One CNDDB record in Planning Area.
monarch butterfly *Danaus plexippus*	–	PT	–	Roosts located in wind-protected tree groves (e.g., eucalyptus [*Eucalyptus* sp.], Monterey pine [*Pinus radiata*], Monterey cypress [*Cupressus macrocarpa*]), with nectar and water sources nearby.	**Present.** Multiple Monarch Mapper records in Planning Area.
Quino checkerspot butterfly † *Euphydryas editha quino*	E	CE	–	Patchy scrubland characterized by open areas and host plants like dwarf plantain and purple owl's clover.	**Present.** One CNDDB record in Planning Area.
CRUSTACEANS					
Riverside fairy shrimp † *Streptocephalus woottoni*	E	–	–	Vernal pool; often >12 in. deep and holds water for 2-8 months, soil types (clay-heavy) in Diablo or Huerhuero series, flat or gently sloping land; often in grassland/chaparral.	**Present.** One CNDDB record in Planning Area.
San Diego fairy shrimp *Branchinecta sandiegonensis*	E	–	–	Vernal pool	**Absent.** One Riverside County record from 2017 outside Planning Area at Clayton Ranch pool that was artificially inoculated.
vernal pool fairy shrimp † *Branchinecta lynchi*	T	–	–	Small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**Absent.** Outside species range.
AMPHIBIANS					
arroyo toad † *Anaxyrus californicus*	E	–	SSC	Low-gradient, sandy-bottomed streams with slow water/pools for breeding, plus sandy, sparsely vegetated riparian areas and uplands for foraging/overwintering.	**May Occur.** Suitable habitat present within Planning Area.
California red-legged frog † *Rana draytonii*	T	–	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	**May Occur.** Suitable habitat present within Planning Area.
Coast Range newt † *Taricha torosa*	–	–	SSC	Oak woodlands, chaparral, and grasslands; requires streams, ponds, or pools for its aquatic winter/spring breeding.	**May Occur.** Suitable habitat present within Planning Area.
western spadefoot † *Spea hammondii*	PT	–	SSC	Cismontane woodland, Coastal scrub, Valley & foothill grassland with loose soils for burrowing Vernal pool and Wetlands for breeding.	**Present.** 18 CNDDB records in Planning Area.
REPTILES					
California glossy snake *Arizona elegans occidentalis*	–	–	SSC	Various scrub and grassland habitats, generally sandy soils.	**Present.** Three CNDDB record in Planning Area.

Appendix C. Special Status Wildlife Species with Potential to Occur in the Planning Area.

Species	Status[1]			Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CDFW		
coast horned lizard *Phrynosoma blainvillii*	–	–	SSC	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland.	**Present.** 13 CNDDB records in Planning Area.
coast patch-nosed snake *Salvadora hexalepis virgultea*	–	–	SSC	Coastal scrub	**Present.** One CNDDB record in Planning Area.
coastal whiptail † *Aspidoscelis tigris stejnegeri* (*A. t. multiscutatus*)	–	–	SSC	Relatively large, undeveloped habitat blocks within coastal sage scrub, chaparral, woodlands, and riparian areas.	**Present.** One CNDDB record in Planning Area.
orange-throated whiptail † *Aspidoscelis hyperythra*	–	–	WL	Chaparral, Cismontane woodland, Coastal scrub.	**Present.** 22 CNDDB records in Planning Area.
red-diamond rattlesnake † *Crotalus ruber*	–	–	SSC	Chaparral, Mojavean desert scrub, Sonoran desert scrub.	**Present.** Seven CNDDB records in Planning Area.
south coast gartersnake *Thamnophis sirtalis pop. 1*	–	–	SSC	Coastal areas with ponds, marshes, and creeks for hunting and moisture, plus grassy uplands with cover (rocks, burrows) for basking, hiding, and communal winter hibernation.	**Absent.** Suitable habitat absent in Planning Area.
southern California legless lizard *Anniella stebbinsi*	–	–	SSC	Loose, sandy, or loamy soils with moisture content in vegetated Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub.	**Present.** Two CNDDB record in Planning Area.
southwestern pond turtle *Actinemys pallida*	PT	–	SSC	Ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	**Present.** One CNDDB record in Planning Area.
two-striped gartersnake *Thamnophis hammondii*	–	–	SSC	Riparian vegetation for cover and basking spots near permanent or semi-permanent freshwater sources like streams, ponds, and pools, often in rocky areas within oak woodlands, chaparral, and coastal sage scrub.	**May Occur.** Suitable habitat present within Planning Area.
BIRDS					
bald eagle *Haliaeetus leucocephalus*	–	E	FP	Mountain/foothill lakes, reservoirs, and rivers and all trees for nests and abundant fish.	**Present.** eBird records near Lake Elsinore. Limited nesting substrate but occurs incidentally in Planning Area during migration or in transit.
Bell's sage sparrow *Artemisiospiza belli belli* †	–	–	WL	Chaparral, Coastal scrub; typically intact chamise chaparral or Riversidean sage scrub.	**Present.** Five CNDDB records in Planning Area.
burrowing owl *Athene cunicularia* †	–	CE	SSC	Open grasslands, scrublands, and agricultural areas with high densities of small mammal burrows.	**Present.** One CNDDB record in Planning Area. eBird records near Lake Elsinore. Planning Area found within the MSHCP small mammal survey area.

Appendix C. Special Status Wildlife Species with Potential to Occur in the Planning Area.

Species	Status[1]			Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CDFW		
California horned lark *Eremophila alpestris actia* †	–	–	WL	Marine intertidal & splash zone communities, Meadow & seep, Coastal plains, short grass prairie, fallow grain fields.	**Present.** Four CNDDB records in Planning Area.
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis* †	–	–	SSC	Coastal sage scrub and desert scrub habitats	**May Occur.** Suitable habitat present in Planning Area, particularly in outer boundary of Planning Area with less fragmented habitat.
coastal California gnatcatcher *Polioptila californica californica* †	T	–	SSC	Chaparral, Coastal scrub.	**Present.** 26 CNDDB records and multiple eBird records in Planning Area.
Cooper's hawk *Accipiter cooperii* †	–	–	WL	Adaptable in Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest, and urban developed and fragmented habitats.	**Present.** One CNDDB record and multiple eBird records in Planning Area.
ferruginous hawk *Buteo regalis* †	–	–	WL	Great Basin grassland, Great Basin scrub, Pinon & juniper woodlands, Valley & foothill grassland.	**Present.** eBird records near Lake Elsinore. Limited nesting substrate but occurs incidentally in Planning Area during migration or in transit.
golden eagle *Aquila chrysaetos* †	–	–	FP	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland.	**Present.** eBird records near Lake Elsinore. Limited nesting substrate but occurs incidentally in Planning Area during migration or in transit.
least Bell's vireo *Vireo bellii pusillus* †	E	E	–	Riparian forest, Riparian scrub, Riparian woodland.	**Present.** 19 CNDDB records and multiple eBird records in Planning Area.
loggerhead shrike *Lanius ludovicianus* †	–	–	SSC	Broadleaved upland forest, Desert wash, Joshua tree woodland, Mojavean desert scrub, Pinon & juniper woodlands, Riparian woodland, Sonoran desert scrub.	**Present.** One CNDDB record and multiple eBird records in Planning Area.
long-eared owl *Asio otus*	–	–	SSC	Dense cover like coniferous forests, thickets, shelterbelts, or riparian areas for roosting and nesting, with adjacent open habitat for foraging.	**May Occur.** Limited nesting substrate but may occur incidentally in Planning Area during migration or in transit.
northern harrier *Circus hudsonius* †	–	–	SSC	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland.	**Present.** eBird records near Lake Elsinore. Suitable habitat in Planning Area.
osprey *Pandion haliaetus*	–	–	WL	Large, fish-filled waters like reservoirs, rivers, and lakes, with nearby plus tall structures for nesting.	**Present.** One CNDDB record in Planning Area and multiple eBird records near Lake Elsinore.

Appendix C. Special Status Wildlife Species with Potential to Occur in the Planning Area.

Species	Status[1]			Habitat Requirements	Potential Occurrence in the Project Area[2]
	FESA	CESA	CDFW		
purple martin *Progne subis* †	–	–	SSC	Broadleaved upland forest, Lower montane coniferous forest.	**Present.** eBird records near Lake Elsinore. May occur during nesting and incidentally in Planning Area during migration or in transit.
southern California rufous-crowned sparrow *Aimophila ruficeps canescens* †	–	–	WL	Chaparral, Coastal scrub; semi-arid habitats with mixed, open grassy shrublands and rocky hillsides, particularly south-facing slopes with sparse low shrubs and patches of grass or forbs.	**Present.** 11 CNDDB records in Planning Area.
southwestern willow flycatcher *Empidonax traillii extimus* †	E	E	–	Riparian woodland	**May Occur.** *E. traillii* documented during surveys. Subspecies may occur in dense riparian areas and willow thicket at the outskirts of the Planning Area.
Swainson's hawk *Buteo swainsoni*	–	T	–	Forages in open grasslands, shrub-steppe, and agricultural areas (alfalfa, fallow fields) for foraging; nesting in riparian trees (cottonwoods, willows), scattered large trees, or even Joshua Trees.	**Present.** Limited nesting substrate but may occur incidentally in Planning Area during migration or in transit.
tricolored blackbird *Agelaius tricolor* †	–	–	SSC	Breeds in wetlands cattails, bulrushes, marshes and nearby agricultural fields with thickets such as Himalayan blackberry.	**Present.** One CNDDB record in Planning Area.
western snowy plover *Anarhynchus nivosus nivosus*	T	–	SSC	Sandy, barren, or sparse areas near water, including coastal beaches, salt flats, and the shores of inland saline lakes, reservoirs, or rivers.	**Present.** One CNDDB record in Planning Area. Shores of Lake Elsinore not typical nesting habitat. May occur incidentally.
western yellow-billed cuckoo *Coccyzus americanus occidentalis* †	T	E	–	Large, dense cottonwood/willow riparian forests with thick understory for breeding, often along rivers.	**May Occur.** Suitable nesting habitat limited to dense, unfragmented riparian habitat on outskirts of Planning Area.
white-faced ibis *Plegadis chihi* †	–	–	WL	Freshwater marshes, irrigated fields, and mudflats.	**Present.** One CNDDB record in Planning Area.
white-tailed kite *Elanus leucurus* †	–	–	FP	Open, grassy areas like meadows, grasslands, and farmlands; trees for nesting, especially dense oaks, willows, or riparian edges.	**Present.** One CNDDB record in Planning Area.
yellow rail *Coturnicops noveboracensis*	–	–	SSC	Dense sedge/grass marshes with shallow water for breeding. Dense deep grass, rice fields.	**Absent.** Unique suitable habitat niche generally absent from Planning Area.
yellow warbler *Setophaga petechia* †	–	–	SSC	Riparian woodlands with willow, cottonwood, and dense brush.	**Present.** eBird records near Lake Elsinore
yellow-breasted chat *Icteria virens* †	–	–	SSC	riparian woodlands with willow, cottonwood, and dense brush.	**Present.** Two CNDDB records in Planning Area. eBird records near Lake Elsinore.

Appendix C. Special Status Wildlife Species with Potential to Occur in the Planning Area.

MAMMALS					
American badger *Taxidea taxus*	–	–	SSC	Open, treeless areas with friable (easily diggable) soil and a robust supply of rodent prey.	**May Occur.** Suitable habitat present in Planning Area but no historical records found.
Dulzura pocket mouse *Chaetodipus californicus femoralis*	–	–	–	Chaparral, sage scrub, oak woodlands (montane/ hardwood), and annual grasslands, especially at moderate elevations.	**May Occur.** Suitable habitat present in Planning Area but no historical records found.
Los Angeles pocket mouse *Perognathus longimembris brevinasus* †	–	–	SSC	Sandy soils within coastal sage scrub, alluvial fan sage scrub, grasslands, and river washes.	**May Occur.** Suitable habitat present in Planning Area but no historical records found. Project not within small mammal survey area.
northwestern San Diego pocket mouse *Chaetodipus fallax fallax* †	–	–	SSC	Chaparral, coastal scrub with sandy soil, rocks, or coarse gravel.	**Present.** One CNDDB record in Planning Area.
pallid bat *Antrozous pallidus*	–	–	SSC	Open, arid landscapes like deserts, grasslands, and oak woodlands, needing rocky areas or structures for roosting and foraging over open ground.	**May Occur.** Suitable habitat present in Planning Area particularly at outskirts of Planning Area but no historical records found.
pocketed free-tailed bat *Nyctinomops femorosaccus*	–	–	SSC	Desert habitats, particularly those associated with rugged canyons, high cliffs, and rock outcroppings.	**May Occur.** Suitable habitat present in Planning Area but no historical records found.
San Bernardino kangaroo rat *Dipodomys merriami parvus* †	E	E	SSC	Coastal scrub	**Present.** One CNDDB record in Planning Area.
San Diego black-tailed jackrabbit *Lepus californicus bennettii* †	–	–	SSC	Coastal scrub	**Present.** Five CNDDB record in Planning Area.
San Diego desert woodrat *Neotoma lepida intermedia* †	–	–	SSC	Desert and chaparral environments, particularly favoring rocky slopes, outcroppings, cactus patches (like prickly pear and cholla), creosote bush, and yucca.	**May Occur.** Suitable habitat present in Planning Area but no historical records found.
Southern grasshopper mouse *Onychomys torridus ramona*	–	–	SSC	Chenopod scrub in arid, low-elevation desert scrub and xeric (dry) habitats.	**May Occur.** Suitable habitat present in Planning Area but no historical records found.
Stephens' kangaroo rat *Dipodomys stephensi* †	T	T	–	Coastal scrub, Valley & foothill grassland.	**Present.** 18 CNDDB records in Planning Area and found within the MSHCP small mammal survey area.
Townsend's big-eared bat *Corynorhinus townsendii*	–	–	SSC	Desert wash, Pinon & juniper woodlands, Sonoran desert scrub.	**May Occur.** Suitable habitat present in Planning Area but no historical records found.
western mastiff bat *Eumops perotis californicus*	–	–	SSC	Cliffs, and tall buildings.	**Present.** One CNDDB record in Planning Area.
western yellow bat *Lasiurus xanthinus*	–	–	SSC	Desert wash	**May Occur.** Suitable habitat present in Planning Area but no historical records found.

