Biological Resources Technical Report

Coachella Valley Water District Sanitation Master Plan Update 2020

Riverside County and Imperial County, California

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MAY 2020

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ENVIRONMENTAL CONSULTANTS

ECORP Consulting, Inc. has assisted public and private land owners with environmental regulation compliance since 1987. We offer full service capability, from initial baseline environmental studies through environmental planning review, permitting negotiation, liaison to obtain legal agreements, mitigation design, construction supervision, and monitoring and compliance reporting.

Citation: ECORP Consulting, Inc. 2020. Biological Technical Report for the Coachella Valley Water District Sanitation Master Plan Project. Riverside County, California. Prepared for the Coachella Valley Water District. Palm Desert, California.

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1.0 INTRODUCTION

The Coachella Valley Water District (CVWD) provides services for water, wastewater, recycled water, irrigation/drainage, regional stormwater protection, and groundwater management to an approximately 885 square mile service area located in the Coachella Valley. The Sanitation Division specifically provides wastewater collection and treatment services. In 2009, the CVWD prepared its first sewer collection system master planning study (the 2009 Sanitation System Master Plan) to study wastewater flow projections, wastewater load projections, reliability/redundancy criteria, biosolids management, water reclamation plant evaluations, and the collection system in an effort to develop the capital improvement program. Due to deviations from the population growth assumptions in the 2009 Sanitation System Master Plan, the CVWD is proposing implementation of the Sanitation Master Plan Update 2020 (2020 Plan). The 2020 Plan will provide a comprehensive capital improvement program (CIP) consisting of recommendations to refurbish existing assets, optimize operations, and satisfy projected capacity needs of all sanitation facilities within the CVWD service area.

ECORP Consulting, Inc. (ECORP) conducted a programmatic-level assessment of sensitive biological resources for the project locations proposed for the 2020 Plan CIP. The purpose of this assessment is to collect information on the existing biological resources within the CVWD service area and to determine potential biological constraints to the proposed project areas. This assessment includes a general characterization of habitat types and an evaluation of the potential for special-status plant and animal species to occur within the proposed project locations.

1.1 Project Location

The 2020 Plan area is located in the Coachella Valley in southern California, within the CVWD service area, located approximately 130 miles east of the City of Los Angeles and 140 miles northeast of the City of San Diego. The CVWD is responsible for wastewater service to a service area encompassing approximately 885 square miles of land, primarily designated as residential, commercial, and industrial. The topography of the service area is valley-centered, with a mild slope generally following the Coachella Valley Stormwater Channel (also known as the Whitewater River) which bisects the Coachella Valley as it flows from the west to the east/southeast, discharging to the Salton Sea. The Salton Sea generally forms the southern boundary of District, with the Chocolate Mountains on the east and the Santa Rosa Mountains on the west. The southern tip of the San Bernardino Mountains forms the northern extent of the service area. The 2020 Plan project locations are located within portions of the cities of Desert Hot Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, Indio, and La Quinta, and also occurs within tribal land, unincorporated Riverside and extends into northern Imperial County (Appendix A: Figure 1. *Project Location and CVWD Service Area*).

The 2020 Plan area is located within all or portions of the United States Geological Survey (USGS) Cathedral City, Desert Hot Springs, East Deception Canyon, Frink, Indio, La Quinta, Martinez Mountain, Mecca, Myoma, Oasis, Rabbit Peak, Rancho Mirage, Seven Palms Valley, Thermal Canyon, Valerie, and West Berdoo Canyon 7.5-minute topographic quadrangles (Appendix A: Figure 2. *USGS Topographic Map*). Specifically, the proposed projects occur within:

- Sections 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 29, 30, 31, 32, 33, 34 of Township 03 South, Range 05 East
- Sections 7, 16, 17, 21, 22, 23, 25, 26, 27, 36 of Township 03 South, Range 06 East
- Sections 30, 31, 32 of Township 03 South, Range 07 East
- Sections 3, 4, 5, 10, 11, 12, 13, 14, 25, 28, 33, 34, 35, 36 of Township 04 South, Range 05 East
- Sections 1, 6, 7, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 of Township 04 South, Range 06 East
- Sections 3, 4, 5, 6, 10, 11, 13, 14, 19, 30, 31, 32, 33 of Township 04 South, Range 07 East
- Sections 1, 2, 3, 11, 12, 13 of Township 05 South, Range 05 East
- Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32 of Township 05 South, Range 06 East
- Sections 3, 4, 5, 6, 7, 8, 9, 16, 19, 28, 29, 30, 32, 33, 34, 35, 36 of Township 05 South, Range 07 East
- Sections 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35, 36 of Township 06 South, Range 07 East
- Sections 15, 19, 20, 22, 23, 28, 29, 30, 31, 32, 33, 34, 35, 36 of Township 06 South, Range 08 East
- Sections 1, 2, 3, 4, 5, 12 of Township 07 South, Range 07 East
- Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 35, 36 of Township 07 South, Range 08 East
- Sections 7, 8, 16, 17, 18, 19, 20, 21, 31 of Township 07 South, Range 09 East
- Sections 1, 2, 3, 10, 11, 12, 13, 14, 24 of Township 08 South, Range 08 East
- Sections 6, 7, 18, 19, 30 of Township 08 South, Range 09 East
- Section 28 of Township 09 South, Range 12 East

This programmatic evaluation focuses on the various proposed project components (as described in Section 1.2.1) and a corresponding 500-foot (ft) buffer around each, hereafter referred to as the Biological Study Area (BSA; see Appendix A: Figure 3. *Biological Study Area*).

1.2 Project Description

To provide wastewater collection and treatment services, CVWD owns and operates a large collection system and five water reclamation plants (WRPs): 1, 2, 4, 7, and 10. The CVWD sanitary collection sewer system includes more than 1,130 miles of sanitary sewer pipeline, which are comprised of approximately 1,060 miles of gravity pipelines and 70 miles of force mains.

The 2020 Plan provides a comprehensive capital improvement program consisting of recommendations to refurbish existing assets, optimize operations, and satisfy projected capacity needs of all sanitation facilities (collection system including gravity pipelines, force mains, lift stations, and the five Water Reclamation Plants) in a phased program to be implemented in five-year implementation phases between 2020 to 2045.

The proposed Collection System improvements include adding approximately 174 miles of gravity and force main pipelines to increase system capacity, upsizing of gravity pipelines, cleaning and inspecting pipelines, trenchless rehabilitation of pipelines and manholes, replacement of electrical equipment and wiring at lift stations, replacement of lift stations, and a new non-potable distribution system in the service area.

The proposed improvements at the Water Reclamation Plants (WRPs) include plant and process equipment capacity upgrades/expansion, replacement of assets, addition of process monitoring and controls, improvements to reduce energy consumptions, safety and security upgrades, addition of solar power, backup power generation, floating covers, addition of tanks and reservoirs, primary treatment and tertiary treatment, replacement of liners, and pilot projects. The CIP also includes biosolids management plans for a regional facility, and standardization of Operations and Maintenance improvements across all WRPs.

Appendix A provides a table summarizing the proposed projects, inclusive of a brief project description and main purpose of the project, followed by a map depicting the project locations. The proposed projects are organized as follows:

- WRP Capital Improvement Projects
- Biosolids Capital Improvement Projects
- WPR Asset Management Capital Improvement Project
- General Capital Improvement Project
- Capacity Capital Improvement Projects
- Condition and Risk Assessment Capital Improvement Projects
- Septic-to-Sewer Conversion Capital Improvement Projects
- Collection System Asset Management Capital Improvement Projects

1.2.1 WRP Capital Improvement Projects

Proposed projects grouped as WRP Capital Improvement Projects consist of projects that will be occurring within an existing WRP facility, namely at WRPs 1, 2, 4, 7, 10. Although the WRPs are spread throughout the Plan area, the WRP Capital Improvement Projects were grouped together based on proposed project activities remaining within the limits of the existing WRP boundaries and the fact that the facilities are established and utilized for daily operations.

WRP 1 is located within a primarily undeveloped desert scrub area in the community of Bombay Beach, in Imperial County. WRP 1 is located at the southwestern terminus of Honey Wagon Road and is bounded by the Union Pacific Railroad tracks to the southeast. State Route 111 (SR 111) is immediately southeast of the railroad tracks and runs parallel to the tracks. Undeveloped parcels of land are located to the north and west of WRP 1 and west and south of SR 111. Two projects have been identified for the WRP 1 Capital Improvement Projects (Appendix B: Table 3-5 and Figure 3-7).

WRP 2 is located within a primarily undeveloped desert scrub area in the community of North Shore, in Riverside County. WRP 2 is located approximately 0.5 miles southwest of Club View Drive and is bounded by the Union Pacific Railroad tracks to the southwest and by undeveloped parcels of land to the northwest, northeast, and southeast. SR 111 is immediately southeast of the railroad tracks and runs parallel to the tracks and scattered residential housing is located east and southeast of SR 111. One project has been identified for the WRP 2 Capital Improvement Projects (Appendix B: Table 3-4 and Figure 3-6).

WRP 4 is located within an agricultural area immediately south of the community of Thermal, in Riverside County. WRP 4 is bounded by 62nd Avenue to the north, Fillmore Street to the west, 64th Avenue to the south, and the Coachella Valley Stormwater Channel (CVSC) to the east. Agricultural fields are located to the north, west, and south. An undeveloped parcel of land is located southwest of WRP 4 and a plant/tree

nursery is located east of the CVSC. Sixteen projects have been identified for the WRP 4 Capital Improvement Projects (Appendix B: Table 3-3 and Figure 3-5).

