PALMDALE GENERAL PLAN UPDATE

Natural + Cultural Resources

SPRING 2020 | FINAL REPORT

Envision PALMDALE 2045
a complete community

Chapter 10: Natural + Cultural Resources

This chapter provides a general overview of the existing natural and cultural resources in Palmdale.

Key Findings

- Palmdale contains a diversity of natural communities and biotic habitats differing greatly between the foothills in the western portion of the City and the flat desert in the east. Development in natural areas is subject to the Environmental Resources Element, the West Mojave Habitat Conservation Plan and Natural and the Native Desert Vegetation Ordinance, which include restrictions related to the destruction of natural habitats and the removal of protected trees.
- Sensitive ecological habitats exist within the designated Significant Ecological Area, which includes: Big Rock Wash, Littlerock Wash, Ritter Ridge, Portal Ridge and Alpine Butte. Development in this area shall take appropriate steps to identify and protect significant flora and fauna.

Palmdale. Source: Wikipedia

Natural Resources

Natural Communities

Outside of the urbanized portions of Palmdale are several types of natural communities that can host a variety of protected plant and animal species. Many of the natural communities include varieties of shrub and scrub, chaparral, and grassland with some Juniper, Joshua tree and riparian habitats. Table 10.1 lists the existing communities with their approximate acreage in Palmdale. Figure 10.1 shows where these various communities are located.

Table 10.1 Natural Communities

Natural Community and Biotic Habitat	Total Acres	Percentage
Annual Grassland	9,691	14.25%
Mixed Chaparral	8,042	11.82%
Desert Scrub	7,154	10.52%
Sagebrush	5,891	8.66%
Joshua Tree	4,351	6.40%
Alkali Desert Scrub	3,369	4.95%
Juniper	3,410	5.01%
Montane Hardwood	1,062	1.56%
Barren	536	0.79%
Desert Wash	442	0.65%
Lacustrine	323	0.48%
Montane Chaparral	174	0.26%
Desert Riparian	75	0.11%
Bitterbrush	51	0.07%
Chamise-Redshank Chaparral	45	0.07%
Montane Riparian	44	0.06%
Saline Emergent Wetland	40	0.06%
Valley Foothill Riparian	29	0.04%
Fresh Emergent Wetland	18	0.03%
Coastal Scrub	4	0.01%
Coastal Oak Woodland	3	<0.01%
Agricultural	1,621	2.38%
Urban	21,644	31.82%
Total	**68,021**	**100.00%**

Annual Grassland

Annual Grasslands are generally found in patches of various sizes throughout Palmdale, with higher concentrations in the foothills in the western portion of the city. This natural community consists of various annual grasses and plant species in open areas. The State flower, the California Poppy, can be found in these areas when seasonal rainfall is sufficient. The Annual Grasslands provides suitable habitat for foraging and breeding of many wildlife species, including reptiles, small mammals and birds.

Desert Scrub

The City of Palmdale contains areas of typical Desert Scrub and Alkali Desert Scrub, mostly found in the flat, eastern portion of the city. Alkali Desert Scrub is found in heavily mineralized soils associated with the flood plains of local rivers. Desert Scrub is characterized by open, scattered assemblages of shrubs and bushes between two to six feet in height, with relatively low diversities of succulents and cactuses. Desert Scrub supports a variety of reptiles, and small mammals, including the Mojave Ground Squirrel.

Chaparral

A variety of chaparral communities are present in Palmdale. Chamise-Redshank, Montane and Mixed Chaparral varieties are found in the hills of the western portion of the Palmdale's sphere of influence. Chamise-Redshank Chaparral occurs in the drier desert margins and desert mountains that are absent of trees, with Mixed and Montane Chaparral being intergraded together at slightly higher elevations where moisture is more accessible. Chaparral has a characteristic impenetrable, interwoven canopy of different shrub types, and is particularly susceptible to wildfire. Chaparral habitats host a variety of small mammals, reptiles and birds, with population densities strongly dependent on the frequency of wildfires.

Sagebrush and Bitterbrush

Sagebrush and Bitterbrush natural communities are found intermixed along the Anaverde Valley, adjacent to Desert Scrub, Juniper and Joshua tree. These habitats consist of widely spaced shrubs dominated by the characteristic Sagebrush and Bitterbrush species. These communities are very important to wildlife as they provide suitable habitat to game animals, providing a highly digestible form of protein for deer, cattle, sheep and horses. Additionally, many species of birds, rodents and insects eat the seeds.