Appendix C. Special Status Wildlife Species with Potential to Occur in the Planning Area.

† A dagger indicates that this species is a Covered Species under the Western Riverside MSHCP.
Source: CNDDB (2025), Dudek and Associates (2003), USFWS (2025)

[1] Status Explanations:

FESA: Federal Endangered Species Act

E = Listed as endangered under the FESA

T = Listed as threatened under the FESA

PT = Listed as proposed threatened under the FESA

CESA: California Endangered Species Act

E = Listed as endangered under the CESA

T = Listed as threatened under the CESA

PT = Listed as proposed threatened under the CESA

CE = Listed as candidate endangered under the CESA

CDFW: Regulated by CDFW

FP = Fully Protected Species under California Fish and Game Code

SSC = Species of Special Concern designated by California Department of Fish and Game

WL = Monitoring on a Watch list by California Department of Fish and Game

[2] Potential Occurrence Explanations:

Absent: There are no CNDDB records the species in the project area and/or no suitable habitat is present.

May Occur: There are CNDDB records of the species within 0.5 mile of Planning Area and suitable habitat is present within the Planning Area.

Present: There are recent CNDDB records (within ten years) of the species in the Planning Area. Species is known to occur within the project area.

APPENDIX D. TABLE ADDENDUM

Appendix D. Changes in Land Use Designations Proposed by the General Plan Update.

Group	Existing Land Use	Proposed Future Land Use	Acres
Residential	low density residential	Open Space	242
	low density residential	Public/Institutional	2
	low-medium density residential	Hillside Residential	74
	low-medium density residential	General Commercial	10
	low-medium density residential	Limited Industrial	14
	low-medium density residential	Medium Density Residential	41
	low-medium density residential	Open Space	70
	low-medium density residential	Residential Mixed Use	19
	low-medium density residential	Public/Institutional	27
	medium density residential	General Commercial	20
	medium density residential	Open Space	81
	medium density residential	Residential Mixed Use	27
	High Density Residential and General Commercial	Limited Industrial	7
	Hillside Residential	Floodway	44
	Hillside Residential	Hillside Residential	7
	Hillside Residential	Limited Industrial	83
	Hillside Residential	Medium Density Residential	1
	Hillside Residential	Open Space	4,490
Commercial	Neighborhood Commercial	High Density Residential	1
	Neighborhood Commercial	Medium Density Residential	1
	Neighborhood Commercial	Open Space	14
	Commercial Mixed Use	General Commercial	64
	Commercial Mixed Use	General Commercial - Auto Mall Overlay	103
	Commercial Mixed Use	High Density Residential	8
	General Commercial	Business Professional	2
	General Commercial	Limited Industrial	3
	Tourist Commercial	General Commercial	8
	Tourist Commercial	Limited Industrial	59
Other	Mix of Low Density Residential, High Density Residential, Public/Institutional and Open Space	Open Space	300
	Recreational	General Commercial	2
	Open Space	Low-Medium Residential	1
	Specific Plan	Business Professional	2
	Specific Plan	General Commercial	17
	Specific Plan	Limited Industrial	0
	Specific Plan	Specific Plan	0
	Undefined	Business Professional	99
	Undefined	Commercial Mixed Use	9
	Undefined	Floodway	2
	Undefined	General Commercial	85
	Undefined	General Commercial - Auto Mall Overlay	46
	Undefined	High Density Residential	110
	Undefined	Hillside Residential	75
	Undefined	Limited Industrial	24
	Undefined	Low-Medium Residential	3
	Undefined	Medium Density Residential	66
	Undefined	Mixed Use	117
	Undefined	Open Space	1
	Undefined	Public/Institutional	8
	Undefined	Specific Plan	7
	Undefined	Very High Density Residential	31
		Total	**6,527**

3.5.4 ***Known Movement Barriers***

CDFW identified the Ortega Highway (State Route 74) as a significant wildlife movement barrier (Barrier ID W137) spanning approximately 25 miles) from the south shore of Lake Elsinore to San Juan Capistrano. This highway segment bisects an important regional wildlife linkage within the Santa Ana Mountains, including lands managed as part of the Cleveland National Forest, and has been documented as a roadkill hotspot, particularly for mountain lion, with movement data indicating frequent crossing attempts by wide-ranging mammals (CDFW 2024b). Target species affected include mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), bobcat (*Lynx rufus*), kit fox (*Vulpes macrotis*), and several mesocarnivores such as skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and gray fox (*Urocyon cinereoargenteus*). Identified remediation goals focus on improving landscape permeability by expanding and enhancing existing culverts and creek bridges, constructing new wildlife undercrossings, and installing wildlife exclusion fencing at high-risk locations to reduce mortality and improve functional connectivity.

3.6 Jurisdictional Waters/Wetlands

The Planning Area is located within the San Jacinto and Santa Ana Watersheds (Hydrologic Unit Code 8). Aquatic habitats within the Planning Area total approximately 4,360 acres, with the majority occurring within the City Boundary (3,568 acres) and a smaller but ecologically important portion within the SOI (792 acres; **Table 8**). Within the City Boundary, lake habitat dominates (2,624 acres; 74%), reflecting the extent of Lake Elsinore, followed by riverine features (380 acres; 11%). Freshwater forested/shrub wetlands (292 acres; 8%), freshwater emergent wetlands (205 acres; 6%), and freshwater ponds (67 acres; 2%) occur in smaller, localized areas along drainages and low-lying topographic features (**Figure 5**).

In contrast, wetlands within the SOI are predominantly riverine (467 acres; 59%), associated with the San Jacinto River, Temescal Wash, and incised drainages along the foothills of the Santa Ana and Elsinore Mountains. Freshwater forested/shrub wetlands (225 acres; 28%) also comprise a substantial component of the SOI, reflecting linear riparian corridors outside the urban core. Lake habitat is limited (59 acres; 7%), while freshwater emergent wetlands (32 acres; 4%) and ponds (9 acres; 1%) occur only as minor, scattered features.

Table 8. Wetland Habitats within the Planning Area.

	City Boundary		SOI		
Wetland Type	**Acres**	**% Comp.**	**Acres**	**% Comp.**	**Total**
Freshwater Emergent Wetland	205	6%	32	4%	237
Freshwater Forested/Shrub Wetland	292	8%	225	28%	517
Freshwater Pond	67	2%	9	1%	76
Lake	2,624	74%	59	7%	2,683
Riverine	380	11%	467	59%	847
Total	3,568		792		4,360

Source: USFWS NWI

Vernal pools are an underrepresented aquatic feature in publicly available wetland and aquatic habitat datasets, as these small, seasonally inundated depressional wetlands are frequently below the minimum mapping thresholds of regional inventories. Vernal pools provide disproportionately high ecological value by supporting specialized and often endemic plant and wildlife species adapted to seasonal hydrology, and approximately six to eight MSHCP Covered Species, including federally listed fairy shrimp and rare plants, are exclusively associated with this habitat type. The Planning Area is located within a USFWS-designated Western Riverside County Recovery Unit, underscoring the regional conservation significance of these habitats. Vernal pools may qualify as Waters of the United States and waters of the State of California, and where jurisdictional, may be subject to authorization under Clean Water Act Section 404, Section 401 Water Quality Certification, and California Department of Fish and Wildlife Fish and Game Code Section 1602. Within Western Riverside County, the presence of vernal pools also intersects with the MSHCP, which requires that special-status species and habitats not fully addressed through plan-level modeling or Criteria Cell mapping be evaluated through project-specific surveys (MSHCP §6.1 and 6.3). Survey requirements for covered species potentially associated with vernal pool habitats are outlined in MSHCP Table 6-1 (Species-Specific Survey Requirements), which establishes protocols for determining presence or absence prior to project implementation. Accordingly, the presence, extent, and functional characteristics of vernal pools should be assessed through focused field surveys conducted during appropriate hydrologic conditions to ensure compliance with federal and state permitting requirements and consistency with MSHCP conservation objectives and avoidance and minimization policies.

Based on publicly available data, several compensatory mitigation projects have restored wetland habitats within the Planning Area, primarily along the Interstate 15 corridor in association with residential development and transportation improvements. Documented examples of completed restoration efforts include projects associated with the North Ramsgate Development, Sycamore Creek Development, Rancho La Laguna Tract Map No. 28748, and the Collier Avenue Widening Project (EcoAtlas 2025).

Potential impacts to aquatic habitats within the Planning Area may affect Waters of the United States and waters of the State of California, thereby triggering federal and state regulatory oversight. Discharges of dredged or fill material into jurisdictional waters would require authorization under Clean Water Act (CWA) Section 404 from the U.S. Army Corps of Engineers and Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), while activities that substantially alter the bed, bank, or channel of rivers, streams, or associated riparian corridors may require notification to the California Department of Fish and Wildlife (CDFW) pursuant to Fish and Game Code Section 1602. In Western Riverside County, these permitting requirements intersect with the MSHCP, which is implemented through a Cooperative Organizational Structure involving the RCA, Participating Special Entities, CDFW, and the U.S. Fish and Wildlife Service, as described in MSHCP §1.6 and 6. The MSHCP establishes Conservation Objectives and Criteria Cells for riparian, riverine, and lacustrine habitats (MSHCP §2.3, 3.1, and 3.2), which guide the conservation, management, and mitigation of aquatic resources supporting covered species. While projects that are consistent with the MSHCP may fulfill certain biological mitigation obligations through compliance with plan policies and payment of development fees, project-level approvals under the

CWA, RWQCB, and CDFW remain independently applicable, and coordination among agencies is required to ensure consistency with both regulatory mandates and the regional conservation framework.

4.0 FUTURE LAND USE AND MSHCP ELEMENTS

This section is organized in a format similar to an MSHCP Consistency Analysis but incorporates the anticipated future land use designations proposed by the Lake Elsinore GPU. The purpose of this assessment is to summarize applicable MSHCP elements within the Planning Area and evaluate the extent to which those elements intersect with and may influence the proposed future land use designations. Given the size and unique biological characteristics of Lake Elsinore and the surrounding intermountain region, numerous MSHCP elements are present within the Planning Area (**Table 9**). Management and conservation of these resources would be implemented in accordance with the MSHCP conservation framework

Table 9. Applicability of MSHCP Elements in the Planning Area.

Factor	Not Applicable	Applicable	Justification of Applicability/Inapplicability
Covered Roads		X	Located throughout the Planning Area.
Covered Public Access Activities		X	Multiple public access opportunities (e.g., trails, aquatic access) in Planning Area
Reserve Assembly Analysis		X	Planning Area overlaps multiple reserve elements
Constrained Linkages		X	Mapped in Planning Area
Core Areas		X	Mapped in Planning Area
Linkages		X	Mapped in Planning Area
Habitat Block		X	Mapped in Planning Area
Criteria Cell		X	Mapped in Planning Area
Other Conservation Area		X	Additional reserve lands (ARL) acquired post MSHCP certification within Planning Area
PQP Lands		X	Mapped in Planning Area
Vegetation Mapping		X	Project-specific mapping required in Planning Area
Riparian/Riverine Resources		X	Present and mapped in the Planning Area
Vernal Pools		X	Not mapped but assumed present in the Planning Area
Fairy Shrimp		X	Historical records of Riverside fairy shrimp in Planning Area
Riparian Birds		X	Documented occurrence in Planning Area
Other Section 6.1.2 Species		X	Documented occurrence in Planning Area
Narrow Endemic Plant Species		X	Documented occurrence and multiple survey areas overlap Planning Area
Stephens' Kangaroo Rat HCP		X	Modeled suitable habitat, core serve areas and fee areas mapped in Planning Area
Criteria Area Plant Species		X	Documented occurrence and multiple survey areas overlap Planning Area
Amphibians	X		Adjacent to the southern boundary of Planning Area
Burrowing Owl		X	Documented occurrence and survey area overlaps the majority of Planning Area
Mammals	X		Not mapped or described in Planning Area
Delhi Sands Flower Loving Fly	X		Not mapped or described in project area.
Species Not Adequately Conserved		X	Documented occurrence mapped in Planning Area
Guidelines Pertaining to the Urban /Wildlife Interface		X	Documented occurrence described in Planning Area

Table 9. Applicability of MSHCP Elements in the Planning Area.