WRP 7 is located within an agricultural area in the City of Indio, in Riverside County. WRP 7 is bounded by Avenue 38 to the north, Madison Street to the east, Lindy Lane to the south, and Burr Street to the west. Agricultural fields are located to the south and west, residential and undeveloped areas to the east, and residential, agriculture, undeveloped areas to the north. Six projects have been identified for the WRP 7 Capital Improvement Projects (Appendix B: Table 3-2 and Figure 3-4).

WRP 10 is located within an urban setting within the City of Palm Desert, in Riverside County. WRP 10 is bounded by Cook Street to the west, Hovley Lane East to the north, Via Vicchio to the east, and the Whitewater River to the south. Residential areas are located to the east and south of WRP 10 and commercial and residential areas are located to the north and west. Seventeen projects have been identified for the WRP 10 Capital Improvement Projects (Appendix B: Table 3-1 and Figure 3-3).

1.2.2 Biosolids Capital Improvement Projects

The CVWD is not proposing to implement any Biosolids Capital Improvement Projects during the planning period; however, if regulatory changes, biosolids markets, development, treatment capacity needs or other event should occur, CVWD may consider the implementation of one or more of the five projects outlined in Appendix B: Table 3-6. Because these projects are not being proposed at this time and have no identifiable footprint outside of the existing WRP 4 facility (Appendix B: Figure 3-8), the Biosolids Capital Improvement Projects were excluded from this evaluation.

1.2.3 WRP Asset Management Capital Improvement Projects

WPR Asset Management Capital Improvement Projects include the replacement/repair of assets at the WRPs that have greater than $250,000 replacement cost. CVWD identified 35 Asset Management Capital Improvement Projects located within the five existing WRP facilities (Appendix B: Table 3-7).

1.2.4 General Capital Improvement Projects

General Capital Improvement Projects include proposed improvements to optimize process operations and reduce energy and operational and maintenance costs of the WRPs. Seven projects have been identified for the systemwide General Capital Improvement Projects list (Appendix B: Table 3-8). Because there is no project footprint associated with these projects, the General Capital Improvement Projects were excluded from this biological evaluation.

1.2.5 Capacity Capital Improvement Projects

Proposed projects grouped under Capacity Capital Improvement Projects include the construction of new pipelines, new sanitation infrastructure, and lift station improvements to increase the system capacity. Eighteen projects have been identified for the Capacity Capital Improvement Project, including seven for WRP 4, ten for WRP 7, and one for WRP 10 (Appendix B: Tables 3-9 and 3-10 and Figures 3-9 through 3-10)

1.2.6 Condition and Risk Assessment Capital Improvement Projects

Proposed projects grouped under Condition and Risk Assessment Capital Improvement Projects for risk mitigation of the existing sewer that runs parallel and crosses the Whitewater River/CVSC. Six projects have been identified for the Condition and Risk Assessment Capital Improvement Projects (Appendix B: Table 3-11 and Figures 3-11 through 3-17).

1.2.7 Septic-to-Sewer Conversion Capital Improvement Projects

Septic-to-Sewer Conversion Capital Improvement Projects include the construction of new pipelines and new sanitation infrastructure required for converting to a non-potable distributions system in the CVWD service area. Six projects have been identified for the Septic-to-Sewer Capital Improvement Projects (Appendix B: Table 3-12 and Figure 3-18).

1.2.8 Collection System Asset Management Capital Improvement Projects

Collection System Asset Management Capital Improvement Projects include improvements and upgrades to existing pipelines, lift stations, and manholes located throughout the CVWD service area. Sixteen projects have been identified for the Collection System Asset Management Capital Improvement Projects (Appendix B: Table 3-13 and Figures 3-19 through 3-20).

2.0 REGULATORY REQUIREMENTS

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and animals that are listed as endangered or threatened by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Section 9 of FESA prohibits the "take" of endangered wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

2.1.2 Migratory Bird Treaty Act

Nesting birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703- 711). The MBTA provides protection for nesting birds that are both residents and migrants whether or not they are considered sensitive by resource agencies. The MBTA prohibits take of nearly all native birds. The MBTA

makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment, or forced fledging would be considered take under federal law. The USFWS is responsible for enforcing the MBTA.

2.1.3 Federal Clean Water Act

The federal Clean Water Act (CWA) (33 U.S.C. 1344 *et seq*.) provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. The United States Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into waters of the United States, including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the United States that are currently regulated under the CWA include the following:

- Wetlands. Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE and USEPA 2019). Wetlands can be perennial, intermittent or adjacent to other waters.
- Other Waters. Other waters that may be identified in the site are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses (USACE and USEPA 2019). The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the "ordinary high-water mark" (OHWM). The OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

Substantial impacts to wetlands, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect wetlands, less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by one of nine Regional Water Quality Control Boards (RWQCB) that operate under the State Water Resources Control Board (SWRCB). The 2020 Plan area is in the jurisdiction the Colorado River (Region 7) RWQCB.

2.1.3.1 Navigable Waters Protection Rule

On April 21, 2020, the United States Environmental Protection Agency (USEPA) and USACE published the Navigable Waters Protection Rule to define "waters of the United States" under the CWA (USACE and USEPA 2020). In this final rule, the definition of "waters of the United States", also referred to as jurisdictional waters, includes territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. The final rule also defines features that are specifically excluded from the definition of "waters of the United States," such as ephemeral features; groundwater; prior converted cropland; and waste treatment systems. This rule will become effective on June 22, 2020.

2.1.4 Federal Land Policy and Management Act

The Federal Land Policy and Management Act (FLPMA) directs the Bureau of Land Management (BLM) to prepare land use plans that provide guidance on how public lands are to be managed. All activities on BLM-managed land must be in conformance with the approved land use plan. The *California Desert Conservation Area Plan* (CDCA Plan. 1980, as amended) provides land use plan guidance for the California Desert Conservation Area.

The Coachella Valley Plan Amendment to the CDCA Plan approved a number of changes to the 1980 CDCA Plan, one of which was to establish habitat conservation objectives for assessing compatible uses in eight vegetation community types and developing appropriate mitigation measures. Based on those objectives, approximately 95 percent of the BLM land managed in the Coachella Valley was to be managed consistent with the multispecies habitat conservation objectives established through the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP; described in Section 2.3.1). These habitat objectives apply to all BLM-administered public lands that fall within the conservation area boundaries established through the CVMSHCP (BLM 2002).

2.2 State Regulations

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) generally parallels the main provisions of FESA, but unlike its federal counterpart, CESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code (CFGC) prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the CFGC as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

2.2.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (CFGC Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (CFGC Sections 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by CDFW. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The CESA of 1984 (CFGC Section 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the CFGC.

2.2.4 California Fish and Game Code Section 1600

Under Section 1602 of the CFGC, the CDFW regulates activities that may (1) divert, obstruct, or change the natural flow or change the bed, channel, or bank or any river stream or lake; (2) use materials from streambeds; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. It should be noted that within the California Code of Regulations, a streambed is defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life" (Title 14, § 1.72). The definition further states "This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (ibid.). This definition does not supersede or replace the definition within Section 1602, but rather is additive to it.

Regulated activities require submittal of a Notification of Lake or Streambed Alteration to CDFW. CDFW reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the Applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

2.2.5 California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513

Several sections of the CFGC provides for the protection of native birds and raptors. Section 3503 prohibits the take, possession, or needless destruction of the nest of eggs or any bird, except as otherwise provided by the code and all raptor species are protected from take pursuant to Section 3503.5. Section 3511(a)(1) specifies that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 prohibits the possession or take of any migratory nongame birds listed under the MBTA. These sections

mandate the protection of California nongame native birds' nests and also make it unlawful to take these birds.

2.2.6 Porter Cologne Water Quality Control Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" [Water Code 13260(a)].

Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050[e]). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

On April 2, 2019, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (referred to as the Procedures) for inclusion in the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Resolution No. 2019-0015). The new Procedures include the following:

- Definition of wetlands and aquatic resources that are Waters of the State;
- description of application requirements for individual orders (not general orders) for water quality certification, or waste discharge requirements;
- description of information required in compensatory mitigation plans; and
- definition of exemptions to application procedures.

The Office of Administrative Law approved the procedures on August 28, 2019 and the rule goes into effect May 28, 2020. It is as yet unknown how this new set of procedures will be implemented at the project level.

2.2.7 Natural Community Conservation Planning Act

The Natural Community Conservation Planning (NCCP) Act (CFGC Sections 2800-2831) is designed to conserve natural communities at the ecosystem scale while accommodating compatible land uses. The CDFW is the principle state agency implementing the NCCP program. The NCCP Act established a process to allow for comprehensive, regional multi-species planning in a manner that satisfies the requirements of the state and FESAs (through a companion regional HCP). The NCCP program has provided the framework for innovative efforts by the state, local governments, and private interests to plan for the protection of regional biodiversity and the ecosystems upon which they depend. NCCPs seek to ensure the long-term conservation of multiple species, while allowing for compatible and appropriate economic activity to proceed.