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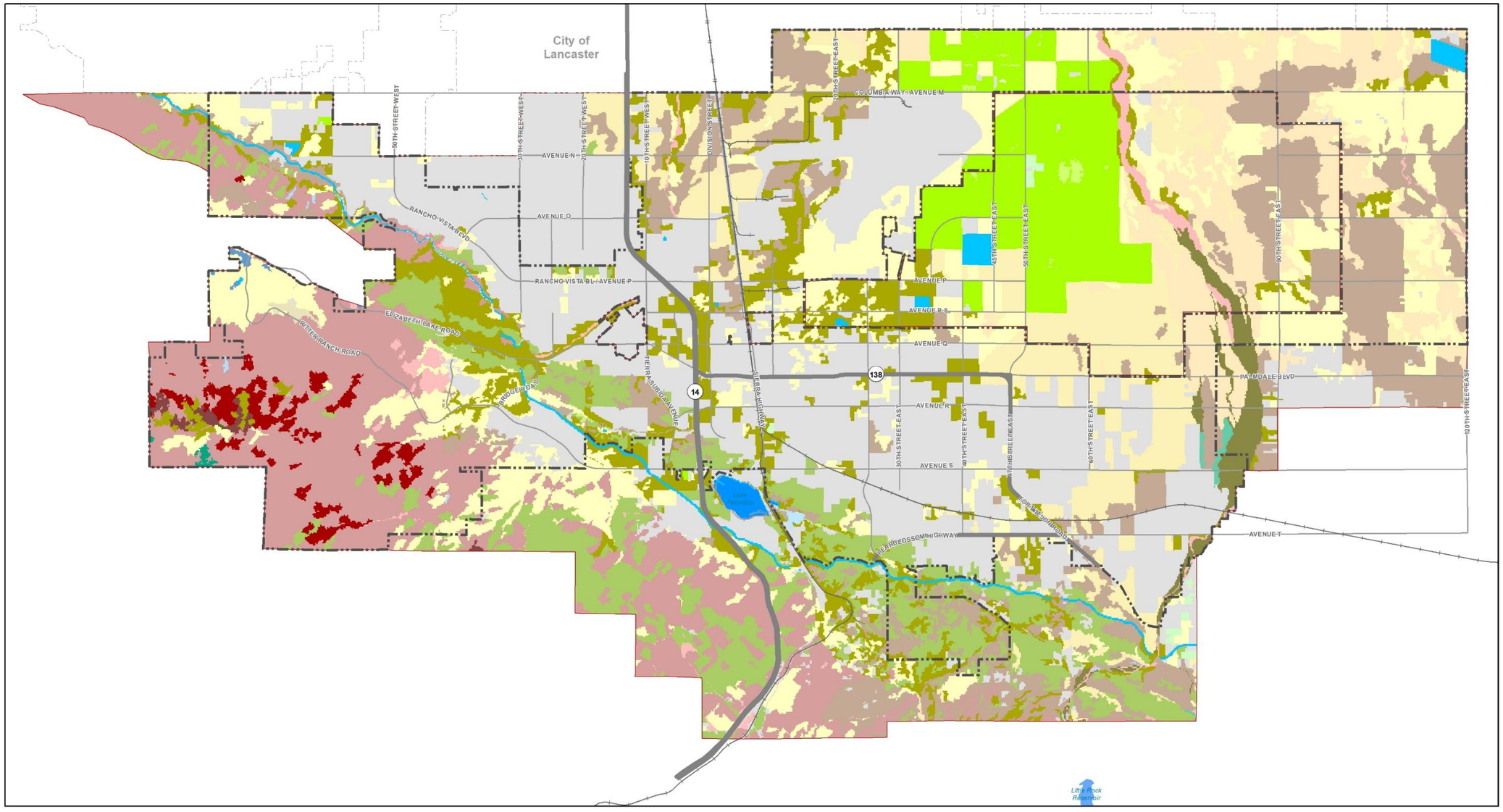
Figure 10.1 Natural Communities



Natural Communities

- Major Highway/Arterial
- City Limits
- City Boundary
- Sphere of Influence
- Railroad
- Arterials
- Water Body

Natural Community Name

- Alkali Desert Scrub (6,606.43 ac)
- Annual Grassland (14,883.09 ac)
- Barren (1,027.03 ac)
- Bitterbrush (97.14 ac)
- Chamise-Redshank Chaparral (44.81 ac)
- Coastal Oak Woodland (2.67 ac)
- Coastal Scrub (3.78 ac)
- Deciduous Orchard (150.31 ac)
- Desert Riparian (161.90 ac)
- Desert Scrub (12,680.99 ac)
- Desert Wash (1,184.13 ac)
- Dryland Grain Crops (4.00 ac)
- Fresh Emergent Wetland (32.25 ac)
- Irrigated Hayfield (120.54 ac)
- Irrigated Row and Field Crops (6,232.38 ac)
- Joshua Tree (7,881.91 ac)
- Juniper (8,400.17 ac)
- Lacustrine (1,034.13 ac)
- Mixed Chaparral (13,156.03 ac)
- Montane Chaparral (185.63 ac)
- Montane Hardwood (1,062.21 ac)
- Montane Riparian (45.86 ac)
- Pasture (77.01 ac)
- Sagebrush (8,602.64 ac)
- Saline Emergent Wetland (40.03 ac)
- Urban (28,510.64 ac)
- Valley Foothill Riparian (48.84 ac)

0 0.75 1.5 2.25 3 Miles

0 3,000 6,000 Feet

Data Sources: City of Palmdale GIS data; CALFIRE, 2015.