Factor	Not Applicable	Applicable	Justification of Applicability/Inapplicability
Construction Guidelines		X	Applicable to projects within the Planning Area
Best Management Practices		X	Applicable to projects within the Planning Area (MSHCP Vol I App. C)

4.1 Future Land Use in the Planning Area

For mapping and analytical clarity, the Planning Area was divided into northern and southern portions to improve visualization of Future Land Use designations and MSHCP Criteria Cells, which represent the finest standardized spatial planning unit used in the MSHCP reserve assembly hierarchy (**Figure 6 and Figure 7**).

In the northern portion of the Planning Area, Future Land Use designations are characterized by a transition from established and planned urban land uses in the south to predominantly open space and recreational designations toward the northern and northwestern extents (**Figure 6 and 7**). Residential land uses dominate much of the central and southern part of the northern planning area, with pockets of Mixed-Use, Commercial, Industrial, and Specific Plan designations associated with existing or planned urbanized areas and transportation corridors. In contrast, the northernmost areas, including foothill and canyon landscapes, are largely designated Open Space or Recreational, reflecting topographic constraints and regional conservation priorities

MSHCP Criteria Cells in the northern portion are widespread and frequently overlap areas designated as Open Space and Recreational, where long-term habitat conservation and connectivity objectives are most readily achieved (**Figure 6**). These criteria cells also extend into areas designated for Residential and Specific Plan land uses, particularly along the urban–wildland interface. In these locations, the overlap indicates that future development would be subject to MSHCP consistency requirements, including focused siting, habitat avoidance, and potential mitigation, rather than precluding development outright. The spatial pattern reflects the MSHCP's intent to maintain regional habitat values while accommodating planned urban growth within the City and SOI.

The southern portion of the Planning Area exhibits a more complex mosaic of Residential, Mixed-Use, Commercial, Industrial, and Specific Plan designations concentrated around Lake Elsinore, major roadways, and existing developed areas (**Figure 7**). Extensive Residential land uses surround the lake and extend east and southeast, while Commercial and Industrial designations are clustered near major transportation corridors. Open Space and Recreational designations are more limited in extent but remain prominent along the southwestern foothills and peripheral areas outside the primary urban core

MSHCP Criteria Cells in the southern portion overlap extensively with Specific Plan and Residential designations, particularly east and southeast of Lake Elsinore, reflecting areas where planned growth intersects with regional conservation priorities. Criteria cell coverage is comparatively denser in this portion of the Planning Area, underscoring the need for careful project-level planning and MSHCP compliance during future development. Overlaps with Floodway and Open Space designations occur along lake margins and drainage corridors, reinforcing the role of these areas in supporting habitat connectivity, hydrologic function,

and species movement. Overall, the southern Planning Area illustrates the MSHCP's integration into an actively urbanizing landscape, where conservation objectives are implemented through project design, mitigation, and long-term reserve assembly rather than large contiguous preserved blocks.

4.2 Proposed Changes in Land Use Designations

The GPU proposes a substantial reorientation of land use patterns that collectively advance long-term conservation and open space objectives while accommodating focused urban growth. The most consequential land use changes occur at a landscape scale, with the largest acreage conversions resulting in a significant net increase in designated Open Space (**Figure 8, Appendix D**). The dominant change is the re-designation of approximately 4,490 acres of Hillside Residential to Open Space, supplemented by additional conversions from low-, low-medium-, and medium-density residential categories, as well as mixed residential and institutional lands. These changes are concentrated along the basin margins and surrounding foothills, forming large, contiguous open space areas that frame the urban core and function as a permanent conservation backdrop.

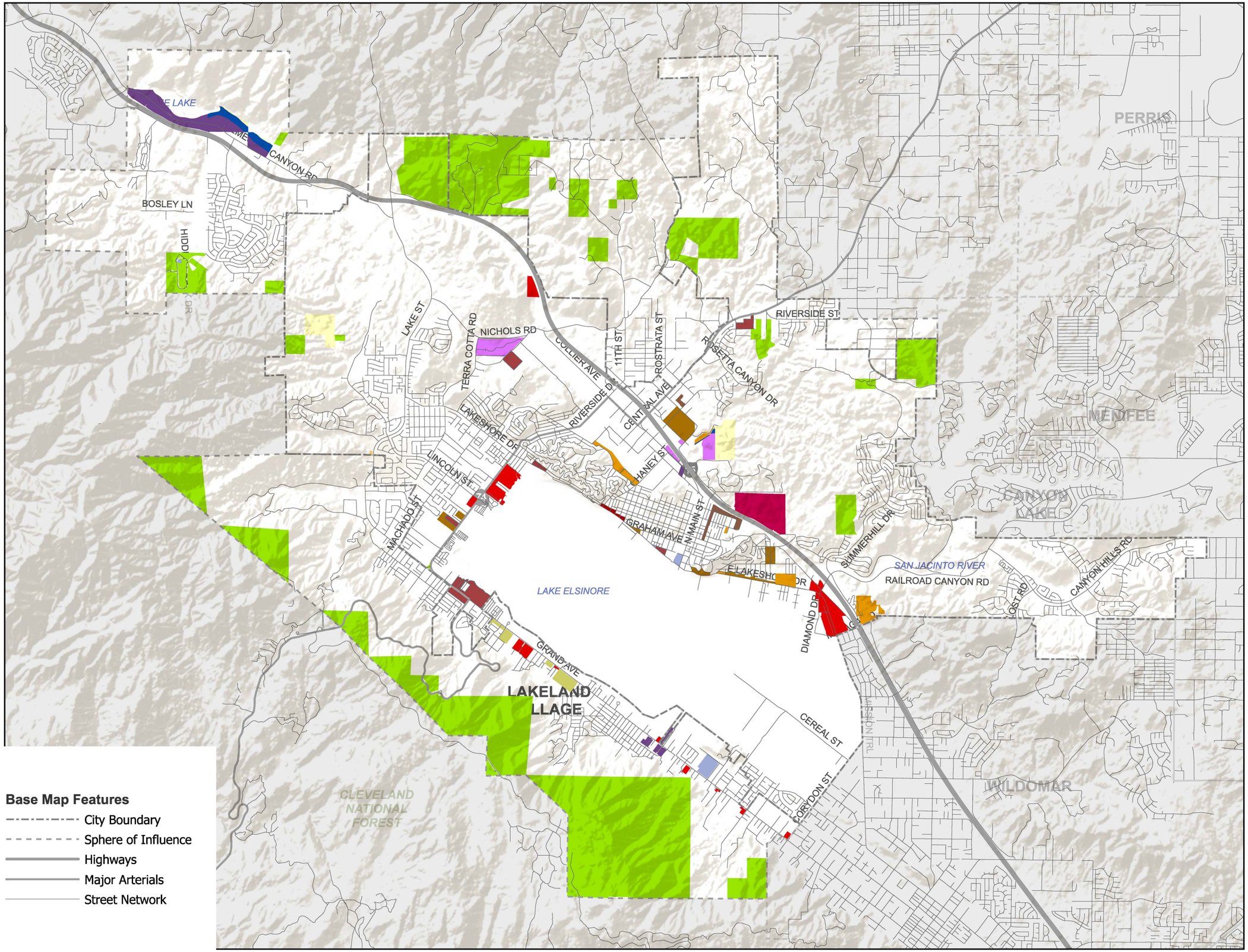
The proposed Open Space designations in the Planning Area are not isolated or fragmented but instead establish a coherent system of conserved lands across the southern, western, and northern hillsides (**Figure 8**). This approach reflects a deliberate policy choice to remove development potential from environmentally constrained and visually prominent hillside areas, thereby supporting conservation goals related to resource protection, slope stability, hazard avoidance, and the preservation of open space connectivity. From a Conservation and Open Space Element perspective, the scale and continuity of these changes reinforce the City's commitment to protecting natural landscapes that define the Lake Elsinore basin and contribute to regional ecological and visual integrity.

In contrast, land use changes involving commercial, mixed-use, industrial, and higher-density residential designations occur in comparatively smaller acreages and are spatially focused within the existing urban fabric, particularly along major transportation corridors and around the lake shoreline. These localized adjustments facilitate infill, redevelopment, and land use refinement in areas already served by infrastructure, while avoiding expansion into newly conserved hillside areas. Small, linear, and nodal changes within the city core directly are reflected in Appendix D which reflect the proposed growth is being directed inward rather than outward.

Collectively, the GPU implements a net conservation strategy, balancing targeted urban intensification with large-scale open space preservation. By converting extensive hillside and peripheral lands to Open Space while concentrating future development in appropriate locations, the plan advances the Conservation and Open Space Element's objectives of long-term land stewardship, protection of environmental constraints, and maintenance of the natural setting that surrounds and defines the community.

Figure 8

LAND USE PLAN



General Plan Designations Changes Only

Residential
- LOW DENSITY RESIDENTIAL
- LOW-MEDIUM RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL

Mixed Use
- MIXED USE
- RESIDENTIAL MIXED USE
- COMMERCIAL MIXED USE

Commercial
- GENERAL COMMERCIAL
- GENERAL COMMERCIAL - AUTO MALL OVERLAY

Industrial
- BUSINESS PROFESSIONAL
- LIMITED INDUSTRIAL

Other
- SPECIFIC PLAN
- FLOODWAY
- OPEN SPACE
- PUBLIC/INSTITUTIONAL

Base Map Features
- City Boundary
- Sphere of Influence
- Highways
- Major Arterials
- Street Network

Prepared by MIG, September 2025

0 ¼ ½ 1 1½ 2 Miles

4.3 MSHCP Covered Roads Rights-of Way

Under the MSHCP, Covered Roads are identified transportation corridors whose construction, improvement, operation, and maintenance are anticipated and programmatically covered, allowing roadway infrastructure to proceed while avoiding, minimizing, and mitigating impacts to biological resources through defined right-of-way (ROW) limits, conservation objectives, and consistency requirements (MSHCP §3.2.1, 6.1.3, and 6.6). Covered road are spatially concentrated within the existing urbanized basin surrounding Lake Elsinore, where arterial, collector, and expressway corridors form a dense grid supporting established development and planned growth (**Figure 9**).

These covered facilities generally follow valley bottoms and gentle terrain adjacent to Lake Elsinore and established neighborhoods, reflecting historic and planned circulation patterns. In contrast, covered road ROW become more linear, sparse, and topographically constrained toward the SOI margins, particularly along the foothills and mountainous areas to the west and south, where major and mountain arterials extend into less developed landscapes that also contain higher-value natural habitats and linkage functions.

These spatial patterns are consistent with the MSHCP's framework of directing infrastructure into already disturbed or urban contexts while managing unavoidable overlap with sensitive resources through programmatic coverage and mitigation. In the Lake Elsinore GPU area, covered roads frequently intersect or run adjacent to riparian corridors, coastal scrub and chaparral habitats identified as important for covered species movement, especially where arterials transition from the urban core into surrounding open space. The MSHCP anticipates these interactions and addresses them through fixed covered road footprints, species-specific avoidance and minimization measures, and mitigation obligations that contribute to reserve assembly and habitat function at a regional scale (MSHCP §3.2.1, 6.6, and 7.4). As a result, while covered road ROW represent a persistent interface between transportation infrastructure and biological resources in the Planning Area, their location, design, and regulatory treatment are structured to maintain overall conservation objectives and habitat connectivity under the MSHCP.

Several roads boarding the project (N. Warren Road, S. Warren Road and Cottonwood Road) to the west and north are considered Covered Roads Right-of Way (ROW). These arterial roads were explicitly included as "covered activities" when the MSHCP was adopted. If a project affects areas inside a covered ROW, it typically does not trigger new MSHCP mitigation, because those impacts were already covered. If impacts extend outside the ROW, further assessment under §1.2 (Riparian/Riverine), §6.1.3 (Narrow Endemic), or other parts of the MSHCP may apply; however, no MSHCP Covered Roads (existing or proposed) are planned to be improved via widening, staging or newly constructed at this time.

4.4 MSHCP Covered Public Access Activities

Within the Lake Elsinore Planning Area, the Western Riverside County MSHCP allows for a range of Covered Public Access Activities that may occur in areas designated for Open Space, Recreation, Floodway, and conserved lands, particularly where these uses are integrated into the City's lake-oriented and foothill open space network. Public access in this area is shaped by Lake Elsinore's role as a regional recreation destination, with activities occurring both on the water and on surrounding uplands, subject to management requirements intended to ensure consistency with MSHCP conservation objectives (MSHCP §3 and – Covered Activities; §7 – Public Access and Recreation).

On Lake Elsinore, public access activities include a variety of water-based recreational uses, such as motorboating, personal watercraft (jet skis), water skiing, wakeboarding, tubing, kayaking, and stand-up paddleboarding (SUP). These activities are generally concentrated within designated lake use areas and established access points and may be considered Covered Public Access Activities where they occur in accordance with MSHCP policies and do not adversely affect adjacent shoreline habitats or species movement areas (MSHCP §7.3 – Public Access Policies). Recreational fishing, which requires a valid California freshwater fishing license, is also a common lake use and is typically managed to avoid shoreline degradation and disturbance to sensitive biological resources. Swimming and shoreline use, including seasonal or program-based access in designated areas, may also occur where such uses are consistent with conservation objectives for shoreline and nearshore habitats.

