10 Open Space & Resource Conservation

The quality of the natural environment determines the quality of life in a community. A healthy system of open space lands, natural resources, and habitat areas will help ensure clean air and water while also providing recreational opportunities and scenic vistas. As the city and the region continue to grow, careful stewardship of environmental, cultural, and agricultural resources in the planning area will be needed, together with a focus on conservation of energy and water to provide a thriving natural environment for future generations.

This chapter satisfies the statutory requirements for the General Plan Conservation and Open Space Elements, with measures to protect and enhance open space, natural habitat, and biological and cultural resources and strategies to promote the wise use of energy and water while minimizing waste. Urban open spaces are addressed in the Land Use and Community Character and the Parks and Public Services Elements. Air and water quality are addressed in Environmental Justice Element, and historic resources are addressed in the Land Use and Community Character Element.

Open Space Preservation and Access

Open space is a critically important resource for the health and success of any city. Access to open space for recreation provides residents with opportunities for physical activity and exposure to the natural environment, leading to a richer quality of life and a healthier community. Open space also provides important habitat for local plants and animals and allows for the natural recharge of groundwater, contributing to a healthy local ecosystem, and designating areas that require special management due to hazardous conditions as open space where development is restricted serves to protect public health and safety. These might include flood-prone areas, areas of unstable soil, watersheds, earthquake fault zones, areas of high wildland fire risk, and areas required for the protection of water quality.

There are over 6,700 acres of regional open space and conservation land in the planning area, including 2,700 acres within the City limit. For Moreno Valley, open space land can be classified into several categories, depending on the primary purpose for which it is used. It includes lands for preservation of natural resources (e.g. wildlife habitat), production of resources (e.g. farming), public health and safety (e.g. floodplains), low-density residential development and outdoor recreation (e.g. parks). Map OSRC-1 shows open space lands within and around the planning area.

REGIONAL OPEN SPACE

Regional open spaces both within and around Moreno Valley are integral to preserving a healthy, safe city with a strong sense of place. Ensuring that these open spaces are protected and maintained will ensure continued access to valuable areas for ecological health, natural hazard mitigation, outdoor recreation, and education. Fostering connectivity along key wildlife migration corridors will further support environmental resilience. Some of the regional open spaces that are the most prominent and valuable to Moreno Valley are described below.

Box Springs Mountain Reserve

The Box Springs Mountain Reserve, at the northwest corner of Moreno Valley, is owned and operated by Riverside County Regional Park and Open Space District. The Reserve consists of three noncontiguous land areas, two of which are within the City's sphere of influence. The 3,400-acre park includes equestrian and hiking trails that connect to the City trail system and allow residents of Moreno Valley to enjoy its natural resources. Guided hikes to the iconic "M" on Box Springs Mountain are available.

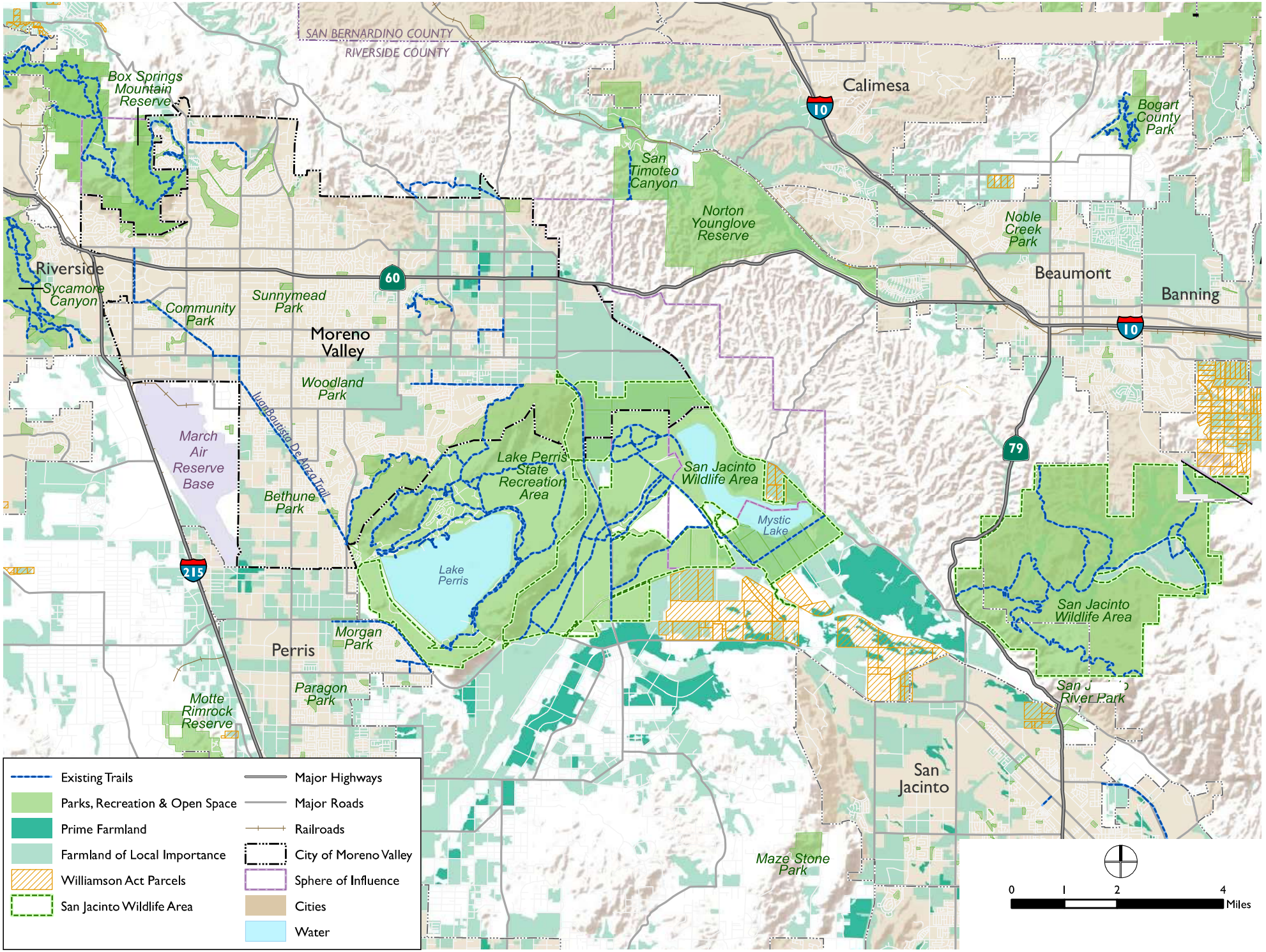
Lake Perris State Recreation Area

Built in 1973 as the southernmost reservoir of the California Water Project, Lake Perris State Recreation Area is located along the southern edge of Moreno Valley and consists of 8,800 acres, including the 1,800-acre Lake Perris. The Recreation Area contains a major reservoir, natural open space and facilities for boating and fishing, picnicking and camping. About 1,600 acres of the property were dedicated to the State of California as mitigation for loss of wildlife habitat due to development of the Moreno Valley Ranch Specific Plan. The park provides a myriad of recreational activities including fishing, water sports, bird watching, hiking, rock climbing, camping, and horseback riding as well as facilities for exhibits, programs, and cultural education. The Lake Perris State Recreation Area also serves as one of several habitat reserves for the endangered Stephen's Kangaroo Rat.

Box Springs Mountain Reserve

Lake Perris State Recreation Area

Map OSRC-1: Regional Open Space and Trails



San Jacinto Wildlife Area

The San Jacinto Wildlife Area in the southeastern corner of the planning area consists of gently sloping grasslands, sage scrub and natural and man-made wetlands that support migratory birds and resident wildlife. Bird watching and hunting are popular activities. The area encompasses approximately 19,000 acres, with 900 acres of restored wetlands and offers wildlife viewing, hunting, field trips for school children, and a field trails area for dog training. The property was designated as a wildlife area by the Fish and Game Commission in 1982. In the following years, areas within the wildlife area have been altered to enhance and enlarge wetland habitats for conservation and for native animal species. The area provides habitat to a diverse range of wildlife including waterfowl, wading birds, and quail. Some of the adjoining property is owned by private organizations and dedicated to hunting and wildlife conservation.

San Timoteo Canyon Park

San Timoteo Canyon Park is located east of the City's sphere of influence along the north side of State Route 60 (SR 60). The park is owned and operated by the Riverside County Regional Park and Open Space District, with some areas – including the Badlands Landfill – jointly owned and operated with Riverside County Waste Management District

Sycamore Canyon Wilderness Park

Sycamore Canyon Wilderness Park encompasses approximately 1,500 acres to the west of the City. The park offers recreational opportunities including hiking, biking, bird watching, and free family-friendly events with nature-based crafts, activities, and naturalist-led nature walks. Along with the Federally-listed endangered species, the Stephen's Kangaroo Rat, the park is also home to nearly one hundred other plant and animal species that have been classified as rare, sensitive, threatened, or endangered.