2.3 Regional Policies and Regulations

2.3.1 Coachella Valley Multiple Species Habitat Conservation Plan

The Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP), which was originally approved in 2008, is managed by the Coachella Valley Conservation Commission (CVCC) and participants include Riverside County, the Cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, as well as Coachella Valley Water District, Imperial Irrigation District, Mission Springs Water District, Coachella Valley Association of Governments (CVAG), and Caltrans (CVAG 2016). The CVMSHCP is a long-term program designed to conserve federally protected species, state-protected species, and/or other species of concern. The CVMSHCP program aims to conserve over 240,000 acres of open space and protect 27 plant and animal species (covered species) by providing comprehensive compliance with federal and state endangered species laws. The CVMSHCP includes most of the Coachella Valley floor portion of Riverside County, though Indian reservations within the area are not included (CVAG 2016). Proposed projects for the 2020 Plan within the CVMSHCP area are covered activities as described in Section 7.0 of the CVMSHCP.

Under the CVMSHCP, species protection is predicated on a science-based modeling of habitats within the region. Within the CVMSHCP area, covered activities receive authorization to take species, as defined by FESA (see Section 2.1.1) and the CFGC (see Section 2.2.1), under the Section 10(a)(1)(B) permit issued by the USFWS and the NCCP permit issued by the CDFW. To mitigate for this take, CVMSHCP contains several areas designated by a Conservation Area Reserve system which is designed to include representative native plants, animals, and natural communities across their modeled natural ranges of variation in the valley. The types and extent of conservation requirements for covered species, natural communities, and landscapes within these reserves are defined by specific goals and objectives that are intended to support several guiding ecologically based principles. As a result, the CVMSHCP incorporates ongoing biological monitoring and land management programs to assure the principles and species-specific conservation goals and objectives are met and maintained throughout the life of the CVMSHCP. The CVMSHCP includes measures to avoid, minimize, and mitigate impacts to specific biological resources for covered activities in Conservation Areas. For CVMSHCP covered activities outside of the Conservation Areas, mitigation is achieved through payment of mitigation fees imposed by the individual jurisdictions in which they occur. Additionally, land use adjacency guidelines have been established to avoid or minimize indirect effects from activities conducted in and adjacent to Conservation Areas.

Proposed projects for the 2020 Plan that occur within a CVMSHCP designated Conservation Area are subject to a Joint Project Review (JPR) Process with CVCC. The purpose of the JPR Process is to ensure the project is in compliance with the CVMSHCP and consistent with the Conservation Area Conservation Objectives and required conservation measures. The JPR Process is described in more detail in Section 6.6.1.1 of the CVMSHCP.

2.3.2 Agua Caliente Tribal Habitat Conservation Plan (THCP)

The Agua Caliente Indian Reservation (Reservation), is home of the Agua Caliente Band of Cahuilla Indians (Tribe), and consists of landholdings, including Tribal trust land, allotted trust land, and fee land, in the western Coachella Valley. Sections of the Reservation land are interspersed with public lands owned or

under the control of various federal and state agencies, and privately-owned land under the jurisdiction of the County of Riverside and/or one of three municipalities (City of Palm Springs, City of Cathedral City, and City of Rancho Mirage). As mentioned above, Indian reservations are not included in the CVMSHCP.

As a sovereign Indian nation, the Tribe protects and manages the natural resources and habitats in the Reservation that are deemed valuable by both the USFWS and the Tribe. As an alternative to participating in the CVMSHCP, the Tribe prepared a Tribal Habitat Conservation Plan (THCP) in order to continue a long-standing tradition of land use management and stewardship of natural resources in and around the Reservation by assuming a role as the primary manager of the resources and land uses that impact them. Through future coordination with the USFWS, the THCP will eventually serve to establish consistency and streamline permitting requirements with respect to protected species by establishing one process for both Tribal Members and third parties that is overseen and implemented by the Tribe (THCP 2010). Currently, the THCP serves as a guideline for conservation requirements within the Reservation. If project activities have boundaries situated partially on the Reservation and partially off the Reservation, the Tribe may choose to defer to the CVMSHCP and allow those requirements to be imposed on the Reservation portion of the project.

The Tribe has entered into Land Use Agreements with the cities of Cathedral City, Palm Springs, and Rancho Mirage, and the County of Riverside that allow each of these jurisdictions to act as the land use regulatory agent for the Tribe. If projects proposed for the 2020 Plan are located within or adjacent to Reservation lands of the Tribe, the corresponding jurisdiction is required to notify the Tribe as part of the entitlement process and will instigate coordination with the Tribe regarding relevant resources prior to issuing a permit for projects that may affect Reservation lands. The Tribe will make required consistency determinations and work with local land use jurisdictions to ensure appropriate conditions are included on any Conditional Use Permits.

2.4 Local Policies and Regulations

2.4.1 Riverside County Ordinance No. 559 Regulating the Removal of Trees

Riverside County Ordinance No. 559 prohibits the removal of living native trees on parcels of property greater than one-half acre, located above 5,000 feet within the unincorporated area of Riverside County without first obtaining a permit.

2.4.2 Imperial County General Plan

The Imperial County General Plan provides direction for growth, particularly urban development, to provide for preservation and conservation of adequate scenic, recreational, and wildlife habitat open space; agricultural areas; mineral resources; and the air and water quality of Imperial County. The Imperial County General Plan Land Use Element (2015) and Conservation and Open Space Element (2016) contain objectives that are intended to ensure protection of biological resources in the county:

Land Use Element:

- Objective 9.1: Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and

prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

Conservation and Open Space Element:

- Objective 2.1: Conserve wetlands, freshwater marshes, and riparian vegetation.
- Objective 2.2: Protect significant fish, wildlife, plant species, and their habitats.
- Objective 2.3: Protect unique, rare, and endangered plants and animals and their habitats.

3.0 LITERATURE REVIEW

Information about biological resources within the BSA was obtained from a search of sensitive species databases, a review of pertinent literature, prior environmental documents, and aerial photographs. The primary sources of information are listed below. Biological information obtained from these sources was utilized to perform a programmatic evaluation of sensitive biological resources associated with each of the proposed projects. No site-specific or focused plant or animal surveys were conducted.

Databases

- CDFW California Natural Diversity Database (CNDDB; CDFW 2020a)
- California Native Plant Society's (CNPS) Electronic Inventory (CNPS 2019)
- CDFW Vegetation Classification and Mapping Program (VegCAMP; CDFW 2020b)
- USFWS National Wetland Inventory (NWI) (USFWS 2019)
- United States Department of Agriculture (USDA), Natural Resources Conservation Web Soil Survey (USDA 2019)
- Calflora Plant Database (Calfora 2020)

Literature Review

- Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP; CVAG 2016)
- Environmental Impact Reports, Biological Assessments, and other environmental documents prepared throughout the 2020 Plan Area.
- California Vegetation Map in Support of the Desert Renewable Energy Conservation Plan (DRECP) Report, 2014-2016 Additions (Menke *et al*. 2016)

Using the information and data obtained regarding vegetation communities, elevation, soils, species modeling, and habitat type distribution within the BSA, special-status biological resources that occur in the vicinity of the 2020 Plan area were identified and analyzed to determine if any have the potential to occur within the BSA.

4.0 RESULTS

4.1 Existing Conditions

4.1.1 Hydrology

The BSA is located within the Southern Mojave-Salton Sea Hydrologic Unit (4-digit Hydrologic Unit Code [HUC] 1810), within the 1,500 square-mile Whitewater River Watershed (8-digit HUC 18100201) and the 5,000 square-mile Salton Sea (8-digit HUC 18100204).

The Whitewater River Watershed spans portions of San Bernardino and Riverside counties and drains into the Whitewater River, which begins in the San Bernardino Mountains and moves south east to the Salton Sea and Sonoran Desert. Climatic conditions within the Whitewater River Watershed are arid. The winters are mild, and summers are hot, with temperatures ranging from below freezing to over 120 degrees Fahrenheit (°F). Precipitation averages 3.6 inches per year and there is no defined rainy season in this watershed. Convective rainfall events (summer thunderstorms) make up a large portion of the annual rainfall. Runoff resulting from rains and snow melt at the higher elevations is the major source of ground water replenishment (CRWQCB 2006).

The Salton Sea Watershed includes the eastern Coachella Valley and the Imperial Valley, in Riverside and Imperial Counties, and encompasses the Salton Sea, which is a saline body of water in a natural sink between the Imperial and Coachella Valleys. The climate is arid and average annual precipitation is less than 3 inches. Surface waters mostly drain toward the Salton Sea and are predominately from agriculture irrigation drainage water from farmlands in the Imperial Valley (CRWQCB 2006).

4.1.2 Soils

Soils types were determined using the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2019). A total of 37 soil types were identified in the Riverside County portion of the BSA (Table 1 and Appendix A: Figure 4. *Natural Resources Conservation Soil Map*). No soil mapping data was available for the Imperial County portion of the BSA and for a small portion of the Riverside County BSA. Twelve of the mapped soils are listed as hydric soils for the Riverside County, Coachella Valley Area (NRCS 2020).