Shoreline access and supporting facilities, including those at Launch Pointe and Elm Grove Beach, function as controlled public access points that help concentrate recreational use in established areas. Facilities such as boat launches, parking areas, shelters, signage, and managed shoreline access are consistent with the MSHCP's allowance for ancillary facilities associated with public access, provided they are sited and designed to minimize impacts on covered species and habitats (MSHCP §7.4 – Design and Management of Public Access).

Beyond the lake itself, upland and foothill areas surrounding Lake Elsinore, particularly south and southwest of the lake, support land-based Covered Public Access Activities such as hiking, walking, equestrian use, and non-motorized bicycling on designated trails. Trail systems connecting to the Ortega Mountains and nearby portions of the Cleveland National Forest provide regional recreational opportunities while also serving potential habitat movement and linkage functions when properly aligned and managed. These trails may traverse or adjoin MSHCP Criteria Cells, and their implementation is subject to avoidance, siting, and management standards intended to protect biological core areas and maintain connectivity (MSHCP §7.2 – Trails and Access; §6 – Reserve Design and Assembly).

Additional recreational and visitor activity occurs in downtown Lake Elsinore, including historic and cultural attractions, museums, restaurants, venues such as Lake Elsinore Storm baseball, and commercial destinations like the Lake Elsinore Outlets. While these uses are generally outside conserved lands, they influence recreational demand and access patterns to nearby open space areas. Extreme sports activities, such as skydiving and hang gliding in the broader region, may contribute to regional recreation but are

typically spatially separated from core MSHCP conservation areas and would not occur within conserved lands unless explicitly authorized and consistent with the MSHCP.

Overall, Covered Public Access Activities in the Lake Elsinore Planning Area are expected to be carefully sited, regulated, and managed to balance intensive lake-based recreation and regional visitor use with the MSHCP's conservation objectives, including protection of shoreline habitats, maintenance of habitat connectivity through Criteria Cells (the finest standardized planning unit of the MSHCP), and long-term reserve system integrity (MSHCP §6 and 7).

4.5 MSHCP Reserve Assembly Analysis

The MSHCP establishes a comprehensive, regional conservation strategy intended to conserve biological diversity, protect covered species and their habitats, and maintain ecological processes while accommodating long-term growth and development within western Riverside County. Central to the MSHCP is the concept of reserve assembly, which is the phased, criteria-based hierarchical process by which conservation lands are identified, acquired, dedicated, and managed over time to meet the Plan's biological conservation objectives (MSHCP §1.2, 3.1, and 6.1).

The Planning Area is located entirely within the MSHCP Elsinore Area Plan. Unlike a fixed preserve boundary, the MSHCP relies on a multi-layered spatial framework composed of Area Plan Subunits, Rough Step Units, Habitat Management Units, Cell Groups, and Criteria Cells. As a supplemental anchor to the Conservation Reserve Assembly design, Public Quasi-Public Lands were also evaluated for their potential to support reserve configuration, buffering, and connectivity (**Appendix A**). Together, these elements guide where conservation is required, how much habitat must be conserved, which species and habitat types are targeted, and how ecological connectivity and landscape functionality are maintained across the Plan Area (MSHCP §3.2, 3.3, and 6.2).

The Planning Area is characterized by multiple overlapping MSHCP reserve assembly elements that collectively shape the region's open space and conservation framework. Rough Step Units and Habitat Management Units extend across the entirety of the City Boundary and SOI, while Area Plan Subunits, Criteria Cells, Cell Groups, and Public Quasi-Public Lands occur in varying proportions throughout the landscape (**Table 10**). Together, these elements provide the broader conservation context that informs long-term open space planning and resource stewardship within the Planning Area.

Table 10. Summary of MSHCP Reserve Assembly Elements overlapping the Planning Area.

	City Boundary		SOI	
MSHCP Element	**Acres**	**% Comp**	**Acres**	**% Comp**
Area Plan Subunit	14,579	52%	7,501	41%
Rough Step Unit	27,876	100%	18,178	100%
Habitat Management Unit	27,876	100%	18,178	100%
Cell Group	7,655	27%	5,334	29%
Criteria Cell	14,546	52%	7,459	41%
Public Quasi-Public Lands	3,798	14%	4,663	26%

% Composition based on total area of City Boundary = 27,876 acres and SOI = 18,178 acres.

Reserve assembly under the MSHCP functions as an integrated, hierarchical, and cumulative process. Conservation actions implemented at the criteria cell level contribute to the protection of cell groups, which in turn support HMU-level ecological objectives. These actions collectively satisfy rough step acreage requirements and advance conservation goals within the applicable Area Plan Subunit (MSHCP §6.1 and 6.2). Through this multi-tiered structure, the MSHCP ensures that reserve assembly is biologically driven, spatially distributed, and adaptable over time, while providing regulatory certainty and predictability for project-level compliance. Under the MSHCP, conservation objectives and reserve assembly targets are established at the time of Plan adoption and do not change over time; however, the location, configuration, and extent of conserved lands evolve incrementally as projects are implemented and conservation actions accumulate across the landscape. The most recent publicly available MSHCP implementation data were reviewed to summarize the status of reserve assembly elements within Area Plan Subunits and Rough Step Units that intersect the Planning Area, providing the current accounting of conservation status for the area (RCA 2023b). Below is an analysis of the elements associated with the reserve assembly framework found in the Planning Area.

4.5.1 MSHCP Area Plan Subunits – A Policy and Planning Framework

Area Plan Subunits (APS) represent the highest-level geographic planning and implementation units within the MSHCP and generally correspond to subregional planning or jurisdictional areas. Area Plan Subunits provide the administrative and planning context for reserve assembly by allocating conservation obligations, mitigation fees, and implementation responsibilities across western Riverside County (MSHCP §3.1.1). While Area Plan Subunits do not define specific reserve boundaries, they establish the framework within which reserve assembly occurs and ensure that conservation responsibilities are distributed across the region in a coordinated manner.

Six MSHCP Area Plan Subunits overlap the Planning Area (**Table 11**). Within the City Boundary, the largest subunit is SU2 – Alberhill (3,762 acres; 26%), followed by SU3 – Elsinore (3,543 acres; 24%) and SU5 – Ramsgate (2,604 acres; 18%). SU1 – Estelle Mountain/Indian Canyon and SU6 – Steele Peak each account for approximately 11% of the City Boundary, while SU4 – Sedco Hills represents 10% (**Appendix A**).

Within the SOI, the largest subunit is SU1 – Estelle Mountain/Indian Canyon (5,748 acres; 77%), reflecting the large expanses of undeveloped uplands and linkage lands north and northeast of the City. Smaller portions of the SOI occur in SU2 – Alberhill (15%), SU5 – Ramsgate (5%), and SU3 – Elsinore (3%), with negligible or no SOI overlap in SU4 – Sedco Hills and SU6 – Steele Peak (**Table 11**).

Table 11. Area Plan Subunits overlapping the Planning Area.

	City Boundary		SOI	
Unit ID - Name	Acres	% Comp.	Acres	% Comp.
SU1 - Estelle Mtn/Indian Cyn	1,576	11	5,748	77
SU2 - Alberhill	3,762	26	1,129	15
SU3 - Elsinore	3,543	24	230	3
SU4 - Sedco Hills	1,508	10	-	0
SU5 - Ramsgate	2,604	18	390	5
SU6 - Steele Peak	1,586	11	3	<0.1
Total	14,579		7,501	

The relatively even distribution of Area Plan Subunits within the City Boundary indicates that no single subunit exerts a disproportionate influence on reserve assembly or conservation emphasis within the City limits. In contrast, SU1 (Estelle Mountain–Indian Canyon) represents a substantially higher percentage of the SOI, indicating that conservation objectives associated with this subunit are likely to have a greater influence on future land use planning, infrastructure siting, and reserve assembly decisions within the SOI.

Within each Area Plan Subunit, the overarching emphasis of MSHCP conservation objectives differs based on the subunit's ecological setting, functional role in the reserve system, and relationship to regional cores and linkages (**Table 12**). Accordingly, conservation planning and land use decisions within each subunit should be tailored to address the specific conservation objectives identified for that subunit, ensuring that reserve assembly, project design, and mitigation measures collectively support the MSHCP's subunit-specific and regional conservation goals.

Table 12. Overarching MSHCP Conservation Objectives by Area Plan Subunit

Area Plan Subunit	Primary Conservation Role	Overarching MSHCP Conservation Objectives
SU1 – Estelle Mountain / Indian Canyon	Regional Core & Linkage Backbone	Preserve large, contiguous upland habitat blocks; maintain regional wildlife connectivity between mountain systems and Temescal Wash; conserve riparian corridors, wetlands, and special-soil plant habitats supporting multiple covered species.
SU2 – Alberhill	Coastal Sage Scrub Core & Cross-Freeway Linkage	Conserve core coastal sage scrub habitat (including coastal California gnatcatcher); maintain northwest–southeast connectivity, including movement across and around I-15; protect wetlands, drainages, and sensitive soil habitats while accommodating planned development.
SU3 – Elsinore	Lake-Associated Wetland & Urban Interface	Protect and manage Lake Elsinore, associated marsh, floodplain, and riparian systems; maintain open grassland and raptor foraging habitat; integrate habitat conservation with urban development consistent with MSHCP assumptions.
SU4 – Sedco Hills	Upland Linkage Area	Maintain upland linkage functions connecting Sedco Hills with adjacent conserved lands; conserve coastal sage scrub and chaparral habitats; avoid fragmentation of remaining natural upland areas.
SU5 – Ramsgate	Ridgeline & Upland Transition Zone	Conserve upland ridgelines and habitat corridors linking valley floors with higher-elevation reserves; maintain habitat continuity between developed areas and regional conservation lands; support reserve assembly consistent with rough step requirements.
SU6 – Steele Peak	Eastern Upland Core	Preserve large upland habitat blocks supporting wide-ranging species; maintain regional connectivity with adjacent conservation areas; limit fragmentation to support long-term reserve configuration.

4.4.1.1 Status of Area Plan Subunits within the Planning Area (2004–2023)

Since issuance of the MSHCP permits in 2004, reserve assembly within the Elsinore Area Plan has occurred unevenly across subunits, reflecting differences in land availability, development pressure, and acquisition opportunity (**Table 13**). As of December 31, 2023, cumulative Additional Reserve Lands (ARL) conservation within the Elsinore subunits has been concentrated primarily in the Alberhill (SU2) and Elsinore (SU3) subunits, which together account for the majority of post-MSHCP ARL gains and continue to contribute incrementally through development-related and strategic acquisitions. In contrast, the Estelle Mountain/Indian Canyon (SU1) and Sedco Hills (SU4) subunits—while biologically important for core habitat and linkage functions—have experienced comparatively limited reserve assembly since Plan inception, indicating ongoing constraints to acquisition and continued prioritization under the MSHCP reserve assembly strategy. The Ramsgate (SU5) and Steele Peak (SU6) subunits show little to no ARL acquisition recorded since 2004, reflecting either reliance on pre-existing Public/Quasi-Public (PQP) lands or limited opportunities for ARL expansion. Overall, conservation patterns within the Elsinore Area Plan are consistent with regional MSHCP implementation trends, whereby reserve assembly progresses most effectively where development-driven mechanisms or willing-seller opportunities align with MSHCP conservation criteria, while other biologically valuable areas remain longer-term acquisition priorities.

Table 13. Elsinore Area Plan Subunit Comparison to Area Plan–Wide Assembly Reserve Land (ARL) Targets (2004–2023).

Subunit	Subunit Name	ARL Conserved 2004–2023 (ac)*	2023 ARL Contribution (ac)	Relative Progress Toward Area Plan Target
SU1	Estelle Mountain / Indian Canyon	~939	0	Moderate contribution; below proportional share of Area Plan target
SU2	Alberhill	~1,261	62	One of the strongest contributors within the Area Plan
SU3	Elsinore	~630	84	Moderate, development-driven contribution
SU4	Sedco Hills	~190	0	Limited progress despite linkage importance
SU5	Ramsgate	~0	0	No measurable ARL contribution since 2004
SU6	Steele Peak	~0**	0	Relies primarily on existing PQP lands
Elsinore Area Plan (Total)	—	**~7,421**	**738**	Approximately mid-range progress toward ARL goal

* Area Plan ARL target range = 11,700 - 18,515 acres (MSHCP §3.3; RCA 2023b)

** Steele Peak is a designated MSHCP Core Area; limited ARL is reported post-2004 because conservation

4.5.2 *MSHCP Rough Step Units – A Measure of Reserve Quantity and Distribution Control*

Rough Step Units (RSUs) are a primary mechanism used by the MSHCP to control the quantity and geographic distribution of conserved lands. Rough Step Units establish minimum acreage conservation targets within broad landscape units to ensure that reserve assembly occurs incrementally and evenly across the Plan Area rather than being concentrated in isolated locations (MSHCP, Vol. I, §3.2.1 and 6.1.3). The rough step approach prevents piecemeal conservation and ensures that habitat protection keeps pace with development, thereby supporting landscape-scale conservation objectives and reducing habitat fragmentation.

Four MSHCP Rough Step Units (RSUs 5, 7, 8, and 9) overlap the Planning Area (**Appendix A**). Within the City Boundary, reserve assembly is overwhelmingly influenced by RSU 8, which accounts for approximately 25,227 acres (90%) of the total Rough Step Unit area. RSUs 7 and 9 represent comparatively minor portions of the City Boundary at 6% and 3%, respectively, while RSU 5 is negligible (<0.1%; **Table 14**).