Motte Rimrock Reserve

The Motte Rimrock Reserve encompasses approximately 715 acres to the south of the City at the western edge of Perris Valley. The private ecological reserve and biological field station protects critical habitat for a variety of animals, including two federally listed species and ten more rare animal species. The Reserve is visited by high school and university students for educational research.

The Motte Rimrock Reserve is affiliated with the University of California, Riverside. The Motte Rimrock ecological reserve and biological field station is located on a small plateau overlooking the Perris Valley in west-central Riverside County. The Motte Rimrock Reserve is the smallest of the Stephen's Kangaroo Rat's reserves, which total to approximately 41,000 acres.

AGRICULTURE

The area around Moreno Valley has a long history of agricultural use dating back to the 19th Century, although the viability of farming has diminished over time with the high cost of water and the rising cost of land. Today there are few farms in the Planning Area and ongoing agricultural activities are generally limited to grazing on rural residential lands. Nevertheless, approximately 157 acres of land within the planning area are classified by the California Department of Conservation as Prime Farmland, meaning it has among the best combination of characteristics for crop production in the state. An additional 9,689 acres of land in the Planning Area are classified as Farmland of Local Importance, defined as important to the local economy. The areas of Prime Farmland and Locally Important Farmland of Local Importance are generally concentrated in the eastern portion of the planning area, as shown in Map OSRC-1. Within the City limit, Locally Important Farmland in the southern portion of the City has been converted to urban uses.

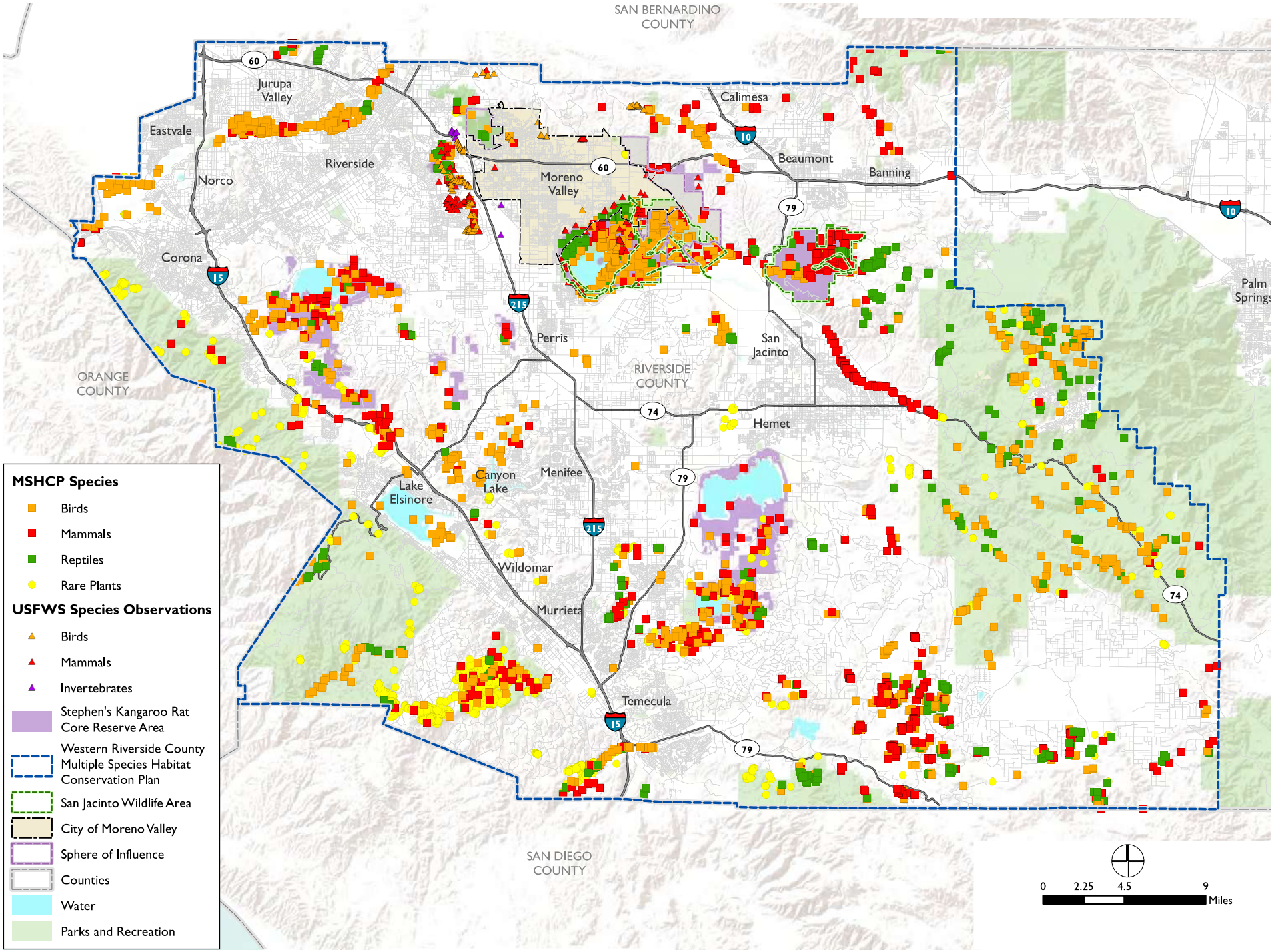
Habitat Conservation and Species Protection

Biological resources include not only the plants, trees, animals, fish, birds, and microorganisms present in the urban and natural environment around us, but also the water, soil, habitats, and ecosystems that make up the ecological community in which we live. The richer the diversity of life around us, the greater the opportunity for healthy living, economic development, and adaptive responses to new challenges such as climate change.

Moreno Valley and the surrounding area is home to a diverse range of important plant and animal species. Many of the open spaces in and around the planning area house unique and endangered species, which are commonly referred to as special-status species and given protection under federal and State law. Box Springs Canyon Reserve alone is home to 16 species of mammals and over 85 bird species. The City has participated in multiple planning efforts to conserve habitat and support important species in the area, collaborating in the development of both the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and the Stephens' Kangaroo Rat Habitat Conservation Plan (SKRHCP). Map OSRC-2 shows recorded special-status species occurrences within the planning area.

The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan focusing on conservation of species and their habitats in western Riverside

Map OSRC-2: Special Status Species



County. The Plan was approved in 2003 and encompasses approximately 1.2 million acres, including Moreno Valley. The MSHCP protects 146 native species of plants, birds, and animals and designates half a million acres of habitat in western Riverside County as protected.

The SKRHCP, developed and managed by the Riverside County Habitat Conservation Agency, is focused on protecting and preserving major habitat areas of the Stephens' Kangaroo Rat, a small rodent endemic to the area that is listed as an endangered species. The plan was adopted in 1996 and covers a planning area of 533,954 acres. The SKRHCP preserved 41,221 acres of land in seven core reserves to protect 12,460 acres of Stephens' Kangaroo Rat habitat. Due to the success of the efforts to protect its critical habitat, the US Fish and Wildlife Service has proposed that the Stephens' Kangaroo Rat be re-classified from an endangered to a threatened species, a lower-risk classification.

Wildlife Corridors and Habitat Connectivity

Senate Bill (SB) 1425 (2022) and Assembly Bill (AB) 1889 (2024) together strengthen the role of General Plans in supporting wildlife connectivity and movement. SB 1425 requires cities to consider how open space contributes to climate resilience, including preserving habitat corridors and reducing fragmentation. AB 1889 builds on this by mandating that the Open Space Element specifically identify wildlife corridors, assess barriers to movement, and incorporate strategies to protect or restore habitat linkages using the best available science and coordination with the California Department of Fish and Wildlife. Together, these laws ensure that land use planning actively supports biodiversity, ecosystem function, and species adaptation to climate change. In Moreno Valley, this is especially important given the City's location between the Box Springs Mountains, the Badlands, and San Jacinto Wildlife Area—each serving as critical habitat areas for native species and migratory wildlife.