Table 1. NRCS Soil Types Mapped in the BSA

Soil Number	Soil Name	Hydric
1250	Ironlung rock outcrop complex, 30 to 75 percent slopes	No
1255	Goldenhills-Bulletproof-Fanhill-Whiterobe complex, 30 to 75 percent slopes	Yes
BA	Badland	No
BP	Borrow pits	Yes
CcC	Carrizo stony sand, 2 to 9 percent slopes	No
CdC	Carsitas gravelly sand, 0 to 9 percent slopes	Yes

Table 1. NRCS Soil Types Mapped in the BSA		
Soil Number	**Soil Name**	**Hydric**
CdE	Carsitas gravelly sand, 9 to 30 percent slopes	Yes
ChC	Carsitas cobbly sand, 2 to 9 percent slopes	Yes
CkB	Carsitas fine sand, 0 to 5 percent slopes	No
CmE	Carsitas variant, 5 to 30 percent slopes	No
CoB	Chuckwalla very gravelly sandy clay loam, 2 to 5 percent slopes	No
CoD	Chuckwalla very gravelly sandy clay loam, 5 to 15 percent slopes	No
CpA	Coachella fine sand, 0 to 2 percent slopes	No
CpB	Coachella fine sand, hummocky, 2 to 5 percent slopes	No
CrA	Coachella fine sand, wet, 0 to 2 percent slopes	No
CsA	Coachella fine sandy loam, 0 to 2 percent slopes	No
Fe	Fluvents	Yes
GaB	Gilman loamy fine sand, 0 to 5 percent slopes	No
GbA	Gilman fine sandy loam, 0 to 2 percent slopes	No
GbB	Gilman fine sandy loam, 2 to 5 percent slopes	No
GcA	Gilman fine sandy loam, wet, 0 to 2 percent slopes	No
GdA	Gilman fine sandy loam, moderately fine substratum, 0 to 2 percent slopes	No
GeA	Gilman silt loam, 0 to 2 percent slopes	No
GfA	Gilman silt loam, wet, 0 to 2 percent slopes	No
Ip	Indio fine sandy loam	No
Ir	Indio fine sandy loam, wet	No
Is	Indio very fine sandy loam	No
It	Indio very fine sandy loam, wet	No
LR	Lithic Torripsamments-Rock outcrop complex	Yes
MaB	Myoma fine sand, 0 to 5 percent slopes	Yes
MaD	Myoma fine sand, 5 to 15 percent slopes	Yes
McB	Myoma fine sand wet, 0 to 5 percent slopes	Yes
RO	Rock outcrop	Yes
RU	Rubble land	Yes
Sa	Salton fine sandy loam	No
Sb	Salton silty clay loam	No
W	Water	N/A

4.1.3 CVMSHCP Conservation Areas

The BSA overlaps portions of eleven Conservation Areas as designated under the CVMSHCP (Appendix A: Figure 5. *CVMSHCP Conservation Areas*). Table 2 summarizes the covered species and conserved natural communities for each Conservation Area within the BSA and Table 3 lists the individual proposed projects where the BSA occurs within Conservation Areas.

Table 2. Conservation Areas in the BSA

Conservation Area	Covered Species Core Habitat	Covered Species Other Conserved Habitat	Conserved Natural Communities
Coachella Valley Stormwater Channel and Delta	Desert pupfish and crissal thrasher	Yuma clapper rail, California black rail, burrowing owl, Least bell's vireo, southwestern willow flycatcher, summer tanager, yellow warbler, Le Conte's thrasher Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	mesquite hummocks, desert saltbush scrub, desert sink scrub, Sonoran cottonwood- willow riparian forest, and coastal and valley freshwater marsh
Desert Tortoise and Linkage	Desert tortoise, Mecca aster, and Orocopia sage	Le Conte's thrasher, desert tortoise, Coachella Valley round-tailed ground squirrel, Palm Springs pocket mouse, Least bell's vireo, southwestern willow flycatcher, summer tanager, and yellow warbler	Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, Mojave mixed woody scrub, and desert dry wash woodland
East Indio Hills	Mecca aster	Coachella Valley giant sand-treader cricket, Coachella Valley fringe-toed lizard, desert tortoise, flat-tailed horned lizard, crissal thrasher, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, Palm Springs pocket mouse, Least bell's vireo, southwestern willow flycatcher, summer tanager, and yellow warbler	active desert dunes, stabilized shielded desert sand fields, stabilized and partially stabilized desert sand fields, mesquite hummocks, Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, and desert saltbush scrub
Edom Hill	None	Coachella Valley milkvetch, Mecca aster, Coachella Valley giant sand-treader cricket, Coachella Valley Jerusalem cricket, Coachella Valley fringe-toed lizard, flat-tailed horned lizard, Coachella Valley round-tailed ground squirrel, Palm Springs pocket mouse, Le Conte's thrasher, and burrowing owl	active desert sand fields, stabilized and partially stabilized desert sand fields, Sonoran creosote bush scrub, and Sonoran mixed woody and succulent scrub

Table 2. Conservation Areas in the BSA			
Conservation Area	**Covered Species Core Habitat**	**Covered Species Other Conserved Habitat**	**Conserved Natural Communities**
Indio Hills/Joshua Tree National Park Linkage	Desert tortoise	Coachella Valley milkvetch, Mecca aster, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	Sonoran creosote bush scrub and Mojave mixed woody scrub
Long Canyon	None	Coachella Valley milkvetch, Coachella Valley Jerusalem cricket, desert tortoise, burrowing owl, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, flat-tailed horned lizard and Palm Springs pocket mouse	Sonoran creosote bush scrub and Sonoran mixed woody and succulent scrub
Santa Rosa and San Jacinto Mountains	Peninsular bighorn sheep	Least bell's vireo, southwestern willow flycatcher, summer tanager, yellow warbler, gray vireo, desert tortoise, southern yellow bat, triple-ribbed milkvetch, Coachella Valley milkvetch, Coachella Valley giant sand-treader cricket, Coachella Valley Jerusalem cricket, Coachella Valley fringe-toed lizard, flat-tailed horned lizard, burrowing owl, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, southern arroyo willow riparian forest, Sonoran cottonwood-willow riparian forest, southern sycamore-alder riparian woodland, desert dry wash woodland, desert fan palm oasis woodland, mesquite hummocks, semi-desert chaparral, red shank chaparral, interior live oak chaparral, peninsular juniper woodland and scrub, active desert dunes, ephemeral desert sand fields, stabilized and partially stabilized desert sand fields, and stabilized shielded desert sand fields
Thousand Palms	Coachella Valley milkvetch, Coachella Valley giant sand-treader cricket (eastern most viable populations for both these species), Coachella Valley fringe-toed lizard, flat-tailed horned lizard, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	Le Conte's thrasher, crissal thrasher, burrowing owl, Coachella Valley Jerusalem cricket, Coachella Valley fringe-toed lizard, Coachella Valley giant sand-treader cricket, Coachella Valley milk vetch, Coachella Valley round-tailed ground squirrel, flat-tailed horned lizard, Palm Springs pocket mouse, desert pupfish, Least bell's vireo, southwestern willow flycatcher, summer tanager, and yellow warbler	active desert dunes, active desert sand fields, mesquite hummocks, Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, Sonoran cottonwood-willow riparian forest, desert dry wash woodland, and desert fan palm oasis woodland

Table 2. Conservation Areas in the BSA			
Conservation Area	**Covered Species Core Habitat**	**Covered Species Other Conserved Habitat**	**Conserved Natural Communities**
West Deception Canyon	None	Coachella Valley milkvetch, desert tortoise, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	Sonoran creosote bush scrub and Mojave mixed woody scrub
Whitewater Floodplain	Coachella Valley milkvetch, Coachella Valley giant sand-treader cricket, Coachella Valley fringe-toed lizard, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	Coachella Valley Jerusalem cricket, Coachella Valley milkvetch, triple-ribbed milkvetch, desert tortoise, flat-tailed horned lizard, burrowing owl, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	active desert sand fields, ephemeral desert sand fields, stabilized and partially stabilized desert sand fields, stabilized shielded desert sand fields, Sonoran creosote bush scrub, and Sonoran mixed woody and succulent scrub.
Willow Hole	Coachella Valley milkvetch, Coachella Valley fringe-toed lizard, the Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse	Least bell's vireo, southwestern willow flycatcher, summer tanager, yellow warbler, Coachella Valley milkvetch, desert tortoise, Coachella Valley fringe-toed lizard, Coachella Valley giant sand-treader cricket, Coachella Valley Jerusalem cricket, flat-tailed horned lizard, crissal thrasher, Le Conte's thrasher, Coachella Valley round-tailed ground squirrel, Palm Springs pocket mouse, southern yellow bat, and burrowing owl	stabilized and partially stabilized desert dunes, active desert sand fields, ephemeral desert sand fields, stabilized and partially stabilized desert sand fields, mesquite hummocks, Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, desert saltbush scrub, and desert fan palm oasis woodland

Table 3. Conservation Areas in the BSA by Project											
Projects[1]	**Conservation Area**										
	Coachella Valley Stormwater Channel and Delta	**Desert Tortoise and Linkage**	**East Indio Hills**	**Edom Hill**	**Indio Hills/Joshua Tree National Park Linkage**	**Long Canyon**	**Santa Rosa and San Jacinto Mountains**	**Thousand Palms**	**West Deception Canyon**	**Whitewater Floodplain**	**Willow Hole**
WRP 7											

Table 3. Conservation Areas in the BSA by Project

Projects[1]	Conservation Area										
	Coachella Valley Stormwater Channel and Delta	Desert Tortoise and Linkage	East Indio Hills	Edom Hill	Indio Hills/Joshua Tree National Park Linkage	Long Canyon	Santa Rosa and San Jacinto Mountains	Thousand Palms	West Deception Canyon	Whitewater Floodplain	Willow Hole
7-6			√								
7-7			√								
7-8			√								
Capacity											
CS-WRP4-2							√				
CS-WRP4-4	√										
CS-WRP4-5	√										
CS-WRP7-1				√		√				√	√
CS-WRP7-2											√
CS-WRP7-3								√			
CS-WRP7-4								√			
CS-WRP7-6								√			
CS-WRP7-7		√			√			√			
CS-WRP7-8					√			√	√		
Condition and Risk Assessment											
WCCA-6	√										
Septic-to-Sewer											
SWS-5	√										

[1] Projects were only included if sufficient location information was available for assessment and modeled habitat was identified in the BSA.