In contrast, the SOI is more evenly split between RSU 9 (47%) and RSU 8 (45%), with RSU 7 accounting for 7% and RSU 5 remaining negligible (<0.1%; **Table 14**). This distribution indicates that while reserve assembly within the City Boundary is primarily governed by a single rough step framework (RSU 8), reserve assembly within the SOI must respond to multiple rough step units, increasing the importance of coordinated, forward-looking conservation planning to ensure that minimum reserve acreage and spatial distribution requirements are met over time.

Table 14. MSHCP Rough Step Units within the Planning Area.

	City Boundary		SOI	
Unit ID	Acres	% Comp.	Acres	% Comp.
5	40	<0.1	61	<0.1
7	1,660	6	1,313	7
8	25,227	90	8,230	45
9	949	3	8,574	47
Total	27,876		18,178	

The Rough Step Unit distribution indicates that reserve assembly within the City Boundary is primarily governed by RSU 8, while reserve assembly within the SOI is relatively evenly distributed between RSU8 and RSU 9, highlighting the need for coordinated long-term planning to satisfy MSHCP conservation acreage and spatial distribution requirements across multiple rough step frameworks.

Within each Rough Step Unit, the role and influence on MSHCP reserve assembly varies based on the unit's relative extent within the City Boundary and SOI and its function in meeting minimum conservation acreage and spatial distribution requirements (**Table 15**). Accordingly, conservation planning and land use decisions within each Rough Step Unit should be tailored to support the unit's specific reserve assembly role, ensuring that project design, conservation dedication, and mitigation measures collectively advance both Rough Step compliance and the MSHCP's broader habitat management, connectivity, and regional conservation objectives.

Table 15. Overarching MSHCP Conservation Objectives by Rough Step Units.

Rough Step Unit	Primary Conservation Role	Overarching MSHCP Objectives
RSU 5	Incidental Reserve Assembly Component	Ensure complete reserve accounting for small or isolated conservation areas; prevent gaps in rough step tracking; contribute marginally to overall conservation acreage without driving reserve configuration.
RSU 7	Supplemental Reserve Assembly Area	Provide additional opportunities for reserve assembly that contribute incrementally to regional conservation targets; maintain spatial balance in conservation efforts; allow flexibility in siting conserved lands where biological and planning considerations align.
RSU 8	Primary City-Focused Reserve Assembly Framework	Serve as the principal mechanism for incremental reserve assembly within the City; ensure conservation lands are distributed and aggregated in a contiguous manner; support Habitat Management Unit objectives, including cores and linkages; maintain flexibility for urban development while meeting minimum conservation acreage requirements.
RSU 9	SOI-Focused Reserve Assembly Driver	Guide long-term reserve assembly in less urbanized and transitional areas; ensure conservation keeps pace with future development; support regional connectivity and long-term reserve configuration; inform General Plan land use and infrastructure planning within the SOI.

4.4.2.1 Status of Rough Step Units within the Planning Area (2004–2023)

Between 2004 and 2023, Rough Step Units 5 and 7 have remained in Rough Step3, reflecting conservation that has generally kept pace with authorized development across all key vegetation communities (**Table 16**). Unit 7, in particular, demonstrated strong cumulative performance, with substantial ARL conserved across coastal sage scrub, grasslands, and woodland habitats, and was brought fully back into balance through acquisitions and an absence of new losses in 2023. Rough Step Unit 8 is the only unit among those evaluated that remains out of Rough Step, due solely to a grassland deficit of approximately 153 acres, a condition that has persisted since Plan inception as a result of pre-MSHCP development and the accounting treatment of PQP lands that do not contribute to Rough Step gains. Notably, other vegetation communities within Unit 8 remain in balance, and the RCA has identified pending grassland conservation that would reduce or eliminate the deficit once conveyed. Metrics for Rough Step Unit 9 was not reported in the 2023 annual report couple not be incorporated in the analysis. Rough Step Unit 9 overlaps the southern SOI that extending into the Elsinore Mountain foothills and comprised primarily of natural, unfragmented habitats. Overall, the Rough Step status for the applicable units indicates general consistency with the MSHCP's "in-step" reserve assembly framework through 2023, with targeted acquisition needs limited to grasslands within Unit 8.

[3] "In Rough Step" indicates that conservation of key vegetation communities has kept pace with, or exceeded, authorized development under the MSHCP framework.

Table 16. Elsinore Area Plan Rough Step Unit Comparison to Area Plan–Wide Assembly Reserve Land (ARL) Targets (2004–2023).

Rough Step Unit[1]	2023 ARL Contribution (ac)	ARL Conserved 2004–2023 (ac)[2]	2023 ARL Target Range (ac)[3]	Relative Progress Toward Area Plan Target
5	145 Included in unit-wide gains (no deficit)	~3,100 ac	~3,800–4,500	In Rough Step – conservation exceeds authorized development across all key vegetation communities
7	608 Net positive (acquisitions; no new losses)	~9,410 ac	~9,800–10,500	In Rough Step – strong cumulative surplus; unit returned fully to balance
8	320 No net correction to grassland deficit	~7,160 ac	~7,600–8,200	Out of Rough Step (Grasslands only) – approx. 153-acre deficit; other vegetation communities remain in balance

[1] Rough Step Unit 9 not reported in the 2023 Annual Report (RCA 2023b)

[2] ARL acreage reflects rounded cumulative "Amount Conserved" reported in Table 4-2 by RCA (2023b). Acreage represents conservation credited February 2000-December 31, 2023, with development accounting beginning June 22, 2004.

[3] Rounded target ranges were derived from the summed Additional Reserve Land Goals by vegetation community within each Rough Step Unit (Table 4-2 in RCA 2023b).

4.5.3 MSHCP Habitat Management Units – Framework for Ecological Function and Management

Habitat Management Units (HMUs) are large, biologically coherent areas that serve as the primary ecological framework for implementing species and habitat conservation under the MSHCP. HMUs are designed around major landforms, watersheds, and ecological systems and are used to define conservation objectives for covered species, habitat composition, connectivity, and long-term management priorities (MSHCP, Vol. I §3.3.1 and §3.3.2). Reserve assembly within HMUs is intended to produce functionally connected reserves that support ecological processes, species movement, and population viability, rather than isolated preserved parcels.

Four MSHCP Habitat Management Units (HMUs) overlap the Planning Area (**Appendix A**). Within the City Boundary, the Planning Area is dominated by the Santa Ana Mountains HMU (HMU 12), which accounts for approximately 16,590 acres (60%), reflecting the City's strong association with upland, mountain, and foothill conservation lands. The Menifee HMU (HMU 7) represents the second-largest portion of the City Boundary at 7,905 acres (28%), followed by the Gavilan HMU (HMU 6) at 12%. The Forest Service Trabuco HMU (HMU 5) is negligible within the City Boundary (**Table 17**).

In contrast, the SOI is shared primarily between the Santa Ana Mountains HMU (46%) and the Gavilan HMU (31%), with a substantial additional contribution from the Forest Service Trabuco HMU (21%). The Menifee HMU is minimally represented in the SOI (2%; **Table 17**). This distribution indicates that future planning within the SOI is more strongly influenced by regionally significant mountain and upland conservation systems, whereas the City Boundary includes a greater mix of mountain, valley, and urban-interface HMUs.

Table 17. MSHCP Habitat Management Units overlapping the Planning Area.

		City Boundary		SOI	
Unit Name	Unit ID	Acres	% Comp.	Acres	% Comp.
Forest Service Trabuco	5	9	0%	3,762	21%
Gavilan	6	3,371	12%	5,668	31%
Menifee	7	7,905	28%	357	2%
Santa Ana Mountains	12	16,590	60%	8,390	46%
Total		27,876		18,178	

Habitat Management Unit distribution within the Planning Area indicates that conservation planning within the City Boundary is primarily guided by the Santa Ana Mountains and Menifee HMUs, while the SOI is more strongly influenced by the Santa Ana Mountains, Gavilan, and Forest Service Trabuco HMUs, underscoring the need to align future land use and infrastructure planning with HMU-specific conservation objectives to support regional reserve assembly and ecological connectivity.

Similar to other higher-order components of the MSHCP reserve assembly framework, HMUs are defined by specific overarching conservation goals and objectives that reflect their geographic position within the regional landscape and their intended ecological function within the reserve system (**Table 18**). HMU objectives are informed by the dominant land cover types, watershed and hydrologic features, topographic setting, and habitat connectivity functions present within each unit, as well as the role each HMU plays in supporting core habitats, regional and local linkages, and long-term ecological processes. As a result, conservation planning and reserve assembly within each HMU are designed to emphasize the protection of biologically cohesive habitat blocks, maintenance of hydrologic and ecological function, and reinforcement of landscape-scale connectivity in a manner tailored to the unique environmental characteristics of each HMU.

Table 18. MSHCP Habitat Management Units within the Planning Area.

Habitat Management Unit	Primary Ecological Role	Overarching MSHCP Conservation Objectives
HMU 12 – Santa Ana Mountains	Regional Core Habitat Backbone	Conserve large, contiguous mountain and foothill habitat blocks; maintain regional north–south and east–west wildlife connectivity; support wide-ranging species and long-term ecological processes; function as a primary structural component of the MSHCP reserve system.
HMU 7 – Menifee	Valley Floor & Urban-Interface HMU	Conserve low-elevation grassland and coastal sage scrub habitats; maintain linkages between upland core areas; protect sensitive soils and species-specific habitats; integrate habitat conservation with urban development consistent with MSHCP assumptions.
HMU 6 – Gavilan	Regional Connectivity & Transitional HMU	Maintain landscape-scale connectivity between mountain systems and valley habitats; conserve coastal sage scrub, chaparral, and grassland mosaics; protect movement corridors for medium- and large-bodied wildlife; reinforce reserve continuity across developing landscapes.
HMU 5 – Forest Service Trabuco	Federal Lands & High-Integrity Upland HMU	Conserve high-quality upland habitats associated with U.S. Forest Service lands; maintain long-term habitat integrity through coordinated management; support connectivity between federal lands and the MSHCP reserve; contribute to large-block conservation objectives.

4.5.4 MSHCP Cell Groups – Aggregated Biological Performance Units

Cell Groups are aggregations of individual criteria cells that collectively represent biologically meaningful habitat blocks, cores, linkages, or constrained linkages within the MSHCP reserve design. Cell Groups are used as intermediate analytical and accounting units to track progress toward meeting habitat representation goals and species-specific conservation objectives (MSHCP §3.3.3 and §6.2). Cell Groups help translate HMU-level conservation objectives into measurable spatial units and provide a mechanism for evaluating whether reserve assembly is achieving intended biological outcomes.

A total of 7,655 acres of Cell Groups occur within the City Boundary, while 5,334 acres occur within the SOI (**Table 19**). Within the City Boundary, cell groups are widely distributed across many groups, with no single group dominating reserve assembly. The largest contributors within the City include Groups M (10%), J (9%), W (6%), X (5%), and E' (5%), while the majority of remaining groups each comprise approximately 2–4%, indicating a highly distributed reserve-assembly pattern.

In contrast, the SOI is more unevenly distributed, with Group L accounting for approximately 23% of SOI cell group acreage, followed by Group J (12%), and numerous additional groups each contributing 5–6%. Several cell groups occur exclusively or almost exclusively in the SOI (e.g., Groups A, C–F, H, K, P), reflecting the SOI's greater role in accommodating future reserve assembly associated with upland cores and regional linkages (**Table 19**). Overall, the distribution indicates that City-based reserve assembly is incremental and dispersed, whereas SOI-based reserve assembly is more strongly influenced by fewer, spatially larger cell groups (**Appendix A**).

Table 19. MSHCP Cell Groups overlapping the Planning Area.

	City Boundary		SOI	
Group ID	Acres	% Comp.	Acres	% Comp.
A	--	--	162	3
B	323	4	--	--
C	--	--	316	6
D	--	--	323	6
E	--	--	320	6
F	--	--	317	6
G	319	4	--	--
H	--	--	318	6
I	42	1	277	5
J	655	9	632	12
K	--	--	323	6
L	234	3	1,235	23
M	786	10	3	<0.1
N	320	4	--	--
O	162	2	159	3
P	--	--	337	6
Q	173	2	178	3
R	158	2	315	6
S	321	4	--	--
T	319	4	--	--
U	319	4	--	--
V	315	4	--	--
W	474	6	4	0
X	366	5	111	2
Y	274	4	2	0
Z	320	4	--	--
A'	320	4	--	--
B'	301	4	--	--
C'	299	4	--	--
D'	302	4	--	--
E'	393	5	--	--
F'	160	2	--	--
G'	<0.5	<0.1	--	--
Total	7,655		5,334	

Under the MSHCP, Cell Groups do not have specific conservation objectives similar to HMUs or Area Plan Subunits. Instead, Cell Groups function as biological accounting and reserve-assembly units, aggregating individual criteria cells to implement species-, habitat-, and connectivity-based objectives established at the HMU and Plan-wide scale. The objectives within the Planning Area therefore describe the intended role of each group as defined by the MSHCP framework, not speculative, group-specific biological priorities and reflect the uniform role cell groups play under the MSHCP, regardless of location.