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Joshua Tree and Juniper

Joshua tree and Juniper communities consist of open woodlands with scattered Joshua or Juniper trees and sparse groundcover of shrubs. The prominence of the Joshua tree and Juniper plants in these habitats give a unique aesthetic, where the taller characteristic trees stand out sharply in the relatively flat terrain. These natural communities are intermixed and scattered throughout the city, with some areas in the eastern portion being dominated by Joshua tree, and communities within the Anaverde Valley dominated by Juniper. Juniper berries provide an important food source for birds during harsh winters.

Montane Hardwood

Montane Hardwood habitats, which are composed of an open canopy of various hardwood trees and a sparse shrub under layer, are found in the hills of the western portion of Palmdale. This habitat interfaces with various types of chaparral at the lower elevations of its extent. The Montane Hardwood natural community provides suitable foraging for species that use acorns as a major food source, including acorn woodpeckers, wild turkeys, and western gray squirrels. Additionally, the forest floor hosts a variety of amphibians and reptiles.

Lacustrine and Riparian

Lacustrine habitats are found in inland ponds, lakes and reservoirs, while riparian habitats are the vegetation communities surrounding these water bodies and other streams and alluvial deposits. Lacustrine habitats are used by a variety of mammal, birds, reptiles and amphibians for reproduction, food, water and cover. Riparian communities provide water, food, migration and dispersal corridors, and nesting and thermal cover for an abundance of wildlife. These habitats are important for permanent resident and visiting populations of birds, which use the trees of these communities for nesting. Valley Foothill and Desert varieties of riparian natural communities are found at Lake Palmdale, Lake Una, Anaverde Valley and Amargosa Creek.

Lake Palmdale. Source: Wikipedia

Protected Wildlife Species

Palmdale lies almost entirely within the West Mojave Habitat Conservation Plan, as shown in Figure 10.2. Wildlife rare plant and animal species that are native to California are also protected by the California Department of Fish and Wildlife. Table 10.2 identifies protected wildlife species that are known to exist within Palmdale.

Table 10.2 Selected Protected Species within Palmdale

Species	Background
Bell's Sage Sparrow	Mixed chaparral habitat suitable for breeding and foraging exists in the city and it has been observed in this habitat just east of Ritter Canyon.
Burrowing Owl	Suitable sparse, dry habitat for breeding and foraging exists in the city and it has been observed in this habitat in various locations.
California Red-Legged Frog	A pond fed by artesian springs in the Ritter Ranch area provides suitable habitat for foraging and breeding adults have been observed.
Coast Horned Lizard	Suitable habitat for breeding and foraging exists and it has been observed in the scrub and grassland habitats of the western portion of the city.
Cooper's Hawk	Likely nesting habitat of riparian forest exits in Amargosa Creek in the western portion of the city.
Ferruginous Hawk	Suitable habitat for foraging of desert scrub and juniper habitats exist in the Palmdale and it has been observed in this habitat at the northwest end of Anaverde Valley in the western portion of the city.
Le Conte's Thrasher	A desert resident which commonly nests in a dense spiny shrub or densely branched cactus in desert wash habitat. It has been observed in multiple locations throughout Palmdale.
Least Bell's Vireo	An endangered species which has been observed on the eastern edge of Una Lake in a habitat consisting of willow and mulefat scrub.
Loggerhead Shrike	Palmdale consists of suitable habitat, of Joshua trees and desert scrub and washes, for foraging and nesting. It has been observed perched on Joshua trees northwest of Palmdale airport and on powerlines southeast of Anaverde Valley.
Mohave Ground Squirrel	Restricted to the Mojave Desert, the open desert scrub and Joshua tree woodland in Palmdale provide suitable habitat for foraging and nesting.
Mountain Plover	Multiple observations have been reported in mowed agricultural fields, north of the Palmdale Airport. The short vegetation provides suitable habitat for foraging and nesting.