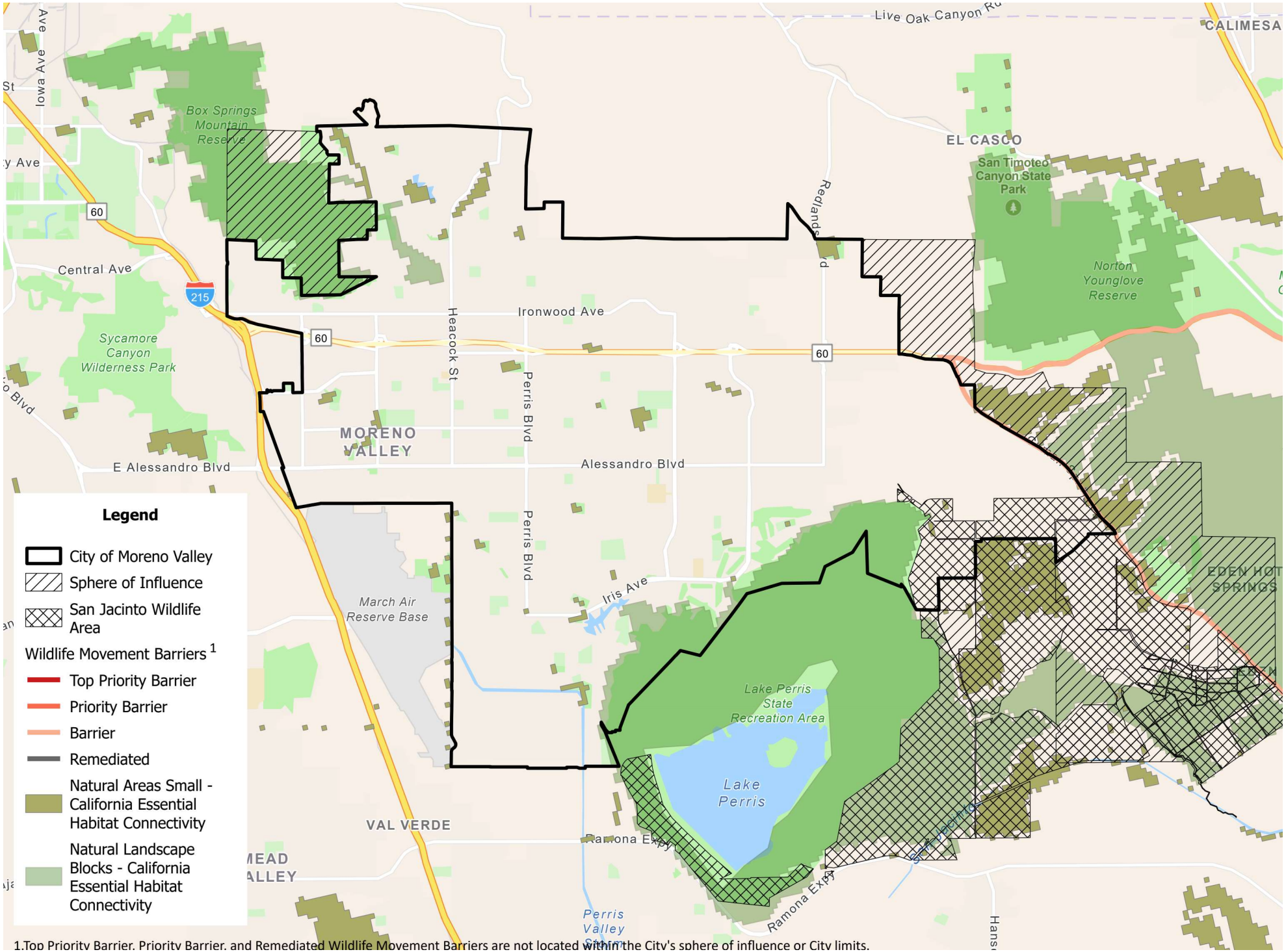
Stephens' Kangaroo Rat
Photo credit: Western Riverside County MSHCP

The Conservation Analysis Unit (CAU) of California Department of Fish and Wildlife develops and maintains spatial data and models of wildlife movement, corridors, and habitat connectivity across California. They provide maps and models called Biogeographic Information and Observation System (BIOS) Viewer and Areas of Conservation Emphasis (ACE) that are used by scientists and decision-makers to inform how to best conserve habitat connectivity, or the ability of species and ecological processes to move through the landscape.

Natural Landscape Blocks identified in the BIOS Viewer highlight large (each over 2,000 acres), intact habitat areas on the northern and southeastern edges of Moreno Valley, including the Box Springs Mountains, Bernasconi Hills, and Lake Perris (refer to Map OSRC-3). These areas support regional biodiversity and habitat connectivity. While outside the urban core, they play a key role in climate resilience and should be protected and integrated into open space planning. Several small natural areas are scattered across southern and eastern Moreno Valley, including patches near Lake Perris, Bernasconi Hills, and the Badlands. While smaller than 2,000 acres and excluded from Statewide Natural Landscape Blocks, these areas still provide important local habitat, ecological value, and potential stepping-stones for wildlife movement. Integrating these into planning efforts helps support fine-scale connectivity, aligns with SB 1425 and AB 1889, and enhances biodiversity in and around the urban environment.

The BIOS Viewer highlights infrastructure barriers—such as highways, fences, canals, and rail

Map OSRC-3: Wildlife Movement Barriers, Natural Small Area and Natural Landscape Blocks



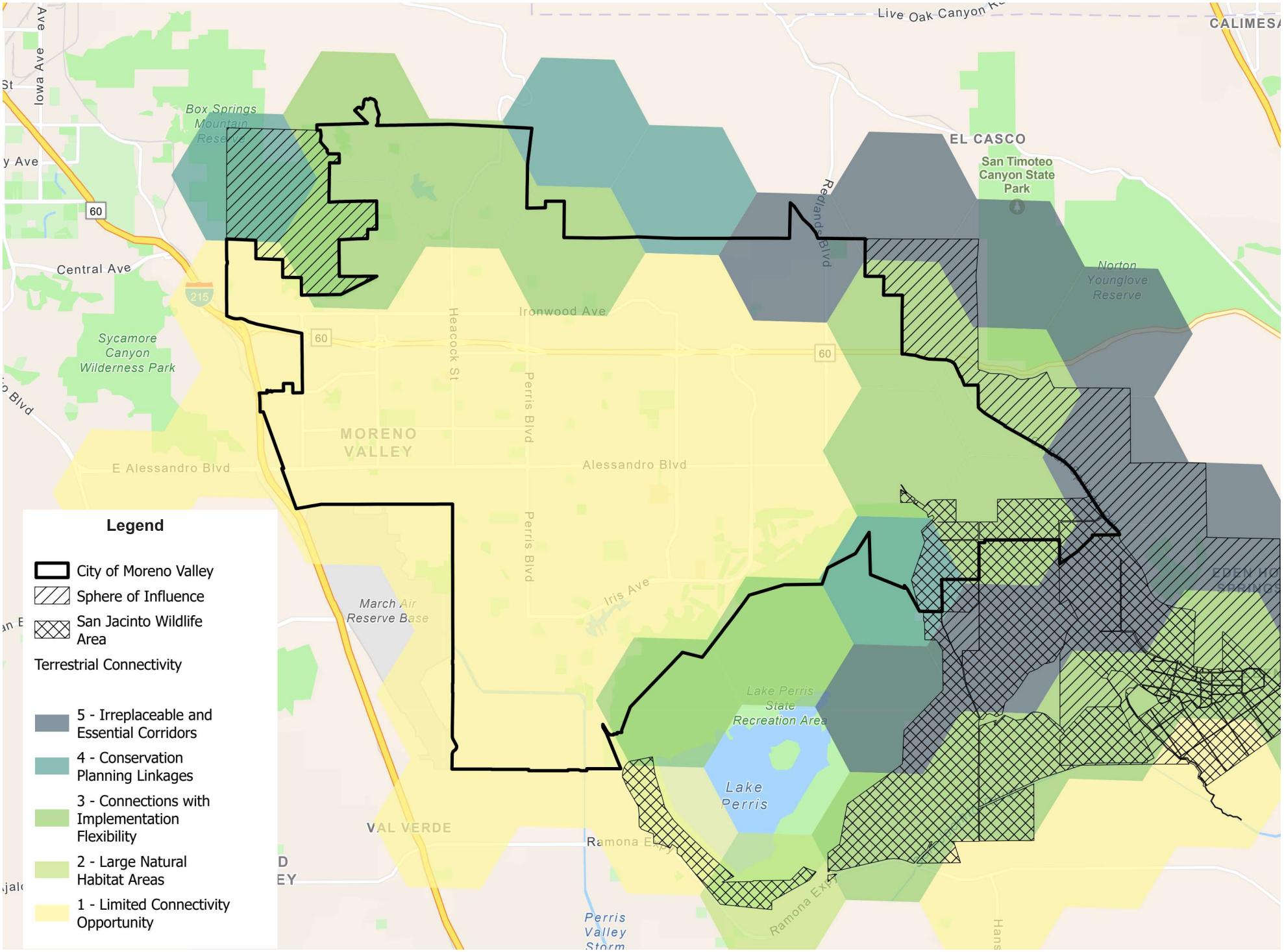
1.Top Priority Barrier, Priority Barrier, and Remediated Wildlife Movement Barriers are not located within the City's sphere of influence or City limits.

lines—that disrupt terrestrial wildlife movement across California. Map OSRC-3 identifies segments of Gilman Springs Road and the eastern portion of SR 60, along the eastern edge of Moreno Valley, as barriers within a broader regional linkage connecting the San Jacinto Valley, Mount Russell, and the Box Springs Mountains. While not classified as top-priority barriers, these segments still impede wildlife migration and access to habitat. Although SR 60 (under Caltrans jurisdiction) and portions of Gilman Springs Road (under Riverside County jurisdiction) are identified as barriers to wildlife movement, they are outside the City's jurisdiction, Moreno Valley intends to collaborate with responsible agencies to support mitigation efforts such as wildlife underpasses, conservation buffers, and the preservation of adjacent open space corridors to enhance habitat connectivity.