Within the City Boundary, cell groups primarily support incremental reserve assembly within urban and urban-interface settings, where conservation actions are typically smaller, dispersed, and closely tied to project-level mitigation. In contrast, SOI cell groups play a proportionally larger role in future reserve configuration,

particularly for upland cores, regional linkages, and habitat blocks that require larger, contiguous areas to meet MSHCP objectives. Together, City and SOI cell groups ensure that reserve assembly progresses consistently across planning horizons, aligning near-term development with long-term regional conservation goals.

4.5.5 MSHCP Criteria Cells – Specific Biological Triggers and Compliance Units

Criteria Cells represent the most fine-grained planning and compliance unit under the MSHCP. Typically mapped as one-square-kilometer grid cells, criteria cells contain species-specific and habitat-specific conservation criteria that identify where conservation is required to meet Plan objectives (MSHCP §3.3.4 and §6.2.2). At the project level, criteria cells are used to determine conservation obligations, guide avoidance and mitigation measures, and assess consistency with the MSHCP. Conservation of individual criteria cells cumulatively contributes to meeting cell group, HMU, rough step, and Area Plan Subunit requirements.

A total of 155 MSHCP criteria cells overlap the Planning Area, encompassing approximately 22,005 acres, or 48 percent of the Planning Area (**Table 20**). Of these, 100 criteria cells occur within the City Boundary, accounting for approximately 14,546 acres, which represents 52 percent of the City Boundary. This indicates that more than half of the City's land area is located within mapped criteria cells where MSHCP biological criteria may apply at the project level (**Appendix A**).

Within the SOI, 55 criteria cells overlap approximately 7,459 acres, representing 41 percent of the SOI (**Table 20**). Although the SOI contains fewer criteria cells overall, these cells still comprise a substantial proportion of the SOI and reflect the importance of forward-looking conservation considerations in areas subject to future urban expansion.

Table 20. Summary of Criteria Cells within the Planning Area.

GPU Area	# Cells	Total Cell Area (ac)	GPU Area (ac)	% Comp. in GPU Area
City Boundary	100	14,546	27,886	52%
SOI	55	7,459	18,165	41%
Total	155	22,005	46,051	48%

Overall, the distribution of criteria cells demonstrates that both the City Boundary and SOI are substantially influenced by MSHCP biological criteria, with a slightly higher concentration within the City. This pattern indicates that project-level planning and General Plan policies must consistently account for criteria cell-based conservation triggers to ensure compliance with the MSHCP and to support incremental reserve assembly across the Planning Area.

When a project is proposed within an MSHCP criteria cell, the occurrence of development within that cell triggers a project-level biological review to determine whether the project would affect habitats or species identified by the MSHCP's biological criteria. If MSHCP criteria are met, the project is required to implement

avoidance and minimization measures to the extent feasible, followed by appropriate mitigation to ensure consistency with the Plan. Required actions may include on-site conservation, where biologically important areas within the criteria cell are avoided and dedicated to the MSHCP reserve system; off-site conservation, where impacts are mitigated through acquisition or dedication of land elsewhere within the applicable cell group or Habitat Management Unit; or payment of MSHCP mitigation fees, which contribute to regional land acquisition and management when land dedication is not feasible. In all cases, conservation actions within criteria cells are designed to contribute incrementally to cell group performance, Habitat Management Unit objectives, rough step acreage requirements, and regional core and linkage assembly, ensuring that individual projects collectively advance the MSHCP's long-term conservation strategy while allowing for planned development.

4.5.6 Integrating the MSHCP Elements into the Planning Area

Future conservation and open space planning within the Lake Elsinore Planning Area will be guided by the integrated reserve assembly framework of the MSHCP, which functions through the coordinated application of Habitat Management Units, Area Plan Subunits, Rough Step Units, Cell Groups, and Criteria Cells (**Table 21**). Habitat Management Units establish the biological purpose and connectivity functions of conserved lands, while Area Plan Subunits provide the subregional planning context and Rough Step Units ensure that conservation occurs incrementally and is spatially distributed as development proceeds. Cell Groups aggregate project-level conservation actions to track cumulative progress toward regional conservation objectives. Together, these overlapping MSHCP elements require that land use, infrastructure, and open space decisions be evaluated for consistency across multiple implementation layers to maintain core habitat integrity, regional connectivity, and long-term reserve functionality.

Table 21. Cross-Reference of Habitat Management Units, Area Plan Subunits, Rough Step Units, Cell Groups, and Core/Linkage Functions

Habitat Management Unit	Associated Area Plan Subunits	Associated Rough Step Units	Associated / Representative Cell Groups*	Core / Linkage Role in the MSHCP Reserve System
HMU 12 – Santa Ana Mountains	SU1 – Estelle Mountain / Indian Canyon; SU4 – Sedco Hills; portions of SU5 – Ramsgate	RSU 8 (primary); RSU 9 (southern/western margins)	J, L, M, O, Q, R, X, Y, W	Functions as a regional core habitat backbone, supporting large, contiguous upland habitat blocks; anchors multiple designated and functional core areas; provides major north–south and east–west connectivity between the Santa Ana Mountains, uplands north of Lake Elsinore, and adjacent HMUs.
HMU 7 – Menifee	SU3 – Elsinore; portions of SU2 – Alberhill; SU5 – Ramsgate	RSU 8 (primary); RSU 5 (southern interface)	M, N, O, S, T, U, V, Z, A'–F'	Serves as a valley-floor and urban-interface HMU, supporting habitat mosaics and facilitating local-to-regional linkages between upland cores; plays a key role in accommodating incremental reserve assembly within urbanizing landscapes while maintaining connectivity around Lake Elsinore.
HMU 6 – Gavilan	SU1 – Estelle Mountain / Indian Canyon; SU2 – Alberhill; portions of SU5 – Ramsgate	RSU 9 (primary); RSU 7 (northern extent)	A, C, D, E, F, H, I, K, P	Provides a regional connectivity and transition function, linking mountain systems, uplands, and valley habitats; supports linkage and constrained-linkage functions for medium- and large-bodied wildlife across developing and future growth areas, particularly within the SOI.
HMU 5 – Forest Service Trabuco	SU1 – Estelle Mountain / Indian Canyon (SOI)	RSU 9 (primary); RSU 7 (minor)	A, C, D, E, F	Functions as a federal-land-associated core and linkage HMU, emphasizing long-term habitat integrity and continuity with U.S. Forest Service lands; contributes to large-block conservation and regional connectivity with minimal urban interface.

* Cell Groups listed are representative of those occurring within each HMU in the Planning Area and function as biological accounting units and do not establish independent conservation targets.

Integrating the MSHCP reserve assembly elements through a holistic, multi-scale approach ensures that conservation objectives are achieved in a coordinated and stepwise manner, while reducing the potential for planning missteps, protracted negotiations, or unintended impacts to future conservation opportunities. By evaluating conservation needs and project effects at variable spatial scales, from regional and subregional planning frameworks to project-level implementation, this approach enables more effective and strategic use of compensatory mitigation, allowing impacts to be addressed where conservation outcomes are maximized. In doing so, multi-scale planning supports efficient land use decision-making that balances the demands of a growing population with the need to maintain ecological function, resilience, and connectivity under increasingly challenging environmental conditions, thereby safeguarding long-term conservation objectives while accommodating future growth.

4.5.7 *MSHCP Public Quasi-Public Lands – Supplemental Lands for Reserve Assembly*

Public Quasi-Public Lands (PQPL) conserved under the MSHCP may contribute to reserve assembly when they are managed in a manner that supports the Plan's biological conservation objectives. While such lands are not automatically designated as conserved, they can play an important supplemental role in reserve configuration by providing habitat value, buffering, or connectivity, particularly in urban or constrained areas. Inclusion of Public Quasi-Public Lands in reserve assembly is contingent on long-term management commitments and does not substitute for required conservation of core habitats or compliance with rough step acreage requirements, ensuring that reserve assembly remains biologically functional and regionally consistent.

Conserved PQPL within the City Boundary total approximately 3,798 acres and are dominated by Lake Elsinore, which accounts for 2,787 acres (73%) of PQPL lands within the City (**Table 22; Figure 10**). Additional contributions include the Santa Ana Watershed Project (373 acres; 10%), Steele Peak Reserve (157 acres; 4%), and Alberhill Creek (79 acres; 2%), with smaller areas associated with the Temescal Trailhead Site and other minor facilities. Collectively, these lands reflect the City's emphasis on lake-associated, watershed, and recreational public lands that may provide supplemental habitat value, buffering, and localized connectivity when managed consistent with MSHCP conservation objectives.

Within the SOI, PQPL total approximately 4,663 acres and are overwhelmingly dominated by Cleveland National Forest, which comprises 3,829 acres (82%) of PQPL lands in the SOI (**Table 22**). Additional contributions include the Lake Mathews / Estelle Mountain Reserve (406 acres; 9%) and undefined public lands (360 acres; 8%), with only a minor portion of Lake Elsinore extending into the SOI (68 acres; 1%). This distribution indicates that PQPL lands within the SOI are primarily associated with large, contiguous federal and regional open space areas that support regional habitat integrity and connectivity rather than urban-interface public facilities.

Table 22. Conserved Public Quasi-Public Lands within the Planning Area.

	City Boundary		SOI	
PQP Project Name	**Acres**	**% Comp.**	**Acres**	**% Comp.**
Alberhill Creek	79	2	–	–
Cleveland National Forest	4	0	3,829	82
Lake Elsinore	2,787	73	68	1
Lake Mathews / Estelle Mountain Reserve	<0.1	<0.1	406	9
Santa Ana Watershed Project	373	10	<0.1	<0.1
Steele Peak Reserve	157	4	–	–
Temescal Trailhead Site	13	0	–	–
Undefined	385	10	360	8
Total	3,798		4,663	

Public Quasi-Public Lands within the Planning Area generally occur along the periphery of the City and within the SOI, where they function as transitional open space, buffers, and supporting lands adjacent to larger regional conservation areas (**Figure 10**). These lands are often associated with lake margins, watershed corridors, canyon systems, and federal or regional open space, and collectively form a loose ring that can reinforce reserve configuration and edge connectivity when managed in a manner consistent with the Western Riverside County MSHCP. While Public Quasi-Public Lands may provide incidental habitat value and contribute to buffering or constrained linkage functions, they typically do not function as stand-alone core conservation areas and are most effective when strategically integrated with designated cores, linkages, and required reserve assembly mechanisms. Accordingly, land use and open space planning should leverage Public Quasi-Public Lands to complement, rather than substitute for, required conservation actions, ensuring long-term ecological function and connectivity as the City accommodates future growth under changing environmental conditions.

Conserved Public Quasi-Public Lands within the Planning Area provide important supplemental contributions to the MSHCP reserve system, with City-based PQPL lands emphasizing lake-associated and watershed functions and SOI-based PQPL lands supporting large, contiguous regional open space and connectivity, subject to management consistency with MSHCP conservation objectives.

4.6 Protection of Species Associated with Riparian / Riverine Areas and Vernal Pools (MSHCP Section 6.1.2)

The MSHCP establishes a comprehensive framework for the protection of species associated with riparian and riverine areas and vernal pools, recognizing that these aquatic and semi-aquatic resources provide essential habitat functions for a suite of covered species. MSHCP §6.1.2 is intended to ensure that the biological functions and values of these resources are maintained across the Plan Area so that covered species dependent on them are conserved as the MSHCP Conservation Area is assembled and managed over time. Within the Lake Elsinore Planning Area, regionally important riparian and wetland features include Temescal Wash, Collier Marsh, Alberhill Creek, Lake Elsinore, and the floodplain east of Lake Elsinore (including marsh habitats), as well as the lower San Jacinto River and Wasson Creek.

MSHCP §6.1.2 defines riparian and riverine areas as lands supporting habitat dominated by trees, shrubs, persistent emergent vegetation, or associated plant communities that occur adjacent to, or are dependent upon, freshwater sources, including areas with perennial, intermittent, or episodic surface flow. Vernal pools are defined as seasonal wetlands that occur in natural depressions and exhibit indicators of wetland soils, vegetation, and hydrology during the wetter portion of the growing season, but typically lack hydrology and/or vegetation indicators during the dry season. Vernal pool determinations, including consideration of contributing watersheds and hydrologic support, are made on a case-by-case basis using site-specific information such as soils, vegetation, drainage patterns, and climatic conditions.

MSHCP §6.1.2 places emphasis not solely on the acreage of riparian or wetland features, but on the functions and values these resources provide to covered species. These functions and values include, but are not limited to, maintenance of hydrologic regimes, flood storage and flow modification, sediment and nutrient

retention, water quality protection, aquatic and terrestrial wildlife habitat, and habitat connectivity. Preservation of these ecological functions is fundamental to sustaining covered species such as arroyo toad, California red-legged frog, mountain yellow-legged frog, Santa Ana sucker, riparian-associated birds (including least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo), and several fairy shrimp species associated with vernal pools and seasonal wetlands.

Under the MSHCP, §6.1.2 review is triggered when a proposed project has the potential to result in direct or indirect impacts to riparian or riverine areas or vernal pools. As part of CEQA review, projects are required to map and document these resources using available information supplemented by project-specific field verification, with mapping and determinations reviewed by the Permittee's biologist. This requirement applies to projects both inside and outside Criteria Cells, as the MSHCP explicitly requires that projects throughout the Plan Area be evaluated for consistency with the riparian and vernal pool protection guidelines set forth in §6.1.2.