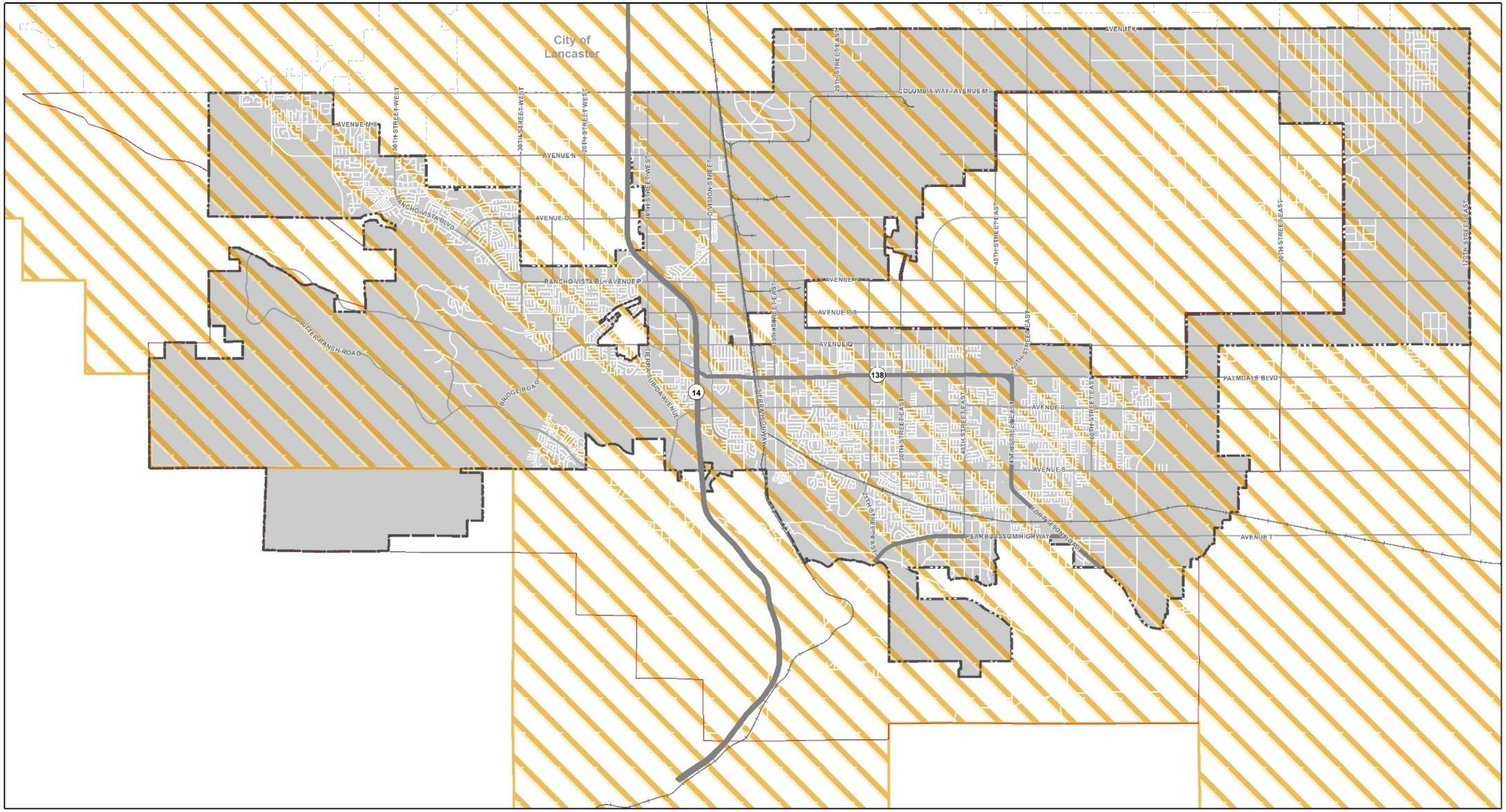
Northern California Legless Lizard	A disjunct Mojave Desert Population exists in Palmdale where the sandy soils provide suitable habitat for breeding and foraging.
San Joaquin Pocket Mouse	The fine-textured, sandy soils of the arid scrubland that exists within Palmdale provide suitable breeding and foraging habitat.
Southern California Rufous-Crowned Sparrow	A resident of Southern California sparse mixed chaparral, which frequents relatively steep and rocky hillsides with grass and forb patches. It has been observed just southwest of Anaverde Valley and just South of Leona Valley.
Tricolored Blackbird	A candidate endangered species, it breeds and nests in colonies near open water with availability of protected nesting. Colonies have been observed at Lake Palmdale and Leona Valley Pond, which provide suitable habitat for breeding and foraging.
Two-Striped Gartersnake	Suitable habitat for foraging and breeding of dense riparian with permanent fresh water exists within Palmdale. It has been observed along Amargosa Creek in the western portion of the city.
Western Pond Turtle	Riparian habitat and open water within Palmdale provide suitable habitat for foraging and breeding. There have been multiple observations in and along Amargosa Creek in the western portion of the city.
Short-joint Beavertail	A perennial stem succulent which blooms, April through June, characteristic of the Juniper woodland, Joshua tree woodland and Mojavean Desert Scrub natural communities within Palmdale.
Slender Mariposa-Lily	A perennial bulbiferous herb found in chaparral and valley and foothill grasslands; often on shaded canyons or grassy slopes. It has been found at the southeast end of Portal Ridge, near Leona Valley.
Sources: California Natural Diversity Database, 2019	