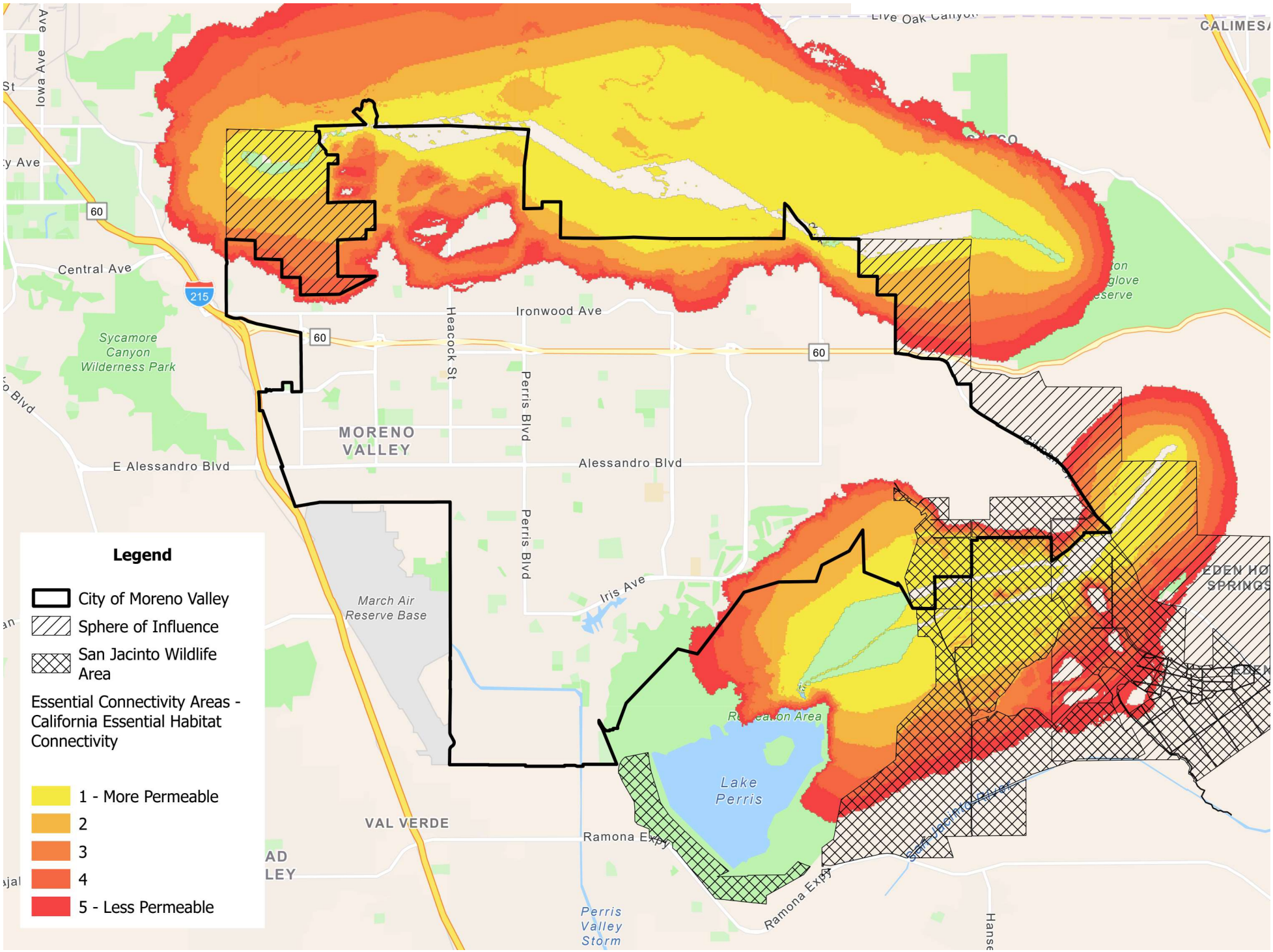
ACE Terrestrial Connectivity maps provide spatial data on wildlife, vegetation, and habitat connectivity, summarized in 2.5-square-mile hexagons, to support biodiversity conservation and climate resilience planning. Map OSRC-4 shows that the western and central portions of Moreno Valley, including much of the developed area, are primarily classified as "Limited Connectivity Opportunity" (light yellow), indicating low ecological connectivity due to urbanization and fragmented open space. However, areas to the north and east, particularly near Box Springs Mountain Reserve and the Badlands/San Jacinto Wildlife Area, are classified as "Large Natural Habitat Areas" (green) and "Connections with Implementation Flexibility" (blue), and even some areas labelled as "Conservation Planning Linkages" (dark gray), which reflect moderate to high connectivity potential depending on restoration, mitigation, or land management strategies. These findings underscore Moreno Valley's unique position - while its urban core limits natural movement, it is flanked by significant regional open space systems that still offer critical opportunities to maintain and restore wildlife connectivity, especially for terrestrial mammals, birds, and reptiles. These linkages are essential for genetic flow, species adaptation to climate change, and habitat resilience.

Essential Connectivity Areas (ECAs) shown in the BIOS Viewer highlight broad corridors where habitat connectivity should be preserved to support wildlife movement, biodiversity, and climate resilience. Map OSRC-5 identifies two major ECAs intersecting the northern and southeastern edges of Moreno Valley, linking the Box Springs Mountains, San Jacinto Valley, and Bernasconi Hills. Connectivity varies from high permeability (yellow) in natural open space to low permeability (red) in developed areas. The most permeable areas—those that best support wildlife movement—are concentrated in the hillsides and natural open space areas, while less permeable areas (orange to red) align with urban development, major roads, and other infrastructure that pose partial or complete barriers to wildlife. While much of the corridor lies outside City limits, Moreno Valley's open spaces—especially near Lake Perris and Mount Russell—are vital to maintaining these regional habitat linkages.

Map OSRC-4: Terrestrial Connectivity



Map OSRC-5: Essential Connectivity



Recreational Trails

MULTI-USE TRAIL SYSTEM

Moreno Valley's Multi-Use Trail System is one of the City's greatest assets. The system is partially constructed, with improved primarily located in the northwest near Sunnymead Ranch and in the hills in the southern portion of the City bordering the Lake Perris Recreation Area. Recreational trails in and around the City are shown in Map OSRC-1. The multi-use trails accommodate pedestrians, bicyclists, and equestrians. The City's trail system provides connections to both regional and State trails, as well as equestrian staging areas. Expansion of the system is guided by the Master Plan of Trails, which envisions a 56-mile network of City trails in the future connecting Box Springs Mountain Regional Park with the Lake Perris State Recreation area through the northern and eastern portions of the City.

To encourage maintenance and use of the trail system, the City has established the Beautify MoVal program, an enhanced "Adopt-a-Trail" program, which allows any private organization, business, non-profit, civic group, or individual resident to take an active role in maintaining trails. The City's Parks, Community Services and Trails Committee also recruits volunteers and public input to enhance the multi-use trail system. The City is continuing work to develop and expand the trail network. Proposed trails in the City would close gaps between trails in the northwest, northeast, middle, and southern parts of the City and support active transportation in Moreno Valley. Some examples of proposed connections are:

- The Cold Creek Trail in the middle of the City would be connected to the existing trail along Cactus Avenue.

Proposed trails in nearby neighborhoods would be connected to the San Jacinto Wildlife Area. Proposed trails in the City not only provide opportunity for recreational activity, but afford off-street connectivity between neighborhoods, parks, schools, public facilities, and major job centers.

REGIONAL TRAIL SYSTEMS

Many of the open spaces surrounding Moreno Valley have robust regional trail networks. In addition, the 1,200-mile Juan Bautista de Anza Trail passes through Moreno Valley as it follows the historic route of the Spanish explorer from Nogales, Arizona to the San Francisco Bay Area. The City is actively working to improve and develop the section of the Juan Bautista de Anza Trail that travels through Moreno Valley, which extends from the Town Gate area to Lake Perris. The City received a federal grant to develop a comprehensive plan along the entire existing Juan Bautista de Anza Trail, and has received three grants under the Active Transportation Program, providing full funding for design and construction for the entire trail. In addition to planning and improving the Juan Bautista de Anza Trail, the City is working to close gaps and connect the Trail to local regional parks and open spaces, and neighboring cities' trail networks.

Water Quality and Groundwater Protection

Surface water resources in and near Moreno Valley include Lake Perris, Mystic Lake, and several small reservoirs and creeks throughout the City. Most of the Planning Area drains into the San Jacinto River, while the northwest portion of the Planning Area drains to the west into a tributary of the Santa Ana River.

Water resources in the City and throughout Riverside County are sustained by substantial groundwater basins, which are used as reservoirs to store water during wet years. These underground reservoirs are tapped throughout the year according to the demand for water. Groundwater conditions in these basins are influenced by natural hydrologic conditions such as percolation of precipitation, groundwater seepage, and stream flow within the watershed areas. While groundwater no longer provides a significant percentage of the local water supply for Moreno Valley, it is still an important natural resource for the area that should be protected. Groundwater aquifers are natural storage tanks that can store water for use during drought periods. Groundwater supplies can be damaged and depleted due to excessive extraction, and polluted by uncontrolled substances including agricultural chemicals, domestic sewage, and chemical spills. There are two hydrological groundwater basins in the planning area—the Perris Basin is on the western side of Moreno Valley and the San Jacinto Basin is on eastern side of the Planning Area.