4.1.4 Natural Communities/Habitats

Vegetation within the Riverside County portion of the BSA was identified based on the CVMSHCP mapped natural communities (CVAG 2016), which are classified based on *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). In the Imperial County portion of the BSA (i.e., WRP1), vegetation was identified based on VegCAMP California Deserts mapping data for the DRECP 2014-2016 additions (Menke et al. 2016), which follows the National Vegetation Classification Standard (NVCS) in the *Manual of California Vegetation*, 2nd edition (Sawyer et al. 2009). The natural communities occurring within the Riverside County and Imperial County portions of the BSA are described below and shown in Appendix

A: Figure 6. *Natural Communities*. Natural communities that are considered sensitive habitats are discussed in greater detail in Section 4.2.

4.1.2.1 Riverside County

Vegetation within the Riverside County portion of the BSA was identified based on the CVMSHCP mapped natural communities (CVAG 2016), which are classified according to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Habitats within the Riverside County portion of the BSA are described below and Table 4 provides a summary of the natural communities within the BSA for each project location in Riverside County identified for the 2020 Plan.

Desert Alkali Scrub Habitat

Desert Alkali Scrub habitat within the BSA is composed of desert saltbush scrub and desert sink scrub. Alkali Desert Scrub habitats typically consist of open stands of low to moderately high (0.8 – 6.6 feet) shrubs and subshrubs, which are widely spaced and occur on relatively dry, poorly drained, alkaline soils (CDFW 1988). Typical plants in these communities include fourwing saltbush (*Atriplex canescens*), desert saltbush (*Atriplex polycarpa*), Virginia glasswort (*Salicornia depressa*), and iodinebush (*Allenroifea occidentalis*).

Desert Scrub Habitat

Desert Scrub Habitat within the BSA consists of Mojave mixed woody scrub, Sonoran creosote bush scrub, and Sonoran mixed woody and succulent scrub communities. Desert Scrub habitats are typically open, scattered assemblages of broad-leaved evergreen or deciduous microphyll shrub between 1.5 and 6.5 feet tall (CDFW 1988). Typical plant species include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and cactus (*Opuntia* spp. and *Cholla* spp.), with Joshua trees (*Yucca brevifolia*) in the Mojave habitats.

Dry Wash Woodland and Mesquite Habitat

Dry Wash Woodland Habitat in the BSA consists of desert dry wash woodland natural communities. Desert dry wash woodland natural communities consist of open to dense, drought-deciduous, microphyllous thorn scrub woodland dominated by species such as palo verde (*Cercidium floridum*), ironwood (*Olneya tesota*), and smoketree (*Psorothamnus spinosus*). It occurs in dry washes associated with canyon mouths and alluvial fans that are subject to intermittent flooding.

Mesquite habitat within the BSA consists of the mesquite hummocks natural community. Mesquite hummocks communities are composed of large clumps of honey mesquite (*Prosopis glandulosa*) shrubs on sand dunes and on level terrains, typically associated with high soil moisture and fault areas or springs.

Marsh Habitat

Marsh habitat within the BSA consists of the coastal and valley freshwater marsh natural community. This community occurs in flooded, freshwater areas and is dominated by perennial, emergent vegetation, including cattails (*Typha* spp.), bulrush (*Scirpus* spp.), and rushes (*Juncus* spp.).

Table 1. Natural Communities in the Riverside County BSA by Project																						
Projects[1]	**Natural Communities**																					
	Active desert dunes[2]	**Active desert sand fields[2]**	**Active shielded desert dunes**	**Agriculture**	**Coastal and valley freshwater marsh[2]**	**Desert dry wash woodland[2]**	**Desert fan palm oasis woodland[2]**	**Desert saltbush scrub[2]**	**Desert sink scrub[2]**	**Ephemeral sand fields[2]**	**Lake**	**Mesquite hummocks[2]**	**Mojave mixed woody scrub[2]**	**Rural**	**Sonoran cottonwood willow riparian[2]**	**Sonoran creosote bush scrub[2]**	**Sonoran mixed woody & succulent scrub[2]**	**Stabilized desert dunes[2]**	**Stabilized desert sand fields[2]**	**Stabilized shielded sand fields[2]**	**Tamarisk scrub**	**Urban**
WRP 2 Capital Improvement Projects																						
2-1						√								√		√						
WRP 4 Capital Improvement Projects																						
4-1				√																		
4-2				√																		
4-3				√																		
4-4				√											√							
4-5				√																		
4-6				√																		
4-7				√											√							
4-8				√											√							
4-9				√											√							
4-10				√											√							

Table 1. Natural Communities in the Riverside County BSA by Project																					
Projects[1]	**Natural Communities**																				
	Active desert dunes[2]	**Active desert sand fields[2]**	**Active shielded desert dunes**	**Agriculture**	**Coastal and valley freshwater marsh[2]**	**Desert dry wash woodland[2]**	**Desert fan palm oasis woodland[2]**	**Desert saltbush scrub[2]**	**Desert sink scrub[2]**	**Ephemeral sand fields[2]**	**Lake**	**Mesquite hummocks[2]**	**Mojave mixed woody scrub[2]**	**Rural**	**Sonoran cottonwood willow riparian[2]**	**Sonoran creosote bush scrub[2]**	**Sonoran mixed woody & succulent scrub[2]**	**Stabilized desert dunes[2]**	**Stabilized desert sand fields[2]**	**Stabilized shielded sand fields[2]**	**Tamarisk scrub**	**Urban**
4-11				√											√							
4-12				√											√							
4-13				√											√							
4-14				√											√							
4-15				√																		
4-16				√																		
WRP 7 Capital Improvement Projects																						
7-2				√																√		
7-4				√																		
7-6				√																√		
7-7				√																√		
7-8				√																√		
WRP 10 Capital Improvement Projects																						

Table 1. Natural Communities in the Riverside County BSA by Project																						
Projects[1]	Natural Communities																					
	Active desert dunes[2]	Active desert sand fields[2]	Active shielded desert dunes	Agriculture	Coastal and valley freshwater marsh[2]	Desert dry wash woodland[2]	Desert fan palm oasis woodland[2]	Desert saltbush scrub[2]	Desert sink scrub[2]	Ephemeral sand fields[2]	Lake	Mesquite hummocks[2]	Mojave mixed woody scrub[2]	Rural	Sonoran cottonwood willow riparian[2]	Sonoran creosote bush scrub[2]	Sonoran mixed woody & succulent scrub[2]	Stabilized desert dunes[2]	Stabilized desert sand fields[2]	Stabilized shielded sand fields[2]	Tamarisk scrub	Urban
10-1																						√
10-2																						√
10-3																						√
10-4																						√
10-5																						√
10-6																						√
10-7																						√
10-8																						√
10-9																						√
10-10												√								√		√
10-11												√								√		√
10-12												√								√		√
10-13																						√
10-14												√								√		√

Table 1. Natural Communities in the Riverside County BSA by Project																						
Projects[1]	**Natural Communities**																					
	Active desert dunes[2]	**Active desert sand fields[2]**	**Active shielded desert dunes**	**Agriculture**	**Coastal and valley freshwater marsh[2]**	**Desert dry wash woodland[2]**	**Desert fan palm oasis woodland[2]**	**Desert saltbush scrub[2]**	**Desert sink scrub[2]**	**Ephemeral sand fields[2]**	**Lake**	**Mesquite hummocks[2]**	**Mojave mixed woody scrub[2]**	**Rural**	**Sonoran cottonwood willow riparian[2]**	**Sonoran creosote bush scrub[2]**	**Sonoran mixed woody & succulent scrub[2]**	**Stabilized desert dunes[2]**	**Stabilized desert sand fields[2]**	**Stabilized shielded sand fields[2]**	**Tamarisk scrub**	**Urban**
10-16																				√		√
10-17												√								√		√
10-18																						√
Capacity Capital Improvement Projects																						
CS-WRP4-1				√				√				√								√	√	√
CS-WRP4-2				√		√		√				√				√					√	
CS-WRP4-3				√				√				√									√	
CS-WRP4-4				√	√			√				√			√							
CS-WRP4-5				√				√	√		√					√					√	
CS-WRP4-6				√																		
CS-WRP4-7				√				√														√
CS-WRP7-1								√		√		√	√	√		√	√	√	√	√		√
CS-WRP7-2		√								√							√			√		√
CS-WRP7-3	√	√		√													√			√		√