Burrowing Owl. Source: California Department of Fish and Wildlife

Significant Ecological Areas

The 1993 Environmental Resources Element established a goal to protect significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas. As shown in Figure 10-3, sensitive ecological habitats exist within the designated Significant Ecological Areas, which include Big Rock Wash, Littlerock Wash, Ritter Ridge, Portal Ridge and Alpine Butte. Development in these areas shall take appropriate steps to identify and protect significant flora and fauna.

Figure 10.2 West Mojave Habitat Conservation Plan Planning Area



Western Mojave Habitat Conservation Plan

- Western Mojave Habitat Conservation Plan
- City of Palmdale Boundary
- Sphere of Influence
- Other City Boundary
- Major Highway/Arterial
- Railroad

0 0.75 1.5 2.25 3 Miles

0 3,000 6,000 Feet

Data Sources: City of Palmdale GIS data.; Los Angeles County, 2018.

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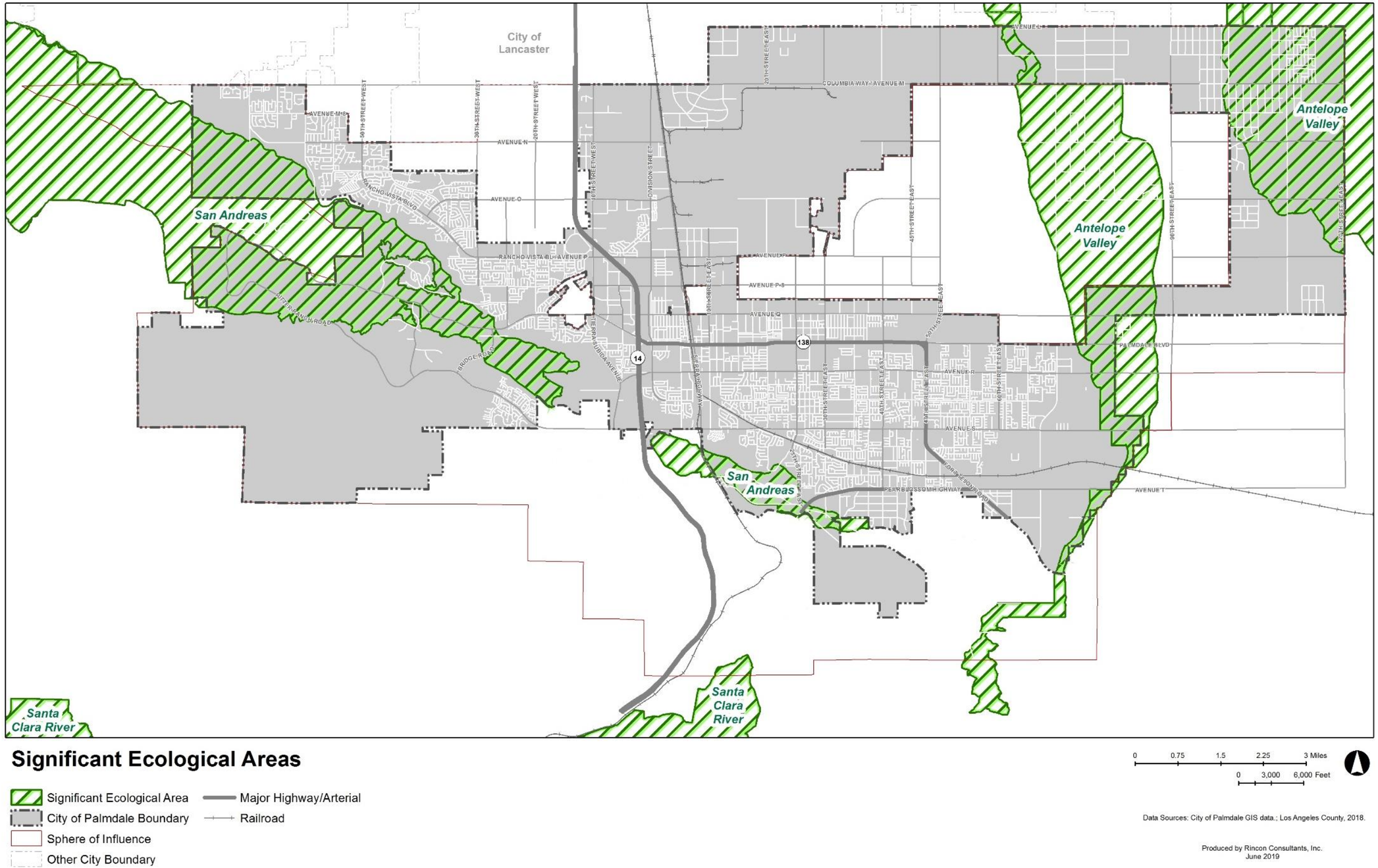
Figure 10.3 Significant Ecological Areas