Groundwater throughout the state, and especially in the arid Inland Empire region, is an important resource that is highly regulated and controlled. Without proper management, groundwater basins can be overdrawn, leading to less storage capacity, poor water quality, less overall available water, and even ground subsidence, in which less water in the ground

causes soil to compact and sink, cracking infrastructure and destabilizing buildings. Groundwater levels can also be impacted by urban places that contain extensive impermeable surfaces like asphalt and concrete, which restrict water infiltration into the soil. California's groundwater is regulated under the 2014 Sustainable Groundwater Management Act (SGMA), which requires Groundwater Sustainability Plans to be adopted for medium or high-priority basins.

Moreno Valley's groundwater falls within the West San Jacinto Groundwater Management Area, along with most of the groundwater in western Riverside County. The San Jacinto Groundwater Basin is deemed a high priority basin but is not currently critically overdrafted. As such, the Groundwater Sustainability Agency is required to develop a Groundwater Sustainability Plan (GSP) for the basin by 2022 and implement the Plan by 2042. The San Jacinto Groundwater Basin GSP 2023 Annual Report was published in March 2023. The GSP documents basin conditions and basin management and is based on measurable objectives and sustainability indicators.

SB 1425 requires cities to assess how open space can support climate resilience, including managing stormwater and reducing flood risks. In Moreno Valley, increased urban development and impervious surfaces have elevated the volume and velocity of runoff during storm events, contributing to localized flooding and reduced natural groundwater replenishment. Open space planning presents a critical opportunity to address these issues by using parks, natural areas, and green infrastructure to manage stormwater while enhancing environmental and community benefits.

Open spaces—such as greenbelts, community parks, medians, and riparian corridors—can be designed to capture, filter, and absorb stormwater using low-impact development (LID) strategies. These include bioswales, infiltration basins, rain gardens, and permeable pavements that mimic natural hydrology, allowing water to soak into the ground rather than being diverted through concrete channels. These features not only reduce flood risk and water pollution but also support groundwater recharge, an increasingly important goal in light of recurring droughts and limited imported water supplies in the Inland Empire region.

Goal OSRC-1: Preserve, protect, and enhance natural resources, habitats, watersheds, and wildlife movement corridors in in Moreno Valley and the surrounding area, to support biodiversity, ecosystem health, and climate resilience through responsible planning and management practices.

Open Space Preservation and Access

POLICIES

OSRC.1-1: Retain the maximum feasible amount of open space and agricultural land in areas outside the City surrounding Moreno Valley, recognizing its habitat value as well as its contribution to the local economy, quality of life, healthy air quality, and community character.

OSRC.1-2: Support regional efforts to preserve, protect, and enhance environmentally sensitive areas, including hillsides, canyon areas, wildlife corridors, natural watercourses, and riparian areas in and adjacent to the planning area.

OSRC.1-3: Maximize public access to natural resource areas where appropriate, to enhance environmental awareness and provide recreational opportunities.

OSRC.1-4: Encourage the development of interpretive facilities that provide education about local environmental resources and ecosystems.

OSRC.1-5: Design stormwater detention basins as multi-use amenities providing recreation, aesthetic value, and wildlife habitat along with flood control.

OSRC.1-6: Where agriculture exists within the City limits, allow uses to continue until urban development occurs on these properties and support appropriate commercial activities (i.e. horse stables, agri-tourism) in rural areas in and around Moreno Valley.

OSRC.1-7: Require that grading plans include appropriate and feasible measures to minimize erosion, sedimentation, wind erosion and fugitive dust. Particularly in hillside areas, new roadways and trails should follow natural contours to minimize grading.

OSRC.1-8: Prioritize multi-benefit open space projects in flood-prone or groundwater-recharge areas, particularly in disadvantaged communities identified using CalEnviroScreen and Federal Emergency Management Agency flood maps.

ACTIONS

OSRC.1-A: Work with responsible public agencies, including the Riverside Transit Agency, Lake Perris State Recreation Area, and Box Springs Mountain Reserve Park, to provide convenient public access to open space lands and trails, except in those areas where public safety would be compromised or significant land use conflicts would occur.

OSRC.1-B: Work with public agencies and non-profit organizations to establish a coordinated web-presence and region-wide map of open space areas and recreational facilities.

OSRC.1-C: Partner with public agencies to offer programs that foster local environmental awareness and encourage the protection of natural resources.

Habitat Conservation and Species Protection

POLICIES

OSRC.1-9: Cooperate with federal, State, and local regulatory agencies as well as non-profit organizations and neighboring jurisdictions to promote the responsible stewardship of natural resources, habitats, and wildlife connectivity within the planning area.

OSRC.1-10: Ensure that adverse impacts on sensitive biological resources, sensitive natural communities, sensitive habitat, and wetlands are avoided or mitigated to the greatest extent feasible as development takes place.

OSRC.1-11: Require all development, including roads, proposed adjacent to riparian and other biologically sensitive habitats to mitigate impacts to such areas.

OSRC.1-12: Avoid or minimize development and infrastructure that would fragment identified wildlife corridors or reduce permeability within Essential Connectivity Areas and Natural Landscape Blocks.

OSRC.1-13: Limit to the extent feasible the removal of natural vegetation in hillside areas when retaining natural habitat does not pose threats to public safety.

OSRC.1-14: Promote the use of conservation easements especially in the Essential Connectivity Areas and preserves as means to conserve natural habitats, enable wildlife movement and protect natural resources.

ACTIONS

OSRC.1-D: Continue to participate in the implementation of regional habitat conservation and restoration programs, including the Western Riverside County Multiple Species Habitat Conservation Plan and the Stephens' Kangaroo Rat Habitat Conservation Plan.

OSRC.1-E: Develop a readily available Wildlife Connectivity Overlay Map combining Essential Connectivity Areas, Natural Landscape Blocks, and identified barriers to inform land use decisions and conservation priorities.

OSRC.1-F: In areas where development (including trails or other improvements) may adversely affect special-status species or disrupt wildlife movement corridors (per wildlife connectivity overlay map), require project proponents to submit a study conducted by a qualified professional that identifies the presence or absence of special-status species and evaluates potential impacts to wildlife movement at the proposed site. If such species or movement corridors are present, require incorporation of appropriate mitigation measures to avoid, minimize, or compensate for impacts prior to project approval.

The San Diego Banded Gecko, Walker Canyon Superbloom, Quino Checkerspot Butterfly, and the Coyote are some of the flora and fauna protected under the Western Riverside County MSHCP.
Photo credit: Western Riverside County Regional Conservation Authority

OSRC.1-G: Work with Caltrans and Riverside County to identify priority locations for wildlife underpasses or culverts along Gilman Springs Road, and pursue funding from State and federal grants, as well as nonprofit and private sources, to support connectivity improvements and habitat restoration efforts.

OSRC.1-H: Pursue conservation easements or land acquisition in key connectivity areas using grants and other development incentives.

OSRC.1-I: Collaborate with adjacent cities, the County, and regional agencies to align plans and zoning for shared corridors that cross jurisdictional boundaries.

Recreational Trails

POLICIES

OSRC.1-15: Coordinate with public and private entities to link regional open spaces with a network of paths and trails, including connections to Moreno Valley's Multi-Use Trail System.

OSRC.1-16: Expand the City's network of multi-use trails and provide connections from residential and commercial areas within the City to surrounding hillsides, ridgelines, open spaces and other scenic areas.

OSRC.1-17: Provide sufficient resources for the maintenance of trails and staging areas through a combination of grant funding, City resources, and volunteer efforts.

ACTIONS

OSRC.1-J: Develop standards for planning, design, management, and maintenance of trails and pathways within parks, preserves, open space, and rights-of-way.

Water Quality and Groundwater Protection

POLICIES

OSRC.1-18: Continue to participate in regional efforts to proactively manage surface and groundwater resources and ensure their long-term health and viability, including the development and implementation of the San Jacinto Groundwater Basin Groundwater Sustainability Plan (Basin Plan).

OSRC.1-19: Preserve natural drainage courses in their natural state to the extent feasible.

OSRC.1-20: Maximize the amount of pervious surfaces in public spaces to permit the percolation of urban runoff while implementing best practices for stormwater pollution prevention.

OSRC.1-21: Facilitate groundwater recharge in Moreno Valley by encouraging development projects to use Low Impact Development (LID) practices such as bioretention, porous paving, and rainwater harvesting systems, and by encouraging private property owners to design or retrofit landscaped or impervious areas to better capture storm water runoff.

OSRC.1-22: Continue to regulate new commercial and industrial activities as well as construction and demolition practices to minimize discharge of pollutants and sedimentation into the stormwater drainage system.

OSRC.1-23: Allow new development to use individual wells only where an adequate supply of good quality groundwater is available.

ACTIONS

OSRC.1-K: Continue to provide information to local residents and businesses regarding proper disposal practices for common household waste items, such as paints, pool chemicals, pesticides, motor oil, and household cleaners and disinfectants.

OSRC.1-L: In concert with Eastern Municipal Water District, identify aquifer recharge areas and establish regulations to protect recharge areas and regulate new individual wells.