Table 1. Natural Communities in the Riverside County BSA by Project																						
Projects[1]	**Natural Communities**																					
	Active desert dunes[2]	**Active desert sand fields[2]**	**Active shielded desert dunes**	**Agriculture**	**Coastal and valley freshwater marsh[2]**	**Desert dry wash woodland[2]**	**Desert fan palm oasis woodland[2]**	**Desert saltbush scrub[2]**	**Desert sink scrub[2]**	**Ephemeral sand fields[2]**	**Lake**	**Mesquite hummocks[2]**	**Mojave mixed woody scrub[2]**	**Rural**	**Sonoran cottonwood willow riparian[2]**	**Sonoran creosote bush scrub[2]**	**Sonoran mixed woody & succulent scrub[2]**	**Stabilized desert dunes[2]**	**Stabilized desert sand fields[2]**	**Stabilized shielded sand fields[2]**	**Tamarisk scrub**	**Urban**
CS-WRP7-4	√	√				√											√					√
CS-WRP7-5				√																		√
CS-WRP7-6		√				√	√					√			√	√	√					√
CS-WRP7-7														√		√						
CS-WRP7-8													√	√		√						
CS-WRP7-9																						√
CS-WRP7-10				√								√								√		√
CS-WRP10-1																				√		√
Condition and Risk Assessment Capital Improvement Projects																						
WCCA-1																√						√
WCCA-2			√													√						√
WCCA-3												√								√		√
WCCA-4				√																√		√
WCCA-5				√				√				√				√						√

Table 1. Natural Communities in the Riverside County BSA by Project																						
Projects[1]	**Natural Communities**																					
	Active desert dunes[2]	**Active desert sand fields[2]**	**Active shielded desert dunes**	**Agriculture**	**Coastal and valley freshwater marsh[2]**	**Desert dry wash woodland[2]**	**Desert fan palm oasis woodland[2]**	**Desert saltbush scrub[2]**	**Desert sink scrub[2]**	**Ephemeral sand fields[2]**	**Lake**	**Mesquite hummocks[2]**	**Mojave mixed woody scrub[2]**	**Rural**	**Sonoran cottonwood willow riparian[2]**	**Sonoran creosote bush scrub[2]**	**Sonoran mixed woody & succulent scrub[2]**	**Stabilized desert dunes[2]**	**Stabilized desert sand fields[2]**	**Stabilized shielded sand fields[2]**	**Tamarisk scrub**	**Urban**
WCCA-6				√				√				√										
Septic-to-Sewer Capital Improvement Projects																						
SWS-1				√																		
SWS-2				√																		
SWS-3				√				√				√									√	
SWS-4				√				√													√	
SWS-5				√	√			√				√			√							
SWS-6				√				√	√							√					√	

[1] Projects were only included if sufficient location information was available for assessment.

[2] Sensitive Community

Riparian Woodland and Scrub Habitat

Riparian Woodland and Scrub habitat occurs along permanent or seasonal watercourses, including springs, desert rivers, desert washes, and near-channel floodplains. Riparian Woodland and Scrub habitat within the BSA consists of Sonoran cottonwood-willow riparian forest, desert fan palm oasis woodland, and tamarisk scrub natural communities. Sonoran cottonwood-willow riparian forest communities are dominated by Fremont's cottonwood (*Populus fremontii*) with a dense understory of willows (*Salix* spp.). Desert fan palm oasis woodland communities are dominated by California fan palm (*Washingtonia filifera*) with a sparse understory. Tamarisk scrub vegetation community is dominated by non-native tamarisk (*Tamarisk* spp.), typically outcompeting native vegetation and using large amounts of water.

Sand Dune and Sand Field Habitat

Sand Dune and Sand Field habitat within the BSA consists of active desert dunes, stabilized desert dunes, active sand fields, stabilized desert sand fields, stabilized shielded sand fields, and ephemeral sand fields natural communities. Active desert dunes and active sand fields are both essentially expanses of actively moving loose sand, with little or no vegetation. The distinction between the two communities is the presence of prominent landforms in dunes and the lack of sufficient accumulated sand for the formation of dunes in sand fields. These communities occur within a creosote bush scrub matrix. Perennial shrub species, including creosote bush, four-wing saltbush, California croton (*Croton californicus*), and indigo bush (*Psorothamnus arborescens*) are typically present, but are not common on active dunes.

Stabilized desert dunes and stabilized desert sand fields are both areas of desert sand accumulations that are stabilized or partially stabilized by evergreen and/or deciduous shrubs, scattered low annuals, and perennial grasses. The distinction between the two communities is the presence of prominent landforms in dunes and the lack of sufficient accumulated sand for the formation of dunes in sand fields. These communities occur in a creosote bush scrub matrix. Perennial shrub species, including creosote bush, four-wing saltbush, and California croton are typically present. Stabilized shielded sand fields are similar to stabilized desert sand fields but have interrupted or shielded sand source and sand transport systems.

Ephemeral sand fields are areas with irregular sand accumulations that lack sufficient depth for dune formations and are routinely blown away by high winds. This community occurs within a Sonoran creosote bush scrub matrix and supports sparse, widely scattered perennial shrubs including creosote bush, indigo bush, California croton, and desert willow (*Chilopsis linearis*).

Disturbed and Developed

Disturbed and Developed areas in the BSA consists of areas that have been significantly modified by human activity and consist of agriculture, rural, and urban lands. These areas include railroads, buildings and structures, landscaped or groomed areas, and croplands. Vegetation in these areas is typically lacking or dominated by planted, ornamental or non-native plants. Where present, native vegetation is often disturbed or sparse.

4.1.2.2 Imperial County

Vegetation in the Imperial County portion of the BSA was identified based on VegCAMP California Deserts mapping data for the DRECP 2014-2016 additions (Menke et al. 2016), which follows the National

Vegetation Classification Standard (NVCS) in the *Manual of California Vegetation*, 2nd edition (Sawyer et al. 2009). Natural communities within the Imperial County portion of the BSA are listed in Table 5 and described below.

Table 5. Natural Communities in the Imperial County BSA

Projects	Natural Communities				
	***Atriplex canescens* Alliance[1]**	***Prosopis glandulosa* Alliance[1]**	**Mud Hills sparsely vegetated ephemeral herbs Mapping Unit**	**Built-up and Urban Disturbance**	**Water Impoundment Feature**
WRP 1					
1-1	√	√	√	√	√
1-2	√	√	√	√	√

[1]Sensitive Community

Atriplex canescens Alliance (Fourwing saltbush Alliance) is dominated by stands of fourwing saltbush, typically mixed with white bursage and desert saltbush. This natural community is usually found in sandy substrates, including on stabilized dunes, sand ridges, and sandy washes.

Prosopis glandulosa Alliance (Mesquite bosque, mesquite thicket Alliance) is a natural community where honey mesquite (*Prosopis glandulosa*) comprises more than 3 percent of absolute cover as the dominant plant, not exceeded in cover by any tall shrub or tree. This Alliance is typically associated with stabilized dunes or sand sheets adjacent to playas or basins.

Mud Hills sparsely vegetated ephemeral herbs is a mapping unit that is typically sparsely vegetated with less than 2 percent shrub or herb cover. These areas are usually associated with a highly eroded, fine-textured sedimentary substrate. Substrate color is patchy and highly variable due to the often-changing soil chemistry and geology over small areas.

Built-up and Urban Disturbance areas include permanent and semi-permanent structures that are occupied, used, or abandoned. Built-up areas can include residential, commercial and services, industrial, and transportation uses, as well as their associated disturbed lands. In the BSA, Built-up and Urban Disturbance areas consist of the railroad and State Route 111, including berms adjacent to the railroad which are scraped and devoid of vegetation.

Water Impoundment Features are composed of straight-edged water bodies impounded by berms and at least 2.5 acres in size. Within the BSA, this feature consists of the CVWD WRP1 facility.

4.2 Special-Status Biological Resources

For the purpose of this assessment, special-status biological resources are defined as the following:

- vegetation communities that are unique, or relatively limited distribution, or of particular values to wildlife;
- plant and animal species that have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the CESA or FESA;
- plant and animal species being considered or proposed for listing under CESA or FESA;
- plant and animal species that are of expressed concern to resource and regulatory agencies or local jurisdictions; and
- species covered under the CVMSHCP.

The CVMSHCP provides a science-based modeling of habitat area for covered species. Modeled habitats are a result of extensive review by a group of independent science advisors who provided information and expertise regarding covered species. The models developed during the CVMSHCP development process came from species distribution information, natural community mapping, results of biological surveys, and data regarding species richness, natural communities' richness, habitat heterogeneity, and habitat fragmentation.

4.2.1 Sensitive Natural Communities

4.2.1.1 Riverside County

Of the 22 natural communities mapped within the Riverside County portion of the BSA, 16 of these communities are designated a sensitive by the CDFW and are included as modeled habitat within the Conservation Areas in the CVMSHCP. These sensitive communities are described below.

Active desert dunes are sand dune accumulations that are essentially barren but may support sparse perennial shrub species including creosote bush, fourwing salt bush, California croton, and indigo bush (CVAG 2016). The active desert dunes in the Coachella Valley are remnants of a once extensive dune system. Within the CVMSHCP area, active desert dunes occur in the Snow Creek/Windy Point Conservation Area, the Thousand Palms Conservation Area, and the East Indio Hills Conservation Area. This community is mapped within the BSA for projects CS-WRP7-3 and CS-WRP7-4 where they traverse the Thousand Palms Conservation Area.