Where mapping identifies riparian or vernal pool habitats that provide suitable habitat for certain covered species and project design does not incorporate full avoidance, the MSHCP requires focused biological surveys and implementation of avoidance and minimization measures consistent with species-specific conservation objectives. In addition to direct impacts, §6.1.2 requires evaluation of indirect or "edge" effects, including changes in hydrology, runoff quality, lighting, noise, invasive species introduction, unauthorized access, and other disturbances that could degrade resource functions over time.

Consistent with CEQA and MSHCP policy, §6.1.2 applies a mitigation sequencing approach that prioritizes avoidance, followed by minimization, and finally compensation where impacts remain unavoidable. Where feasible, projects are required to avoid impacts to riparian/riverine areas and vernal pools altogether. Avoided resources are typically protected through long-term conservation mechanisms such as conservation easements, deed restrictions, or similar instruments to ensure their continued ecological function. When complete avoidance is not feasible, projects must be designed to minimize both direct and indirect impacts to the greatest extent practicable, including incorporation of project design features and operational controls to address edge effects.

If impacts to riparian or vernal pool resources cannot be avoided or fully minimized, the MSHCP requires that remaining impacts be mitigated such that the lost biological functions and values, as they relate to covered species, are replaced. This is accomplished through a Determination of Biologically Equivalent or Superior Preservation (DBESP), which documents the biological setting, impact quantification, infeasibility of full avoidance, and the mitigation measures or conservation actions that achieve biological equivalency or superiority. DBESP determinations are subject to Wildlife Agency review and are tracked for compliance and reporting under the MSHCP.

Section 6.1.2 also explicitly recognizes that compliance with the MSHCP does not replace other applicable wetland and water resource regulations. Projects affecting riparian or wetland vegetation communities remain subject to requirements under California Fish and Game Code Section 1600 et seq., the federal Clean Water Act (Sections 401, 402, and 404), the Porter-Cologne Water Quality Control Act, and other applicable state

and federal permitting programs. Coordination with these regulatory frameworks is required to ensure comprehensive protection of aquatic resources.

At a broader planning level, the objectives of MSHCP §6.1.2 are closely linked with the Urban/Wildlands Interface guidelines of §6.1.4, which address indirect effects associated with development adjacent to conserved lands. These guidelines emphasize drainage and stormwater controls, restrictions on lighting and noise, invasive species avoidance in landscaping, and measures to limit unauthorized access, dumping, and domestic animal intrusion. Together, these provisions ensure that riparian and vernal pool resources are not incrementally degraded by adjacent land uses.

Riparian, riverine and vernal pool resources function as important habitat areas, movement corridors, and water quality features within the Western Riverside County MSHCP landscape. Accordingly, the GPU should incorporate MSHCP §6.1.2 by identifying riparian and wetland resources as sensitive natural resources, committing future development to project-level mapping and functional assessment, and requiring application of avoidance, minimization, and biologically equivalent or superior mitigation measures consistent with the MSHCP. This programmatic approach ensures that future development within the City and SOI remains consistent with the MSHCP while supporting long-term conservation of riparian and vernal pool-associated species.

4.7 Protection of Narrow Endemic Plant Species (MSHCP Section 6.1.3) and Additional Needs and Procedures for Criteria Area Plant Species (MSHCP Section 6.3.2)

The MSHCP recognizes that certain plant species warrant focused consideration due to their limited distributions, specialized habitat requirements, and importance to achieving the Plan's conservation and reserve assembly objectives. The MSHCP addresses these resources through two related but distinct provisions: §6.1.3 (Protection of Narrow Endemic Plant Species) and §6.3.2 (Additional Survey Needs for Criteria Area Species). Together, these sections establish a coordinated framework for evaluating potential impacts to sensitive plant resources while allowing for planned growth within the Lake Elsinore Planning Area.

Narrow endemic plant species, addressed under MSHCP §6.1.3, are characterized by extremely restricted geographic distributions and strong associations with specific soils, landforms, hydrologic conditions, or microhabitats. Because these species often occur in localized and environmentally constrained settings, they are particularly vulnerable to habitat loss and indirect effects associated with development. To support early identification and avoidance where feasible, the Riverside RCA has mapped Narrow Endemic Plant Species Survey Areas, which function as a planning-level screening tool rather than a presumption of species presence.

The Planning Area overlaps with Narrow Endemic Plant Species Survey Areas associated with species such as Munz's onion (*Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), many-stemmed dudleya (Dudleya multicaulis), Orcutt grass (*Orcuttia californica*), Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*), San Diego savory (*Satureja chandleri*), and Hammitt's clay cress (*Sibaropsis hammittii*; **Figure 11**). Inclusion

within a narrow endemic plant survey area does not preclude development; rather, it establishes an expectation that suitable habitat be evaluated and that conservation considerations be integrated early into project planning.

Separate from narrow endemic plants, criteria area plant species are addressed under MSHCP §6.3.2, which identifies Criteria Area Plant Species Survey Areas as part of the Plan's additional survey requirements. These species are not necessarily narrow endemics, but they are closely associated with the Criteria Area and are important to achieving MSHCP conservation objectives. Criteria area plant species survey areas identify locations where one or more covered or special-status plant species may occur or where suitable habitat is present, thereby signaling the need for focused consideration during project review.

The Planning Area overlaps multiple Criteria Area Plant Species Survey Areas associated with species such as smooth tarplant (*Centromadia pungens* ssp. *laevis*), large-leaved filaree (*Erodium macrophyllum*), little mousetail (*Myosurus minimus*), San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*), Atriplex parishii, Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), and heart-leaved pitcher sage (*Lepichinia cardiophylla*; **Figure 12**). These mapped areas reflect the diversity of soils, landforms, and habitat conditions within the Elsinore Valley and surrounding foothills and serve as an important planning-level tool for identifying potential biological constraints.

Although MSHCP §6.1.3 and 6.3.2 are distinct, they rely on a similar tiered evaluation framework that is consistent with how other sensitive biological resources are addressed under the MSHCP. Projects proposed within either Narrow Endemic Plant Species Survey Areas or Criteria Area Plant Species Survey Areas are expected to undergo the same level of initial screening as other MSHCP natural resource survey areas. These mapped survey areas provide a planning-level framework for early identification of potential constraints and opportunities for conservation. Location of a project within a Narrow Endemic Plant Species Survey Area does not automatically require focused surveys; however, an assessment is needed and where suitable habitat is present and project impacts cannot be avoided, preconstruction special-status plant surveys conducted during the appropriate blooming period are required. Survey results are used to confirm presence or absence, document habitat conditions, and inform appropriate avoidance, minimization, or conservation measures. Results from these surveys should be incorporated into a formal MSHCP Consistency Analysis, using the structure provided by the RCA. This approach reflects the MSHCP's emphasis on avoiding impacts to sensitive plant resources where feasible and minimizing indirect effects where avoidance is not practicable.

By integrating the MSHCP's narrow endemic plant provisions into the Conservation/Open Space Element and GPU EIR, the City of Lake Elsinore establishes a proactive, policy-based framework for conserving botanical resources that contribute to regional biodiversity and the City's natural character. This approach ensures that future development remains consistent with the MSHCP while balancing long-term conservation of narrow endemic plant species with planned growth and community development objectives.

4.8 Stephens' Kangaroo Rat Conservation (MSHCP Section 6.2)

Stephens' kangaroo rat (SKR) is addressed under the MSHCP through integration of the pre-existing Stephens' Kangaroo Rat Habitat Conservation Plan (Riverside County Transportation and Land Management Agency 1996), which relies on modeled habitat, designated conservation areas, and fee-based mitigation rather than project-level survey requirements. Rather than relying on project-level surveys or survey-area triggers, SKR conservation under the MSHCP is implemented through a habitat-based and fee-based program grounded in modeled habitat, designated conservation areas, and long-term reserve assembly. As a result, compliance for SKR is determined by whether a project is located within modeled SKR habitat and/or an SKR Fee Area, and whether required mitigation fees or land dedication are provided. This approach avoids widespread trapping or survey requirements that could result in take of this federally endangered species and instead focuses on regional habitat conservation and management.

Modeled suitable SKR habitat occurs in several areas within and adjacent to the Planning Area, primarily along the Elsinore Valley floor and surrounding low-relief uplands (**Figure 13**). These areas represent habitat predicted through landscape-level modeling to support SKR based on soil type, landform, and vegetation characteristics. Presence of modeled habitat signals potential applicability of SKR conservation requirements but does not, by itself, indicate species occupancy.

Designated SKR Core Reserve Areas, originally established under the 1996 SKR HCP and carried forward into the MSHCP, are primarily outside but near the Planning Area, with limited overlap at the periphery (**Figure 13**). These areas represent lands intended for permanent conservation and long-term management of SKR populations. Development within these areas is generally avoided, and their proximity to the Planning Area underscores the importance of maintaining compatible land uses and open-space linkages.

Portions of the Planning Area fall within designated SKR HCP Fee Areas (**Figure 13**). Within these areas, impacts to modeled SKR habitat are mitigated through payment of SKR mitigation fees or approved land dedication, rather than through trapping surveys or species-specific avoidance measures. This fee-based approach supports acquisition and management of core reserve lands elsewhere in the region and is a central component of the SKR conservation strategy.

The distribution of modeled habitat, conservation areas, and fee-based mitigation zones highlights the role of the Planning Area in supporting regional SKR conservation objectives without relying on project-level surveys. With careful planning, the GPU can accommodate growth while remaining consistent with the MSHCP by directing development in a manner that respects SKR conservation boundaries, preserves open space where feasible, and ensures that future projects comply with applicable SKR fee and land-use provisions.

4.9 Additional Survey Needs and Procedures (MSHCP Section 6.3.2)

MSHCP §6.3.2 establishes additional survey needs and procedures for criteria area species where suitable habitat may be present. The Planning Area overlaps multiple Criteria Area Species Survey Areas (see discussion with the narrow endemic species, above) and therefore requires the same level of biological consideration as other sensitive natural resources addressed by the MSHCP. Consistent with §6.3.2, future discretionary projects will implement a tiered evaluation approach beginning with a desktop assessment of available biological information, followed by habitat suitability determinations and focused, species-specific surveys conducted during appropriate seasonal windows where suitable habitat is present and impacts cannot be avoided. Survey results will be incorporated into formal MSHCP Consistency Analyses reviewed by the Riverside County RCA.

4.9.1 Amphibians

The Planning Area is not within a MSHCP-designated Amphibian Survey Area; however, the southern SOI that extends into the foothills of the Elsinore Mountains is adjacent to several survey areas that identify arroyo toad and California red-legged frog, a focal taxa where suitable habitat exists and additional surveys are required. The arroyo toad survey area is 0.19 miles from the SOI and includes a large 78 square mile area extending over the southern Santa Ana Mountain Range. The California red-legged frog survey area is 2.2 miles from the SOI and includes a relatively smaller 2 square mile survey area confined to drainage of San Juan Canyon, along the Ortega Highway that connects to downtown Lake Elsinore. Although the Planning Area is not located within a designated Amphibian Species Survey Area, the proximity of mapped survey areas and the availability of suitable upland and aquatic habitat within typical dispersal distances suggest an increased potential for occurrence.

4.9.2 Burrowing Owl Survey Area

Substantial portions of the Planning Area overlap MSHCP-designated Burrowing Owl Survey Areas (**Figure 14**). These survey areas are concentrated in the Elsinore Valley floor and surrounding low-relief landscapes characterized by open grassland, disturbed agricultural lands, and other habitats that can support burrowing owl nesting and foraging. The Burrowing Owl Survey Areas also overlap multiple MSHCP Criteria Cells, reflecting the importance of these areas to regional conservation objectives. In this circumstance, project review must address not only species-level impacts, but also effects on reserve assembly and long-term conservation objectives. In addition to completing focused burrowing owl surveys where habitat is present, a project must evaluate whether proposed development would preclude conservation of the Criteria Cell or interfere with its intended contribution to the MSHCP Conservation Area. Avoidance of occupied habitat within Criteria Cells is strongly emphasized, and where impacts cannot be avoided, mitigation must be structured to support Biologically Equivalent or Superior Preservation consistent with MSHCP requirements.

Projects within both a Burrowing Owl Survey Area and a Criteria Cell therefore require a more comprehensive MSHCP Consistency Analysis, integrating survey results, avoidance and minimization measures, and findings related to reserve assembly. This ensures that species-specific protections for burrowing owl are

addressed in tandem with the broader landscape-level conservation goals of the MSHCP (CDFW 2012, RCA 2006).

4.9.3 Desert Tortoise Survey Area

The Planning Area is not within a MSHCP-designated Desert Tortoise (*Gopherus agassizii*) Survey Area. The nearest survey area is greater than 60 miles east of the Planning Area in eastern Riverside County. The species is not expected to occur in the Planning Area.

4.9.4 Delhi Sands Flower-Loving Fly Survey Area

The Planning Area is not within a MSHCP-designated Delhi Sands Flower-Loving Fly (*Rhaphiomidas terminatus abdominalis*) Survey Area. The nearest survey area is greater than 15 miles from the Planning Area in the northwest corner of the Plan area. The Planning Area does not contain Delhi sands soil series, a rare, wind-deposited sandy soil and is not expected to occur in the Planning Area (USDA 2025).