OSRC.1-M: Pursue funding from the Sustainable Groundwater Management Grant Program and other sources for investments in groundwater recharge and projects to implement the Basin Plan.

OSRC.1-N: Monitor groundwater production, recharge and related activities in the Hemet/San Jacinto Groundwater Management Area to ensure adequate protections for groundwater available in Moreno Valley.

OSRC.1-O: Retrofit existing parks and medians with bioswales, rain gardens, and permeable paving to manage stormwater and reduce runoff.

OSRC.1-P: Adopt design standards that require new parks and large-scale developments to incorporate stormwater infiltration features and minimize impervious surfaces.

OSRC.1-Q: Monitor and evaluate the performance of green infrastructure in public spaces through indicators such as infiltration rates, water quality improvements, and reduction in peak flow volumes.

Low Impact Development practices like bioretention and porous paveing help retain groundwater and capture storm water runoff.

Scenic Resources and Cultural Heritage

SCENIC RESOURCES

The City of Moreno Valley lies on a relatively flat valley floor surrounded by rugged hills and mountains that provide a stunning natural backdrop to the community. Panoramic views of the San Jacinto Valley can be seen from elevated segments of some local roads and from hillside residences. The views are particularly attractive on clear days and at night when the glow of city lights can be seen.

As shown on Map OSRC-3, the principal scenic resources in the planning area are all visible from SR 60, a major regional transportation corridor that runs through the area. Upon entering Moreno Valley from the west, the dominant view is of Box Springs Mountain to the immediate north and the Bernasconi Hills to the south. Both mountain ranges display numerous rock outcroppings and boulders that add visual character to these landforms. Moreno Peak is part of a prominent landform located within the City limit, south of SR 60 along Moreno Beach Drive. This landform only rises a few hundred feet above the valley floor but has a unique location near the center of the valley. Moreno Beach Drive, the main route to Lake Perris from SR 60, offers views of Moreno Peak and a panoramic view of Moreno Valley.

At the eastern edge of the City, SR 60 passes through the Badlands area, characterized by steep and eroded hillsides. Expanses of open land are found throughout this portion of the planning area and these tracts of land allow for uninterrupted scenic vistas from SR 60, Gilman Springs Road and other roadways and provide views of the San Jacinto Valley and the ephemeral Mystic Lake. Views of the San Bernardino and San Gabriel mountains are evident at times from the valley floor. Winter snows in the San Bernardino and San Jacinto Mountains often provide a striking view.

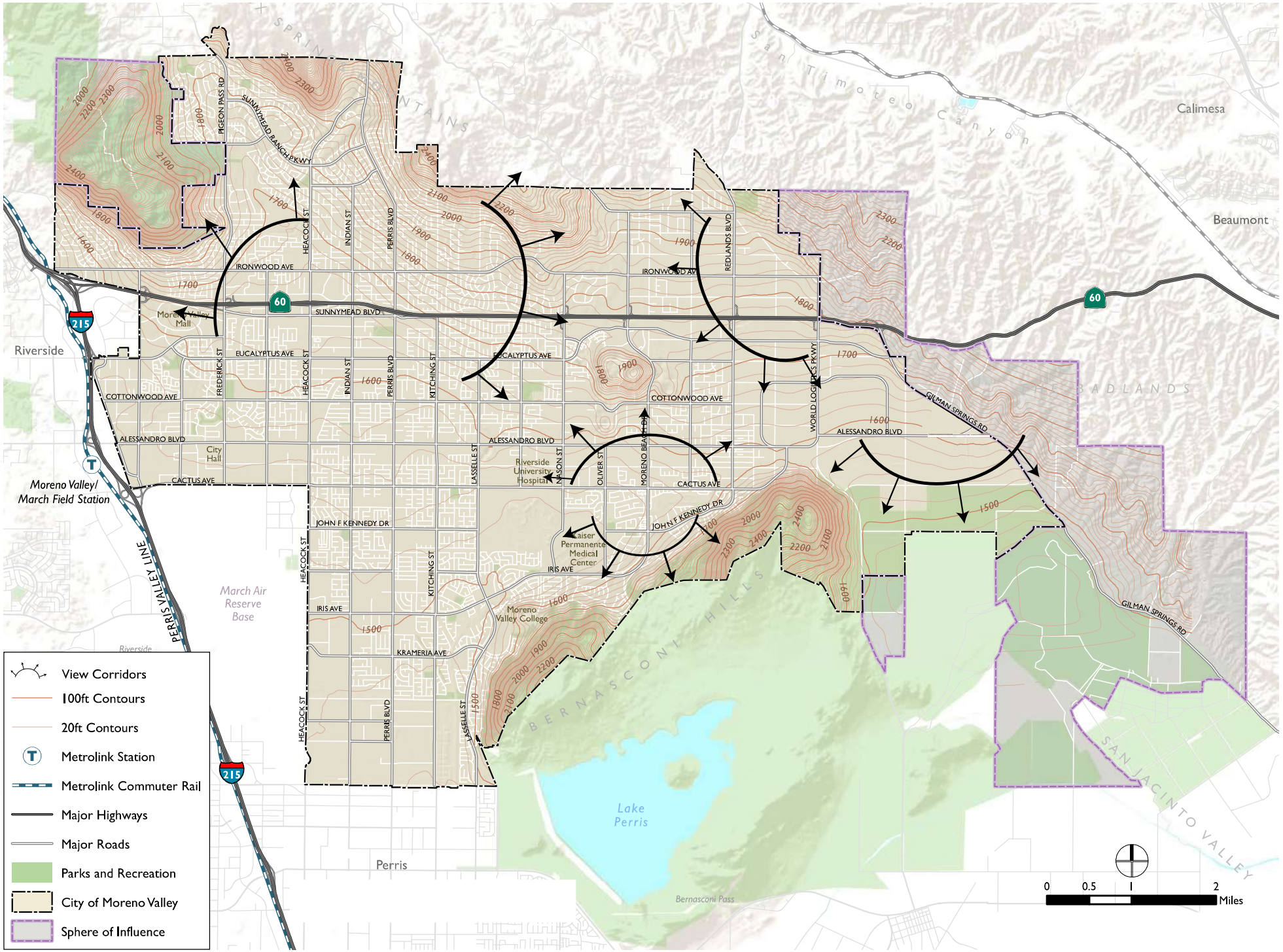
CULTURAL RESOURCES

The area around Moreno Valley has a rich heritage that involves a confluence of cultures. The earliest inhabitants were people of the Western Pluvial Lakes Tradition, whose presence in the area dates back to the early Holocene more than 10,000 years ago. These peoples were hunter gatherers who lived on or near former pluvial lakeshores or along old streams. In the late Holocene, about 1,500 years ago, Shoshonean-speaking people from the Colorado River region moved westward into the area, possibly bringing bow-and-arrow technology with them.

Within the planning area, the traditional territories of three Native American peoples intersect: the Luiseño, the Cahuilla, and the Gabrieliño. The Luiseño are linguistically and culturally related to the Gabrieliño and Cahuilla and appear to be the direct descendants of Late Prehistoric populations. These peoples were also hunter gatherers and lived in villages. Artifacts and resources they have left behind include Brown Ware ceramics, red and black pictographs, cremation remains in urns, and historic materials such as glass beads and metal objects.

Luiseño pictographic rock art found at Lake Perris State Recreation Area.
Photo credit: Weekend Sherpa

Map OSRC-6: Scenic Resources and Ridgelines



Early European settlers arrived in the area in the late 18th Century, traveling north from Mexico to various mission settlements along a trail charted in 1774 by Juan Bautista de Anza. The trail passed through the San Jacinto Valley, the Perris Valley and southwest Moreno Valley. The mission system introduced horses, cattle, sheep, and agricultural goods, and provided new construction methods and architectural styles. Moreno Valley and the rest of California became part of the United States in 1850 and settlement was spurred with the development of transportation links. John Butterfield operated a stagecoach line between Tucson, San Diego, Los Angeles and San Francisco. A separate stage line went through Moreno Valley from Perris Valley to Pigeon Pass and Reche Canyon.

Water too was essential for settlement and an irrigation district was formed in 1891 for the purpose of importing water from a reservoir in the San Bernardino Mountains. Most of the valley was subdivided and two town sites were established in anticipation of the new water supply. The town of Moreno was established at the intersection of Alessandro and Redlands Boulevards. Alessandro was located along the Southern California Railway line at the intersection of Iris Avenue and Elsworth Street. At the time the original subdivision map was drawn up, major north-south streets were established at half-mile intervals with names in alphabetical order from west to east. The avenues, oriented east to west, were established at quarter-mile intervals. The names of the avenues were also established in alphabetical order; tree names north of Alessandro Boulevard; botanical names south of Alessandro Boulevard.

Water deliveries began in 1891 from a new aqueduct that terminated at the northeast corner of the valley; however, the flow of water was soon interrupted by a period of drought and a legal dispute over water rights with the City of Redlands. In 1899, the Perris & Alessandro Irrigation District lost its claim and as crops failed due to drought in subsequent years, most of the residents left, relocating many of the original homes to other areas. Development interest in the western side of the valley was renewed with activation of March Air Force Base in 1918, and in the 1920s well drilling provided access to local groundwater. Mutual water companies were formed, land was subdivided, and people began to settle in the communities of Edgemont and Sunnymead. Development activity slowed during the depression era until March Air Force Base was reactivated during World War II.