Stabilized Desert Dunes are sand dune accumulations that are stabilized or partially stabilized by evergreen and/or deciduous shrubs, scattered low annuals, and perennial grasses. Stabilized and partially stabilized desert dunes are characterized by prominent dune features, with consistent cover of perennial vegetation typical of a creosote bush scrub matrix, including creosote bush, fourwing saltbush, California croton, and indigo bush (CVAG 2016). Within the CVMSHCP area, stabilized and partially stabilized desert dunes occur in the Willow Hole Conservation Area. Stabilized desert dunes are mapped within the BSA for project CS-WRP7-1 where it traverses the Willow Hole Conservation Area.

Active Desert Sand Fields are areas of active sand movement, with little or no vegetation, where accumulated sand is not of sufficient depth to form classic formations that characterize dune systems. This community occurs within a creosote bush scrub matrix and supports scant, widely scattered to dense shrub species including fourwing saltbush, creosote bush, and indigo bush (CVAG 2016). Within the CVMSHCP

area, active desert sand fields occur in the Whitewater Floodplain, Willow Hole, Edom Hill, and Thousand Palms Conservation Areas. This natural community is mapped within the BSA for projects CS-WRP7-2, where it traverses the Willow Hole Conservation Area; and CS-WRP7-3, CS-WRP7-4, and CS-WRP7-6 where they traverse the Thousand Palms Conservation area.

Ephemeral Desert Sand Fields are desert sand accumulations lacking dune formations and characterized by irregular deposition of sand materials such that sand accumulations are regularly blown off the habitat area. This sand may not be replaced until additional sand is deposited by a major flood event or other movement process. This community occurs within a Sonoran creosote bush scrub matrix and vegetation typically consists of scattered perennial shrubs including creosote bush, indigo bush, desert willow (*Chilopsis linearis*), and California croton (CVAG 2016). Within the CVMSHCP area, ephemeral desert sand fields occur in the Snow Creek/Windy Point, Whitewater Floodplain, Willow Hole, and Santa Rosa and San Jacinto Mountains Conservation Areas. This natural community is mapped within the BSA for projects CS-WRP7-1 and CS-WRP7-2 where they traverse the Willow Hole Conservation Area.

Stabilized Desert Sand Fields consists of desert sand accumulations lacking dune formations that are stabilized by vegetation. This community occurs within a creosote bush scrub matrix and supports perennial plants, including creosote bush, fourwing saltbush, California croton, and indigo bush (CVAG 2016). Within the CVMSHCP area, stabilized desert sand fields occur in the Snow Creek/Windy Point, Whitewater Floodplain, Willow Hole, Edom Hill, East Indio Hills, and Santa Rosa and San Jacinto Mountains Conservation Areas. This natural community is mapped within the BSA for project CS-WRP7-1 where it traverses the Willow Hole Conservation Area.

Stabilized Shielded Sand Fields are essentially similar to stabilized desert sand fields (described above) except that the sand source and sand transport systems, which would supply sand to the sand fields, have been interrupted or shielded (CVAG 2016). Within the CVMSHCP area, stabilized shielded sand fields occur within the Whitewater Floodplain, East Indio Hills, and Santa Rosa and San Jacinto Conservation Areas. This natural community is mapped within the WRP 7 facility BSA where the buffer intersects the East Indio Hills Conservation Area; the WRP 10 facility BSA at the northwestern corner of the CVWD facility and where the buffer intersects the Toscana Country Club Property to the east; and the BSA for projects CS-WRP4-1, CS-WRP7-1, CS-WRP7-2, CS-WRP7-3, CS-WRP7-10, CS-WRP10-1, WCCA-3, and WCCA-4 where the BSA intersects with public, private, and tribal lands, and the Whitewater Floodplain and Willow Hole Conservation Areas.

Mesquite Hummocks are composed of large clumps of low growing honey mesquite shrubs that may form hummocks over sand dunes or on level terrain at the margins of palm oasis (CVAG 2016). Within the CVMSHCP area, mesquite hummocks occur within the Cabazon, Willow Hole, Thousand Palms, Indio Hills Palms, East Indio Hills, Dos Palmas, Coachella Valley Stormwater Channel and Delta, and Santa Rosa and San Jacinto Mountains Conservation Areas. This natural community is mapped within the WRP 10 facility BSA where the buffer intersects the Toscana Country Club Property to the east and within the BSA for projects CS-WRP4-1, CS-WRP4-2, CS-WRP4-4, CS-WRP7-1, CS-WRP7-6, CS-WRP7-10, WCCA-3, WCCA-5, WCCA-6, SWS-3, and SWS-5 where the BSA intersects with public, private, and tribal lands, and the Coachella Valley Stormwater Channel and Delta, Willow Hole, and Thousand Palms Conservation Areas.

Sonoran Creosote Bush Scrub is dominated by creosote bush scrub and is the most widespread vegetation type in the Colorado Desert and the most susceptible to impacts from development (CVAG 2016). Within the CVMSHCP area, Sonoran creosote bush scrub occurs in the Cabazon, Stubbe and Cottonwood Canyons, Snow Creek/Windy Point, Whitewater Canyon, Highway 111/I-10, Whitewater Floodplain, Upper Mission Creek/Big Morongo Canyon, Willow Hole, Edom Hill, Thousand Palms, Indio Hills/Joshua Tree National Park Linkage, Indio Hills Palms, East Indio Hills, Joshua Tree National Park, Desert Tortoise and Linkage, Mecca Hills/Orocopia Mountains, Dos Palmas, and Santa Rosa and San Jacinto Mountains Conservation Areas. This natural community is mapped within the buffers of the WRP 2 and WRP 4 facility BSAs, and within the BSAs for projects CS-WRP4-2, CS-WRP4-5, CS-WRP7-1, CS-WRP7-6, CS-WRP7-7, CS-WRP7-8, WCCA-1, WCCA-2, WCCA-5, and SWS-6 where the BSA intersects with public, private, and tribal lands, and the Thousand Palms, Indio Hills/Joshua Tree National Park Linkage, Desert Tortoise and Linkage, and West Deception Canyon Conservation Areas.

Sonoran Mixed Woody and Succulent Scrub is similar to creosote bush scrub but with a higher plant density and a substantial dominance of cacti and other stem succulents, including silver cholla (*Opuntia echinocarpa*), buckhorn cholla (*Opuntia acanthocarpa),* pencil cholla (*Opuntia ramosissima*), prickly pear (*Opuntia engelmannii*), beavertail cactus (*Opuntia basilaris*), barrel cactus (*Ferocactus acanthodes*), and ocotillo (*Fouquieria splendens*) (CVAG 2016). Within the CVMSHCP area, Sonoran mixed woody and succulent scrub occurs in the Stubbe and Cottonwood Canyons, Whitewater Canyon, Whitewater Floodplain, Upper Mission Creek/Big Morongo Canyon, Mission Creek/Morongo Wash, Willow Hole, Edom Hill, Long Canyon, Thousand Palms, Indio Hills/Joshua Tree National Park Linkage, Desert Tortoise and Linkage, and Santa Rosa and San Jacinto Mountains Conservation Areas. This community is mapped within the BSA for projects CS-WRP7-1, CS-WRP7-2, CS-WRP7-3, CS-WRP7-4, and CS-WRP7-6 where the BSA intersects public, private, and tribal lands and the Willow Hole, Edom Hill, Long Canyon, and Thousand Palms Conservation Area.

Mojave Mixed Woody Scrub is an open scrub community that typically occurs at elevations between 2,000 and 5,000 feet and is characterized by Joshua Tree (*Yucca brevifolia*), California buckwheat (*Eriogonum fasciculatum*), and bladderpod (*Peritoma arborea*) (CVAG 2016). Within the CVMSHCP area, this community occurs within the Upper Mission Creek/Big Morongo Canyon, West Deception Canyon, Indio Hills/Joshua Tree National Park Linkage, Joshua Tree National Park, and Desert Tortoise and Linkage Conservation Areas. This community is mapped within the BSAs for projects CS-WRP7-1 and CS-WRP7-8 where the buffer intersects with public and private lands located south of the Joshua Tree National Park Conservation area and west of the West Deception Canyon Conservation Area.

Desert Saltbush Scrub is characterized by a nearly uniform stand of shrubs dominated by *Atriplex* species including allscale (*Atriplex polycarpa*) and fourwing saltbush (CVAG 2016). Within the CVMSHCP area, desert saltbush scrub occurs in the East Indio Hills, Dos Palmas, and Coachella Valley Stormwater Channel and Delta Conservation Areas. Desert saltbush scrub is mapped within the BSA for projects CS-WRP4-1, CS-WRP4-2, CS-WRP4-3, CS-WRP4-4, CS-WRP4-5, CS-WRP4-7, CS-WRP7-1, WCCA-5, WCCA-6, SWS-3, SWS-4, SWS-5, and SWS-6 where the BSA intersects with public, private and tribal lands and the Coachella Valley Stormwater Channel and Delta, and Willow Hole Conservation Areas.

Desert Sink Scrub is similar to desert saltbush scrub, but plants are often more widely spaced, and dominated by succulent chenopods, including pickleweed, iodine bush, and bush seepweed. Saltbush

(*Atriplex* spp.) is a minor component (CVAG 2016). Within the CVMSHCP area, desert sink scrub occurs within the Dos Palmas and Coachella Valley Stormwater Channel and Delta Conservation Areas. This natural community is mapped within the BSA for projects CS-WRP4-5 and SWS-6 in areas where the BSA intersects with public, private, and tribal lands and the Coachella Valley Stormwater Channel and Delta Conservation Area.