Significant Ecological Areas

- Significant Ecological Area
- City of Palmdale Boundary
- Sphere of Influence
- Other City Boundary
- Major Highway/Arterial
- Railroad

0 0.75 1.5 2.25 3 Miles

0 3,000 6,000 Feet

Data Sources: City of Palmdale GIS data.; Los Angeles County, 2018.

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Land Resources

Agriculture Lands

Agricultural lands exist to the east of the Palmdale Regional Airport, on lands which are almost entirely under Los Angeles County jurisdiction. Crops produced are primarily non-food crops such as alfalfa, but also consist of pistachio, sod, onion, carrots, and tomatoes. This area is not classified by the California Department of Conservation as prime agricultural land and is not considered regionally significant. Palmdale does not have significant agricultural lands within the planning area.

Mineral Resources

Palmdale lies within the Palmdale Production-Consumption region, which is a California Department of Conservation designated Mineral Resource Zone encompassing 1,103 square miles, including Palmdale and Lancaster. The mineral deposits within Palmdale are the Littlerock Fan and the Big Rock Creek Fan alluvial deposits. The Littlerock Fan is a 12 square mile area extending from the north flank of the San Gabriel Mountains for about 8 miles, which includes the Littlerock Wash floodplain and the fan area to the west (California Department of Conservation 1984). The Big Rock Creek Fan encompasses a 26 square mile area extending northward from the San Gabriel Mountains for 8 miles. Both mineral deposits are composed of about 60% fine to coarse sand and silt, overlain by about 40% pebbly gravel.

Mineral resources within the City are recognized by the California Department of Conservation as being “regionally significant”. Therefore, the California Department of Conservation discourages the encroachment of incompatible land uses which could threaten the long-term viability of sand and gravel mining and processing operations. Accordingly, the Littlerock Fan region has been given a land use designation of Mineral Resource Extraction, which prohibits conflicting land uses, which include, but are not limited to, residential, public facilities, intensive industrial and commercial. Additionally, the 1993 General Plan provides objectives and policies to protect the mineral resources found in the Littlerock Fan (not Big Rock Creek Fan since it lies almost entirely outside of the Palmdale planning area).

Sand and Gravel Mining widely occurs throughout Littlerock Wash (floodplain within the Littlerock Fan). Active quarries exist in the following locations:

- Along 75th street East, between East Avenue S and Palmdale Boulevard
- The area bordered by East Avenue T to the south, East Avenue S to the north, 70th Street East to the west, and 87th Street East to the east
- The region North of SR-138, bordered by Littlerock Wash to the east, 62nd Street East to the west, and East Avenue T to the north

Soils and Erosion

Most of Palmdale's soils consist of unconsolidated sedimentary deposits, sourced from granitic rocks in the San Gabriel Mountains. The floor of the Antelope Valley was at one point occupied by a large intermittent lake, which was the site for accumulation of fine-grained materials. During this time, precipitation events would result in the erosion of materials from the San Gabriel and Tehachapi Mountains, which formed the clay beds that currently underlie the Antelope Valley. The current upper soil levels of Palmdale are derived from the downslope erosion of soil and rock caused by wind and rain (Los Angeles County 2008). These soils can be characterized as alkali with a low water holding capacity (USDA 1970).

Cultural Resources

Humans have inhabited the Western Mojave region for an estimated 5,000 years. Cultural groups known to have occupied the Antelope Valley before European contact include the Kitanemuk, Kawaiisu, Tatavium, and Serrano/Vanyume. As urbanization in Palmdale has increased, more cultural resources have been identified as site surveys have been conducted. Existing state laws ensure that cultural resources are preserved and mitigated through acceptable means. Palmdale has engaged in promoting awareness of existing cultural resources, increasing awareness of Antelope Valley's history, and creating community pride and identity.