Today, the Planning Area contains numerous archaeological resources that provide testament to the history of the region. These resources include prehistoric sites, such as bedrock milling features, rock shelters, hearths, ground stone scatters, ceramics, and rock art, as well as historic sites, including grave sites, cisterns, foundations, trash scatters, walls, adobe remnants, or ranch features. Prehistoric resources tend to be located within the foothills, principally along the northern and southeastern edges of the present-day City limit. The potential for as-yet-undiscovered prehistoric resources is highest in these areas. The City consults with Native American tribes with traditional and cultural affiliations to the planning area.

Goal OSRC-2: Preserve and respect Moreno Valley's unique cultural and scenic resources, recognizing their contribution to local character and sense of place.

POLICIES

OSRC.2-1: Limit development on hillsides and ridgelines where structures interrupt the skyline.

OSRC.2-2: Incorporate significant rock formations into the design of hillside developments.

OSRC.2-3: Minimize alteration of the topography, drainage patterns and vegetation of land with slopes of ten percent or more and maintain development standards to protect the environmental and aesthetic integrity of hillside areas.

OSRC.2-4: Reduce or avoid visual intrusion from energy and telecommunications infrastructure. Encourage the undergrounding of utility lines wherever feasible and promote the use of "stealth" designs that locate wireless infrastructure on existing poles, buildings and other structures.

OSRC.2-5: Recognize the scenic value of views of hills surrounding Moreno Valley from Gilman Springs Road, Moreno Beach Drive, and SR 60 and encourage measures to preserve viewsheds, as possible. The view of Mystic Lake from Gilman Springs Road should also be considered.

OSRC.2-6: The use of natural materials such as stone, brick, and wood is preferable to metal posts and rails for roadside appurtenances along local scenic roads.

OSRC.2-7: Ensure any signage along local scenic roads does not detract from the area's scenic character.

OSRC.2-8: Require cultural resource assessments prior to the approval of development proposals on properties located in archaeologically sensitive areas.

ACTIONS

OSRC.2-A: Maintain a map of sensitive archaeological sites in Moreno Valley and use it to inform project applicants of the need for cultural resource assessments.

Water and Energy Conservation

Water is a precious resource, particularly in the Inland Empire, where water is imported from other regions of the state and rising average annual daily temperatures are increasingly straining availability. Energy too is indispensable to our daily lives and our energy choices and impact the natural systems around us in many ways. Responsible management of energy and water will be critical if Moreno Valley is to thrive. Individual residents, businesses, and developers all have a role to play in the conservation of local water and energy resources.

WATER EFFICIENCY

Residential development accounts for the largest share of water demand in Moreno Valley, followed by landscaping. Statewide, the California Green Building Standards Code (CalGreen) requires the installation of water-efficient indoor infrastructure for all newly constructed buildings or structures, which will help reduce water consumption by 20 percent in new construction. Additionally, in Moreno Valley's arid climate, using drought-tolerant, locally adapted plants throughout the City can save thousands of gallons of water per year and reduce demand for groundwater. Greywater systems, which reuse water from showers, sinks, and laundry, can get multiple uses out of a single gallon of water, and are becoming more common in both new multi-family buildings and as retrofits in single-family homes. Rainwater harvesting can save water for a rainless day: barrel storage can keep water ready for landscaping irrigation in the dry summer months and can also help residents be prepared for emergencies. And making sure that water can infiltrate into the aquifer keeps the groundwater supply abundant: as water seeps into the ground, it gets filtered by soils and rock, and gets naturally stored underground until it is pulled up as drinking water.

As the main water purveyor to the community, Eastern Municipal Water District (EMWD) is primarily responsible for encouraging water conservation within Moreno Valley. EMWD has established water conservation requirements applicable throughout its service area, including mandatory water-efficient landscaping requirements and water use efficiency requirements. EMWD maintains a Water Waste mobile app that allows community members to take photos and alert EMWD staff to potential water waste situations. The City also has a role to play in implementing water conservation measures in its own operations and promoting efficient use of water throughout the community. Public landscaping within Moreno Valley Ranch is predominately irrigated with recycled water, and the City also maintains landscaping in the Moreno Valley Ranch area in the southeast of the community with recycled water, in addition to publicizing water conservation tips and information on rebate programs and water-efficient appurtenances via its website.

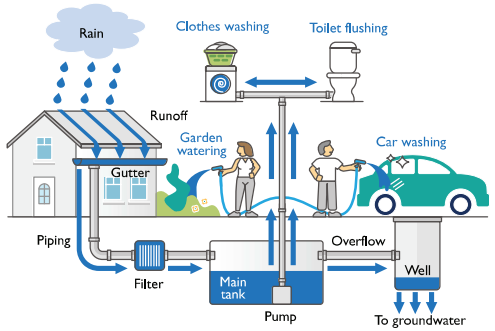
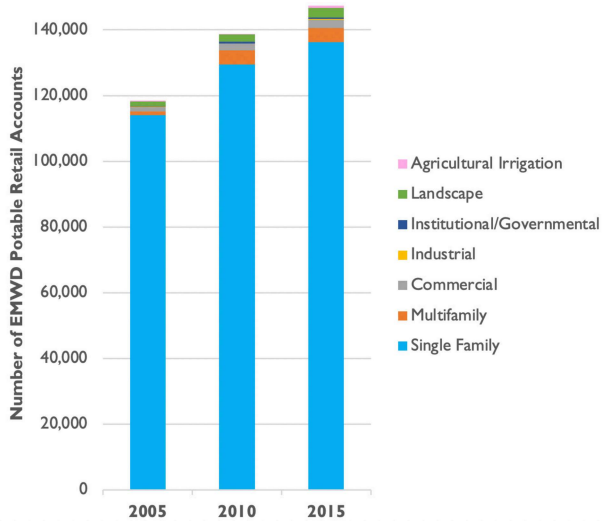


Figure OSRC-4: Water Use in Moreno Valley

Source: EMWD 2015 Urban Water Management Plan, 2016.



Rainwater harvesting can take the form of a greywater system (left) or a low-tech barrel in one's backyard that stores rain for a future dry day (above).

ENERGY EFFICIENCY

Southern California Edison (SCE) and the Moreno Valley Electric Utility (MVU) provide electricity to the City, while SoCalGas provides natural gas service. MVU is a municipally-owned utility company, which provides the City with an avenue to directly influence consumer behavior through programs and incentives that encourage energy conservation. MVU runs energy efficiency programs that offer retrofits, rebates, and energy audits to residential and commercial customers. There are also many other regional and state programs to help local residents and businesses defray the costs of installing energy efficient upgrades. MVU has installed Smart Meters for all residential customers to allow for easier tracking of energy use and the utility is working to install this technology for commercial and industrial customers. MVU has also converted streetlights within its service area to energy-efficient LED technology, which use at least 75 percent less energy and last 25 times longer than incandescent lighting. Additionally, MVU sponsors community events and provides information to all residents and businesses in the community, not just its customers.

The City's Climate Action Plan is also an important tool for promoting energy efficiency throughout the community. It includes an array of measures that address energy efficiency in the residential, commercial, and industrial sectors, including energy efficient upgrade programs, expanded incentives for retrofits, and new informational campaigns, as well as actions to further enhance the energy efficiency of municipal buildings and operations.

Goal OSRC-3: Use energy and water wisely and promote reduced consumption.

POLICIES

OSRC.3-1: Promote energy conservation throughout the community and encourage the use of renewable energy systems and technologies to supplement or replace traditional building energy systems.

OSRC.3-2: Participate in regional energy efficiency financing programs such as low-interest revolving loan funds, the California Comprehensive Residential Building Retrofit Program, and California First that enable property owners to obtain low-interest financing for energy improvements.

OSRC.3-3: Promote energy and water use awareness community-wide by informing the community regarding energy audits and incentive programs (tax credits, rebates, exchanges, etc.) available for energy conservation as well as water conservation techniques, services, devices, and rebates.

OSRC.3-4: Continue to implement energy and water conservation measures in City facilities and operations.

OSRC.3-5: Promote the retention and reuse of rainwater onsite and promote the use of rain barrels or other rainwater reuse systems throughout the community.

OSRC.3-6: Encourage new development to incorporate as many water-wise practices as feasible in their design and construction.

OSRC.3-7: Conserve water through the provision of water-efficient infrastructure, drought tolerant plantings, and greywater usage to support public parks and landscaped areas.

OSRC.3-8: Conserve water through the planting and maintenance of trees, which will provide for the capture of precipitation and runoff to recharge groundwater, in addition to providing shading for other landscaping to reduce irrigation requirements. Ensure that any 'community greening' projects utilize water-efficient landscape.

ACTIONS

OSRC.3-A: Use the Climate Action Plan to help guide energy and water reduction efforts.

OSRC.3-B: Connect businesses and residents with voluntary programs that provide free or low-cost energy and water efficiency audits, retrofit installations, rebates, and financing by publishing information on the City's website.