4.9.5 Mammal Species Survey Area

The Planning Area is not within a MSHCP-designated Mammal Survey Area. The nearest survey area is greater than 5 miles from the Planning Area. Mammal Species Survey Areas identify designated areas where additional survey needs may apply for certain MSHCP-covered mammals, specifically Aguanga kangaroo rat (*Dipodomys merriami collinus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), and San Bernardino kangaroo rat (*D. merriami parvus*) and where focused surveys are conducted during project review when suitable habitat is present.

4.9.6 ***Species Not Adequately Conserved (MSHCP "Table 9-3 Species")***

The MSHCP identifies 28 Covered Species as not yet adequately conserved at the time of Plan adoption, with conservation adequacy to be achieved through species-specific regional objectives identified in MSHCP Table 9-3. Within the Planning Area, these Species Not Adequately Conserved are addressed programmatically through implementation of the MSHCP conservation strategy, reserve assembly, and long-term habitat management, rather than through project-specific determinations of conservation adequacy.

The MSHCP identifies these 28 SNAC species as covered species that require additional demonstrated conservation outcomes and/or Forest Service coordination before they are considered "adequately conserved" under the Plan's framework. Assessments for these SNACs typically includes an assessment of suitable habitat and other characteristics that would influence potential occurrence, identification of areas in the Planning Area that may be impacted from a proposed project or actions, and recommending specieis-specific project-level survey/avoidance expectations into policy language and mitigation frameworks consistent with MSHCP implementation. The MSHCP also clarifies that the Table 9-3 requirements are only one layer; species objectives and details in the species accounts are also part of the conservation standard.

As of January 21, 2022, the Riverside County Regional Conservation Authority has determined that the Table 9-3 conservation requirements have been met for nine Species Not Adequately Conserved, including beautiful hulsea (*Hulsea vestita*), Coulter's matilija poppy (*Romneya coulteri*), Fish's milkwort (*Polygala cornuta* ssp. *fishiae*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*),Parry's spineflower (*Chorizanthe parryi* var. *parryi*), peninsular spineflower (*Chorizanthe procumbens*), Plummer's mariposa lily (*Calochortus plummerae*), rainbow manzanita (Arctostaphylos rainbowensis), small-flowered microseris (*Microseris douglasii* ssp. platycarpha; RCA 2022). These species are still MSHCP Covered Species, but they are no longer considered "not adequately conserved" because their Table 9-3 conservation benchmarks have been achieved at the regional scale.

Species that have not met conservation thresholds remain the subject to ongoing regional conservation efforts. Within the Planning Area, this distinction reinforces the importance of maintaining and managing open space lands that support regionally significant habitats, particularly grasslands, chaparral, riparian corridors, and upland foothill areas. The GPU supports the MSHCP's long-term conservation strategy by preserving open space, maintaining habitat connectivity, and ensuring that future development remains compatible with regional conservation objectives, while recognizing that determinations of conservation adequacy for Table 9-3 species are made at the regional level rather than on a project-by-project basis.

4.10 Guidelines Pertaining to the Urban/Wildlands Interface (MSHCP Section 6.1.4)

The Planning Area occupies a distinctive intermountain basin setting within western Riverside County, characterized by a relatively more developed valley floor surrounded by upland foothills, ridgelines, and mountain blocks that support more extensive areas natural open space. This physiographic context creates a pronounced urban–wildlands interface, where existing and planned urban development along the valley margins directly abuts native habitats in the surrounding hills and conservation lands. MSHCP §6.1.4

recognizes that these interface areas are particularly susceptible to indirect impacts associated with urbanization, including edge effects, habitat fragmentation, altered fire regimes, invasive species introduction, increased human access, noise, lighting, and predation pressures.

Within an intermountain basin, these interface effects are intensified by topographic convergence. Development along the basin floor and lower slopes can influence ecological processes across a broader area, as drainage patterns, wildlife movement corridors, and fire behavior are shaped by surrounding uplands. Wildlife species that depend on both upland and lowland habitats—such as wide-ranging mammals, raptors, and species moving between seasonal resources—are more likely to encounter urban edges in basin settings. As a result, the MSHCP emphasizes the need to carefully manage the configuration and intensity of development at the urban–wildlands boundary to avoid incremental degradation of adjacent conserved lands.

MSHCP §6.1.4 provides guidelines intended to minimize indirect impacts at the urban edge, including consideration of development setbacks, buffering, access control, lighting and noise management, and long-term stewardship of conserved lands adjacent to development. In the Lake Elsinore Planning Area, these guidelines are particularly relevant where growth is directed toward the foothills, where open space lands often function as ecological buffers, movement corridors, and transition zones between urban uses and higher-elevation conservation areas. The intermountain basin context underscores the importance of maintaining these transition areas to preserve habitat connectivity between the surrounding mountain blocks and valley floor resources.

From a Conservation and Open Space Element perspective, the urban–wildlands interface guidelines reinforce the role of strategically located open space as an active component of land use planning rather than residual land. Open space within the basin and along its margins can serve multiple functions, including buffering conserved lands, accommodating passive recreation, managing wildfire risk, and maintaining visual and ecological separation between urban development and wildland habitats. Incorporating these interface considerations into the General Plan Update supports a land use pattern that respects the basin's natural constraints while aligning with regional conservation objectives under the MSHCP.

In this context, the GPU provides an opportunity to proactively integrate the principles of MSHCP §6.1.4 by guiding future development toward forms and locations that reduce edge effects, preserve functional open space networks, and maintain long-term compatibility between urban growth and surrounding wildlands. Application of these guidelines at the project level, through MSHCP consistency review and local entitlement processes, ensures that development within the intermountain basin contributes to a cohesive urban form while safeguarding the ecological integrity of adjacent conservation lands.

4.11 Construction Guidelines (MSHCP Section 7.5.3)

The City shall ensure that future development facilitated by the GPU is implemented consistent with the MSHCP §7.5.3 – Construction Guidelines, including practices that limit construction disturbance to approved impact areas, protect adjacent open space and sensitive biological resources, and minimize indirect effects

during construction. These guidelines shall be applied at the project level through MSHCP consistency review to support long-term conservation objectives while accommodating orderly growth within the Planning Area.

4.12 Best Management Practices (MSHCP Volume I, Appendix C)

MSHCP Best Management Practices (BMPs), provided in Volume I, Appendix C, establish a suite of standardized environmental protection measures intended to minimize indirect and construction-related impacts to biological resources associated with development activities. These BMPs address common sources of disturbance such as erosion, sedimentation, dust, invasive species introduction, noise, lighting, and accidental encroachment into adjacent natural areas. Collectively, they are designed to reduce avoidable secondary effects on conserved lands and sensitive habitats while allowing covered development to proceed in a predictable and consistent manner.

At the General Plan level, the BMPs function as programmatic implementation guidance, rather than as project-specific mitigation measures. For the Lake Elsinore GPU, they establish an expectation that future discretionary projects will incorporate BMPs appropriate to their location, scale, and proximity to biological resources as part of MSHCP consistency review and local entitlement processes. The BMPs are intentionally flexible, allowing them to be tailored at the project level based on site conditions while maintaining consistency with regional conservation objectives.

In project planning, BMPs are typically applied where development occurs near open space, riparian corridors, conserved lands, Criteria Cells, or other sensitive resources, and where construction or ongoing operations could generate indirect effects beyond the project footprint. Application of BMPs helps ensure that development remains compatible with adjacent conservation areas by controlling runoff and erosion, preventing the spread of invasive species, managing lighting and noise at the urban–wildland interface, and maintaining clear boundaries between developed areas and preserved open space.

Within the context of the Lake Elsinore GPU, incorporation of the MSHCP BMP framework supports a balanced growth strategy by embedding environmental stewardship into future project design and construction practices without constraining land use decisions at the plan level. By committing to implementation of BMPs through subsequent project review, the General Plan Update reinforces long-term conservation outcomes while providing flexibility for site-specific solutions as development proposals are evaluated.

6.0 CONCLUSION

The GBRA demonstrated that the Planning Area functions as a regionally important ecological basin supporting a diverse mosaic of upland, riparian, wetland, and lacustrine habitats within an otherwise semi-arid intermountain landscape. The presence of Lake Elsinore, the San Jacinto River, Temescal Wash, and associated wetlands creates a concentration of aquatic and riparian resources that are limited elsewhere in inland Southern California, resulting in disproportionately high biological value relative to surrounding developed areas. This setting supports sensitive natural communities, jurisdictional waters, and habitat for

numerous special-status plant and wildlife species, including MSHCP-covered species and migratory birds using the Pacific Flyway.

The assessment further indicated that biological resources are unevenly distributed, with the highest concentrations of intact native vegetation, sensitive communities, and habitat connectivity occurring in the SOI and along the foothills and drainage corridors surrounding the urban core. For example, chaparral, coastal sage scrub, and grassland habitats dominate the SOI, while the majority of sensitive riparian communities occur outside the City Boundary along incised drainages and river corridors. This spatial pattern underscores the SOI's role as a critical transition zone that supports wildlife movement between Lake Elsinore, Elsinore Mountains, Santa Ana Mountains, and adjacent regional conservation lands.

Because of the unique diversity of habitat types, and other environmental characteristics, the Planning Area supports a wide range of special-status plants and wildlife, reflecting the convergence of hydrology, topography, and relatively unfragmented open space. Notably, the area provides habitat for aquatic-associated species such as western spadefoot, California red-legged frog, and riparian birds, as well as upland species including Stephens' kangaroo rat, coastal California gnatcatcher, and burrowing owl. The application of multiple MSHCP administrative layers including Criteria Cells, Narrow Endemic Plant Species survey areas, wildlife cores, and proposed linkages, reflects the regional importance of these resources and establishes a structured framework for evaluating future development consistency rather than precluding growth outright.

Overall, the findings support the conclusion that future growth contemplated under the GPU can be accommodated while maintaining consistency with regional conservation objectives, provided that development is guided by the MSHCP framework and implemented through project-level review. The BRA establishes a comprehensive biological baseline that informs land use planning, highlights areas of heightened sensitivity, and reinforces the importance of open space preservation, habitat connectivity, and urban–wildland interface management. As such, the Planning Area represents both a biologically significant landscape and a managed growth environment where long-term conservation outcomes are achieved through coordinated planning, avoidance, and design rather than piecemeal mitigation.

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APPENDIX A. FIGURE ADDENDUM

- 2005 MSHCP Vegetation Map
- 2012 MSHCP Vegetation Map
- USFWS Designated Critical Habitat
- MSHCP Reserve Assembly – Landscape Planning Elements
- MSHCP Reserve Assembly – Performance and Survey Trigger Elements

APPENDIX B. SPECIAL STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN THE PLANNING AREA

APPENDIX C. SPECIAL STATUS ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN THE PLANNING AREA

APPENDIX D. TABLE ADDENDUM

Appendix D. Changes in Land Use Designations Proposed by the General Plan Update.

Group	Existing Land Use	Proposed Future Land Use	Acres
Residential	low density residential	Open Space	242
	low density residential	Public/Institutional	2
	low-medium density residential	Hillside Residential	74
	low-medium density residential	General Commercial	10
	low-medium density residential	Limited Industrial	14
	low-medium density residential	Medium Density Residential	41
	low-medium density residential	Open Space	70
	low-medium density residential	Residential Mixed Use	19
	low-medium density residential	Public/Institutional	27
	medium density residential	General Commercial	20
	medium density residential	Open Space	81
	medium density residential	Residential Mixed Use	27
	High Density Residential and General Commercial	Limited Industrial	7
	Hillside Residential	Floodway	44
	Hillside Residential	Hillside Residential	7
	Hillside Residential	Limited Industrial	83
	Hillside Residential	Medium Density Residential	1
	Hillside Residential	Open Space	4,490
Commercial	Neighborhood Commercial	High Density Residential	1
	Neighborhood Commercial	Medium Density Residential	1
	Neighborhood Commercial	Open Space	14
	Commercial Mixed Use	General Commercial	64
	Commercial Mixed Use	General Commercial - Auto Mall Overlay	103
	Commercial Mixed Use	High Density Residential	8
	General Commercial	Business Professional	2
	General Commercial	Limited Industrial	3
	Tourist Commercial	General Commercial	8
	Tourist Commercial	Limited Industrial	59
Other	Mix of Low Density Residential, High Density Residential, Public/Institutional and Open Space	Open Space	300
	Recreational	General Commercial	2
	Open Space	Low-Medium Residential	1
	Specific Plan	Business Professional	2
	Specific Plan	General Commercial	17
	Specific Plan	Limited Industrial	0
	Specific Plan	Specific Plan	0
	Undefined	Business Professional	99
	Undefined	Commercial Mixed Use	9
	Undefined	Floodway	2
	Undefined	General Commercial	85
	Undefined	General Commercial - Auto Mall Overlay	46
	Undefined	High Density Residential	110
	Undefined	Hillside Residential	75
	Undefined	Limited Industrial	24
	Undefined	Low-Medium Residential	3
	Undefined	Medium Density Residential	66
	Undefined	Mixed Use	117
	Undefined	Open Space	1
	Undefined	Public/Institutional	8
	Undefined	Specific Plan	7
	Undefined	Very High Density Residential	31
		Total	**6,527**