Palmdale's modern history is recognized through several historical buildings and sites. Two early settlements at the crossing of the Southern Pacific Railroad tracks and Fort Tejon Road, Harold and Palmenthal, were established in 1886, when between 50 to 60 families of German and Swiss descent moved westward, from the Midwest, towards California. Palmdale's earliest modern residents settled in its current location in 1899. As recognition of Palmdale's long history, the City has identified several structures and sites as having historic significance. These are included in Table 10.3 below.

Table 10.3 Palmdale Historical Sites

Structure	Location	Age
Single-Family House (Wolf House)	536 East Palmdale Boulevard	Early 1930's
Single-Family Houses	Ave Q between 5th Pl and 6th Street East	1920's to 1930's
Ice Storage	South of Avenue R between 6th St East. and railroad	1918
Concrete Block House	932 East Avenue R	1918
Single-Family House	911 Avenue Q-9	1935
Concrete Block House	927 Avenue Q-9	1920's
Single-Family House	942 Avenue Q-9	1920's
Old Palmdale Cemetery	Southeast corner of 20th Street East and Avenue S	1880s
Old Schoolhouse in McAdam Park	38115 30th St East 30th Street East and Avenue R	1900
Single-Family House	38457 9th Street East	1920's
Moore's Hall	38414 8th Street East	1918
Bank of Italy	Northeast corner of 8th St East and East Palmdale Boulevard	pre-1918
Safeway Store	Sierra Highway	1930's
Craig Wilson Chicken Ranch	Northeast corner of 12 Street East and Avenue Q	Unknown

Source: Antelope Valley Historical Society, 1989

Water Resources

Streams

Palmdale has three seasonal streams, Anaverde Creek, Amargosa Creek, and Littlerock Wash, and many smaller drainages, as shown in Figure 10.4. Although Palmdale is considered dry, desert land; these streams will flow during rain and snow melt events in the surrounding mountains, and during the occasional local rainstorm. Amargosa Creek flows eastward, from the San Gabriel Mountains, through Leona Valley, then turning northward near the Center of Palmdale terminating at Piute Pond and Rosamond Dry Lake to the north of Lancaster. Anaverde Creek flows from the San Gabriel Mountains, through the Anaverde Community, connecting with the Amargosa Creek near the center of Palmdale. Littlerock Wash begins at Littlerock Reservoir to the south of Palmdale and flows northward through Palmdale and Lancaster, terminating at the dry bed of

Rosamond Lake (USGS 1984). The Amargosa and Anaverde Creeks provide riparian habitats for migrating birds and raptors.