OSRC.3-C: Seek funding programs to assist low and moderate-income households in energy conservation.

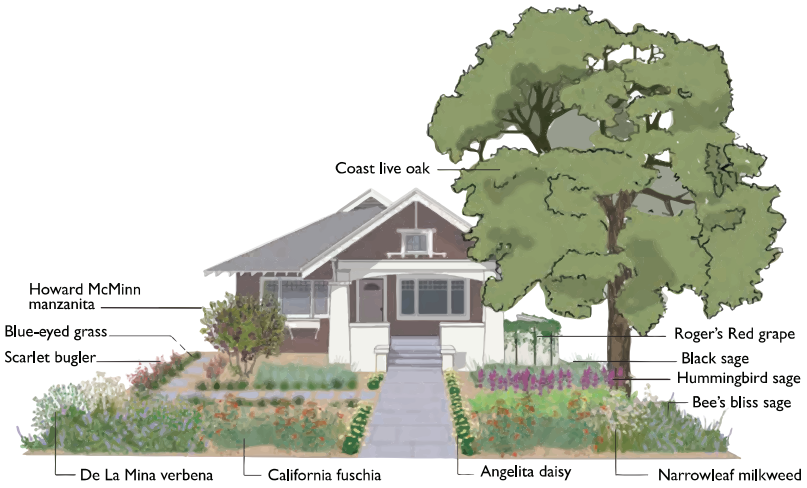
OSRC.3-D: Encourage City employees to submit energy efficiency and conservation recommendations for City operations and follow up on the recommendations.

OSRC.3-E: Periodically review and update City plans, resolutions, and ordinances to promote greater energy efficiency in both existing and new construction in regard to site planning, architecture, and landscape design.

Waste Reduction

The City is subject to various State mandates that were instituted for the purposes of achieving landfill diversion. Diversion is defined as the process of redirecting waste away from a landfill destination to be recycled or reused in some capacity. Typically, aluminum cans, paper, cardboard, and some plastics can be recycled, which achieve landfill diversion. Similarly, organic waste such as grass clippings and yard waste ("green waste") and food waste can be diverted away from landfills by composting and other forms of organic recycling.

Landfills are a key source of greenhouse gas emissions and beginning in the late 1980's, the State passed a series of laws aimed at reducing the quantity of waste sent to landfills. Of particular significance was the passage of AB 341 in 2011, which mandated commercial recycling and established the statewide diversion goal of 75 percent, and AB 1826, passed in 2014, which mandated commercial organics recycling. Organics like food scraps, yard trimmings, paper, and cardboard make up half of what Californians dump in landfills. Reducing Short-Lived Climate Super Pollutants like organic waste will have the fastest impact on the climate crisis we are starting to see in cities and counties throughout California. To reduce Statewide methane emissions in various sectors of California's economy, in 2016, the State signed into law SB 1383, the most significant waste reduction mandate to be adopted in California in the last 30 years. SB 1383 requires the State to reduce organic waste disposal, including disposal of food waste, green waste, paper products, by 75 percent by 2025, an amount equivalent to more than 20 million tons annually. The law also requires the State to increase edible food recovery by 20 percent over the same timeframe. This has significant policy and legal implications for local governments.



Native plant gardens support local ecosystems and watersheds and are easy to maintain. This sample garden from the California Native Plant Society showcases a biodiverse and water-efficient native landscape for Riverside County.
Photo credit: California Native Plant Society, BeWaterWise

The State relies on the Department of Resources Recycling and Recovery (CalRecycle), a division of the California Environmental Protection Agency, to implement the regulations associated with the laws that the legislature passes related to solid waste and recycling. The following is a detailed summary of these laws:

- Assembly Bill 939, the California Integrated Waste Management Act of 1989, requires cities and counties to reduce, reuse, and recycle (including composting) solid waste generated in their jurisdictions to the maximum extent feasible before any incineration or landfill disposal of waste, to conserve water, energy, and other natural resources, and to protect the environment.
- Assembly Bill 341 (2011) places requirements on businesses and multi-family property owners that generate a specified threshold amount of solid waste to arrange for recycling services and requires jurisdictions to implement a Mandatory Commercial Recycling program.
- Assembly Bill 1826 of 2014, requires businesses and multi-family property owners that generate a specified threshold amount of solid waste, and organic waste per week to arrange for recycling services for that waste.
- Assembly Bill 1826 (2016) requires jurisdictions to implement a Mandatory Commercial Organics Recycling program to divert organic waste from businesses subject to the law.
- Senate Bill 1383, the Short-lived Climate Pollutant Reduction Act of 2016, requires CalRecycle to develop regulations to reduce organics in landfills as a source of methane. The regulations place requirements on multiple entities including jurisdictions, residential households, commercial businesses and business owners, commercial edible food generators, haulers, self-haulers, food

recovery organizations, and food recovery services to support achievement of Statewide Organics Waste disposal reduction targets. Jurisdictions are required to adopt and enforce and ordinance or enforceable mechanism to implement relevant provisions of SB 1383 regulations. This ordinance will also help reduce food insecurity by requiring commercial edible food generators to arrange to have the maximum amount of their edible food, that would otherwise be disposed, be recovered for human consumption. With the passage of SB 1383, the City and its waste hauler are required to resource the programs and services compliant with AB 341, AB 1826, and SB 1383, which consists of organic waste collection to all residents and businesses.

Through its partnership with Waste Management, the franchise waste hauler, the City provides an array of programs and tools intended to support Statewide objectives. The hauler and City staff promote recycling programs through billing inserts, flyers, social media postings, site visits, and outreach to the various businesses and organizations. Moreover, the City takes proactive steps to ensure compliance with AB 341 and/or AB 1826 requirements.

Waste Management provides trash, recycling, composting, and special waste handling services to local residents and businesses. The majority of solid waste generated within the City is disposed of at El Sobrante Landfill, which has sufficient capacity to accommodate the community through 2040. Organic waste, including food waste, grass, and pruning account for by far the largest share of the local waste stream. As such, organic waste is a primary focus of local waste reduction initiatives.

Goal OSRC-4: Optimize the use of available resources by encouraging residents, businesses and visitors to reuse and recycle.

POLICIES

OSRC.4-1: Reduce the amount of solid waste disposed in landfills by promoting source reduction and recycling throughout Moreno Valley and by expanding the range of programs and information available to local residents and businesses, consistent with State requirements.

OSRC.4-2: Strive to reduce at source, recycle, or compost 75 percent of solid waste generated in the community from the year 2025 forward, consistent with State targets.

OSRC.4-3: Continue to promote the safe disposal of household hazardous waste through public education.

OSRC.4-4: Provide information via the City's website on curbside pick up of donations by local organizations such as Goodwill and Salvation Army.

OSRC.4-5: Ensure the continued provision of adequate solid waste and recycling services in Moreno Valley, including the availability of adequate landfill capacity to meet the City's future needs.

OSRC.4-6: Plan and secure access for recycling and edible food recovery capacity.

ACTIONS

OSRC.4-A: Plan and implement programmatic and budgetary changes to address regulatory requirements, such as enforcement, inspections, education, and collection.

OSRC.4-B: Continue to monitor compliance and conduct enforcement on non-compliant entities.

OSRC.4-C: Work with the waste hauler and other appropriate businesses and agencies to identify additional incentives and programs to encourage recycling and waste management as needed to meet State mandates.

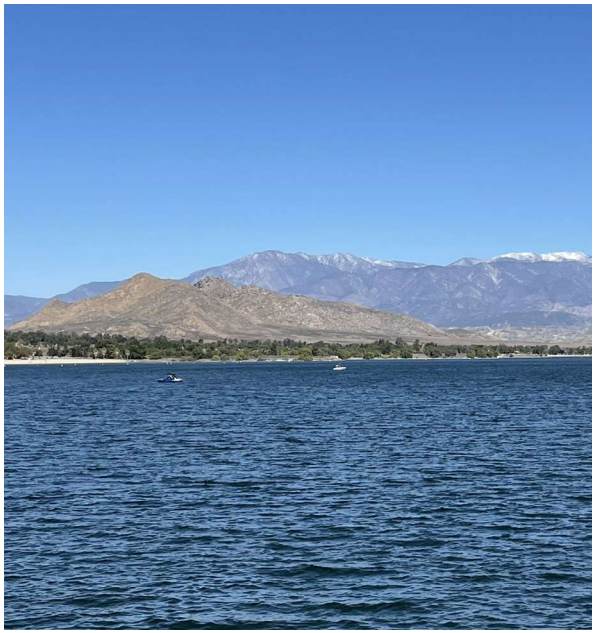
OSRC.4-D: Work with commercial and industrial generators to develop and implement a source reduction and recycling plan tailored to their individual waste streams.

OSRC.4-E: Establish a procurement target for recyclable and recovered organic products used in City operations. The

target should be linked to the City's population.

OSRC.4-F: Explore the feasibility of providing compost receptacles in parks and public spaces, in addition to trash and recycling receptacles.

OSRC.4-G: Establish edible food recovery program for all Tier 1 and 2 commercial edible food generators to reduce organic waste in the community and divert consumable food to those in need. (See also healthy food policies and actions in the Environmental Justice Element).



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