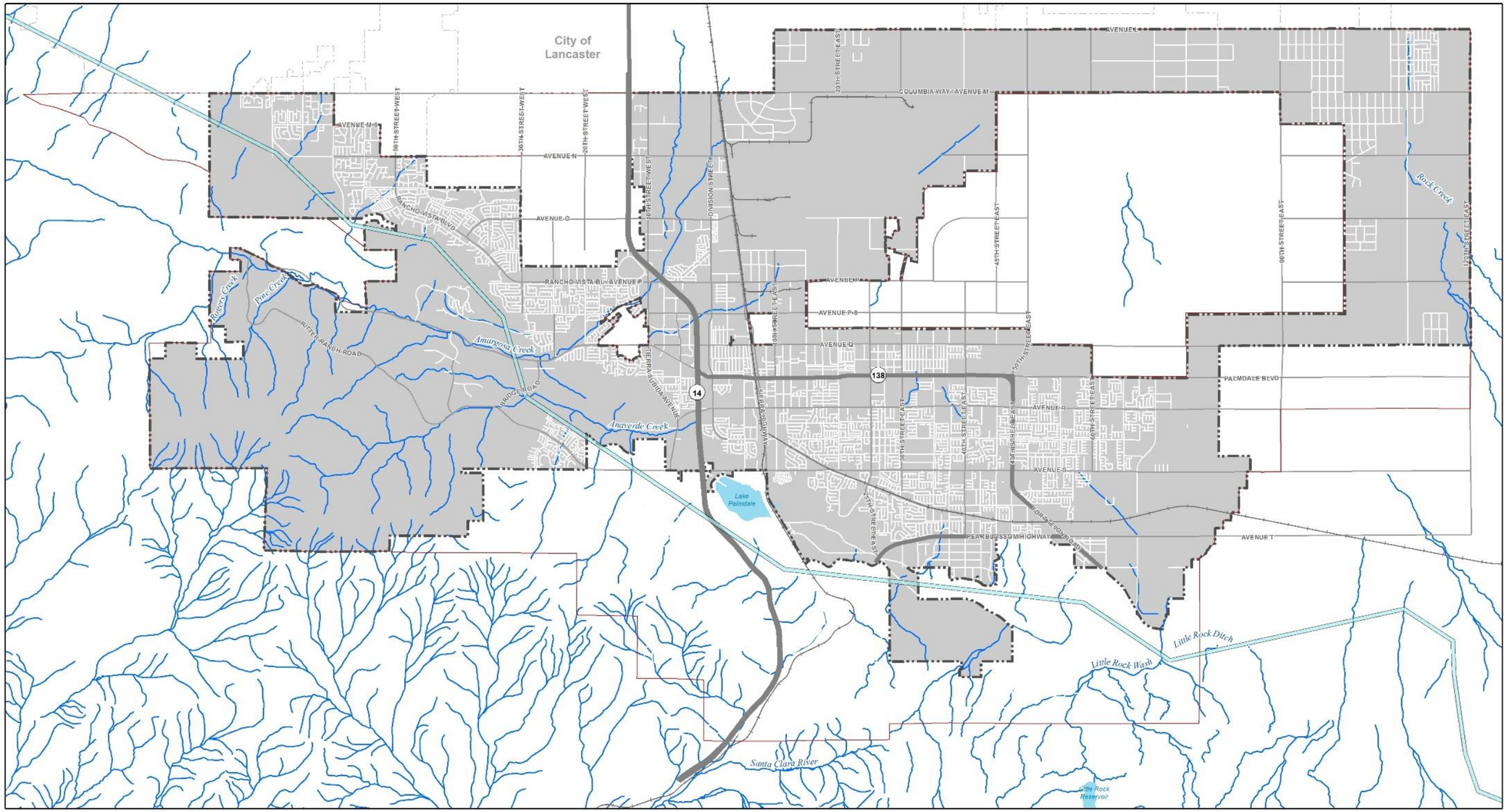
Flood Waters

The floor of the Antelope Valley is subject to shallow flooding, as sheet flow runoff from the San Gabriel Mountains collects in the low-lying valley. Water flows from the mountains towards Palmdale via undefined streams and drainage channels. Therefore, during heavy rain events, these channels are susceptible to unpredictable sheet flow patterns[1]. An increase in urban development in Palmdale has resulted in the increase of impervious surfaces and reduction of natural water retention or drainage in these areas. The resulting increase in stormwater runoff during heavy rain events has caused shallow flooding in roadways, intersections, and low-lying areas (Antelope Valley IRWM 2013).

California Aqueduct in Palmdale.

[1] Sheet flow is a type of runoff pattern in which water flows across the land surface as a film with low volume.

Figure 10.4 Streams and Water Bodies



Streams and Water Bodies

- Water Body
- California Aquaduct
- Stream
- City of Palmdale Boundary
- Sphere of Influence
- Other City Boundary
- Major Highway/Arterial
- Railroad

0 0.75 1.5 2.25 3 Miles

0 3,000 6,000 Feet

Data Sources: City of Palmdale GIS data.; USGS, 2018.

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Policy Guidance

The key policy documents that pertain to natural and cultural resources are discussed below.

1993 General Plan, Environmental Resources Element

The Environmental Resources Element addresses the related issues of resource conservation and provides a basis to evaluate existing resources and plan for their protection. One goal of the Element is to protect significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas. The Element contains an overlay map that designates Significant Ecological Area (SEA) overlay for Big Rock Wash, Littlerock Wash, Ritter Ridge, Portal Ridge and Alpine Butte, as shown in Figure 10.3. Developments within these areas require a biological survey to determine the ecological significance, which also must be preserved to the extent feasible. Other policies state that compatible passive recreational uses should be promoted in natural areas determined to be ecologically significant, consistent with the particular needs and characteristics of each ecosystem.

West Mojave Habitat Conservation Plan

The West Mojave Plan is a habitat conservation plan that acts as a comprehensive strategy to conserve the desert tortoise, Mojave ground squirrel, and over 100 sensitive plants, animals, and natural communities. Palmdale lies almost entirely within the West Mojave Habitat Conservation Plan, as shown in Figure 10.2. The plan provides for a streamlined program for complying with the requirements of the California and federal Endangered Species Acts. It encompasses a 9.4 million-acre planning area and applies to public and private land. (U.S. Department of interior 2005a, 2005b)

Native Desert Vegetation Ordinance

Palmdale has a native desert vegetation ordinance designed to protect Joshua Trees and California Juniper, which provide a unique natural desert aesthetic to the city. As per Section 14.04.030 of the Palmdale Municipal Code (PMC), these trees shall not be removed from any parcel of land unless a permit has been obtained. Furthermore, any proposed development on a parcel of land containing native desert vegetation must submit a desert vegetation preservation plan prepared in compliance with the PMC.

Sources

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