Coastal and Valley Freshwater Marsh is located in permanently flooded freshwater areas dominated by perennial, emergent monocots, including cattail, bulrush, tules and rushes, often forming completely closed canopies CVAG 2016). Within the CVMSHCP area, coastal and valley freshwater marsh is mapped within the Coachella Valley Stormwater Channel and Delta Conservation Area. This community is mapped within a small portion of the BSA for projects CS-WRP4-4 and SWS-5 where the BSA intersects with the Coachella Valley Stormwater Channel and Delta Conservation Area.

Sonoran Cottonwood-Willow Riparian Forest consists of a winter-deciduous, broad-leaved streamside forest, dominated by Fremont's cottonwood with a dense understory of willows (*Salix* spp.) (CVAG 2016). Within the CVMSHCP, Sonoran cottonwood-willow riparian forest is mapped within the Cabazon and Santa Rosa and San Jacinto Mountains Conservation Areas. This community is mapped within the buffer of the WRP 4 facility BSA, along the Whitewater River to the east of the facility; and within the BSA for projects CS-WRP4-4, CS-WRP7-6, and SWS-5 where the BSA intersects with the Thousand Palms and Coachella Valley Stormwater Channel and Delta Conservation Areas.

Desert Fan Palm Oasis Woodland is composed of open to dense groves dominated by tall fan palms with a sparse understory (CVAG 2016). Within the CVMSHCP area, desert fan palm oasis woodlands occur within the Whitewater Canyon, Willow Hole, Thousand Palms, Indio Hills Palms, Joshua Tree National Park, Mecca Hills/Orocopia Mountains, Dos Palmas, and Santa Rosa and San Jacinto Mountains Conservation Areas. This natural community is mapped within the BSA for project CS-WRP7-6 where it intersects with the Thousand Palms Conservation Area.

Desert Dry Wash Woodland is a drought-deciduous, microphyllous thorn scrub woodland, that occurs in dry washes associated with canyon mouths and alluvial fans that are subject to intermittent flooding and is dominated by species such as palo verde, ironwood, and smoketree (CVAG 2016). Within the CVMSHCP area, desert dry wash woodland occurs in the Dos Palmas Conservation Area. This natural community is mapped within the buffer of the WRP 2 facility BSA and the BSA for projects CS-WRP4-2, CS-WRP7-4, and CS-WRP7-6 where it intersects with public and private lands and within the Thousand Palms Conservation Area.

4.2.1.2 Imperial County

Of the communities mapped within the Imperial County portion of the BSA, two natural communities, *Atriplex canescens* Alliance and *Prospolis glandulosa* Alliance, are designated as sensitive natural communities by the CDFW (CDFW 2019a).

***Atriplex canescens* Alliance** is a vegetation type characterized by low-growing shrubs where fourwing saltbush, a drought resistant, deciduous or evergreen shrub, represents more than 50 percent of the relative cover in the shrub canopy (Sawyer et al. 2009). Another plant species commonly found in this vegetation

community is white bursage (*Ambrosia dumosa*). This natural community is mapped within the buffer of the WRP 1 facility BSA.

***Prospolis glandulosa* Alliance** is a vegetation type dominated or co-dominated by mesquite that is often found on sand dunes, floodplains, edges of playa lakes, rarely flooded margins of washes and arroyos, river terraces, and stream banks. Mesquite often represents 3 percent of the absolute cover in this community, with other shrubby and herbaceous species such as saltbush and willows (*Salix* spp.) intermittently spaced in the understory. This natural community is mapped within the buffer of the WRP 1 facility BSA.

4.2.2 Special-Status Plants

Special-status plant species include those classified as endangered or threatened, proposed or candidate species for listing by the USFWS or CDFW, considered a CDFW Species of Concern, or monitored by CNPS and considered to be those of greatest conservation need. Within the Riverside County portion of the 2020 Plan area, special-status plant species include plants that are covered by the CVMSHCP.

4.2.2.1 Riverside County

Five special-status plant species within the Coachella Valley are covered species in the CVMSHCP. Table 6 summarizes the special-status plant species, associated habitats, and potential for occurrence in the Riverside County Portion of the BSA based on modeled habitat. Modeled plant habitats that occur within the BSA of projects proposed in the 2020 Plan are listed in Table 7 and shown in Appendix A: Figure 7. *CVMSHCP Modeled Plant Habitat*. Plant species with a potential to occur in the BSA are discussed in more detail below.

Table 6. Special-Status Plant Species in Riverside County

Species	Status		Natural Community Association	Potential Occurrence in CVWD Service Area	Potential Occurrence in the BSA
Coachella Valley milkvetch *Astragalus lentiginosus var. coachellae*	Fed: State: CNPS:	END None 1B.2	Sand Dune/Sand Field, Desert Scrub, Riparian, Mojavean and Sonoran Desert Scrub, Desert Dune	Yes	Yes
Triple-ribbed milkvetch *Astragalus tricarinatus*	Fed: State: CNPS:	END None 1B.2	Desert Scrub, Riparian, Mojavean and Sonoran Desert Scrub	Yes	No
Little San Bernardino Mountains linanthus *Linanthus maculatus*	Fed: State: CNPS:	None None 1B.2	Dry Wash Woodland and Mesquite	No	No

Orocopia sage *Salvia greatai*	Fed: State: CNPS:	None None 1B.3	Marsh, Dry Wash Woodland and Mesquite	Yes	No
Mecca aster *Xylorhiza cognata*	Fed: State: CNPS:	None None 1B.2	Dry Wash Woodland and Mesquite, Riparian and Bottomland	Yes	Yes

Federal Designation: (Federal ESA, USFWS)
END: Federally listed, endangered

CNPS
1B.2 – Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 – Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California

Table 7. Special-Status Modeled Plant Habitat in Riverside County BSA by Project

Projects[1]	Coachella Valley milkvetch	Mecca aster
WRP 10		
10-10	√	
10-11	√	
10-12	√	
10-14	√	
10-16	√	
10-17	√	
Capacity		
CS-WRP7-1	√	
CS-WRP7-2	√	
CS-WRP7-3	√	
CS-WRP7-4	√	
CS-WRP7-6	√	√
CS-WRP7-8	√	
CS-WRP10-1	√	
Condition and Risk Assessment		
WCCA-3	√	

[1] Projects were only included if sufficient location information was available for assessment and modeled habitat was identified in the BSA.

Coachella Valley milkvetch is a federally listed endangered species and is CNPS listed as 1B.2. Coachella Valley milkvetch is an annual or short-lived perennial that is endemic to the Coachella Valley, in the western Sonoran Desert (USFWS 2009a). This species is strongly affiliated with active, stabilized, and shielded sandy substrates derived from loose aeolian (wind transported) or alluvial (water transported) sands, but is adaptable to establishment in artificially disturbed situations, such as road edges.

Coachella Valley milkvetch were historically uncommon in the Coachella Valley, associated with various windblown sand deposits. Most of the known occurrences in the Coachella Valley are in and around the Snow Creek, Whitewater River, Mission and Morongo Creeks, Willow Hole, the Big Dune, and the Thousand Palms Conservation Areas. Modeled habitat for Coachella Valley milkvetch occurs throughout the western portion of the 2020 Plan area, northwest of the City of La Quinta.

Critical Habitat

The USFWS designated areas of critical habitat for Coachella Valley milkvetch in the Coachella Valley in 2013 (USFWS 2013a). Portions of the BSA for proposed projects CS-WRP7-1, CS-WRP7-2, CS-WRP7-3, CS-WRP7-4, and CS-WRP7-6 contain areas of Unit 3 and Unit 4 of the designated critical habitat (shown in Appendix A: Figure 12). These areas of the BSA are located within the Willow Hole and Thousand Palms Conservation Areas.

Mecca aster does not have a federal or state designation but is CNPS listed as 1B.2. Mecca aster is a perennial herb that is endemic to California and occurs in the Indio Hills and Mecca Hills. It is commonly found in Creosote bush scrub and within the canyons of the Mecca Hills and Indio Hills, it typically occurs at the base of slopes and in washes (CVAG 2016). Mecca aster has limited geographic distribution and restricted soil preferences. It is known to occur from the community of Thousand Palms east along the base of the Indio Hills to the City of Indio in the Thousand Palms, Indio Palms, and East Indio Hills Conservation Areas. In the Mecca Hills, it occurs throughout Box Canyon, Painted Canyon, Hidden Spring Canyon, and other suitable habitat in the surrounding area and within the Mecca Hills/Orocopia Mountains Conservation Area. Modeled habitat for Mecca aster occurs along the northeastern portion of the 2020 Plan area.

4.2.2.2 Imperial County

Nine special-status plant species were identified in a CNDDB and CNPS records search of the Imperial County 2020 Plan area vicinity and assessed for their potential to occur within the BSA based on the following criteria:

High: Habitat (including soils and elevation factors) for the species occurs in the BSA and a known occurrence has been recorded (within the last 20 years) within five miles of the BSA.

Moderate: Either habitat (including soils and elevation factors) for the species occurs in the BSA and a documented observation has been reported within the database search, but not within five miles of the BSA or a historic documented observation (more than 20 years old) occurs within five miles of the BSA site and marginal or limited amounts of habitat occurs on site.

Low: Limited or marginal habitat for the species occurs in the BSA and a recently documented observation occurs within the database search, but not within five miles of the BSA or a historic documented observation (more than 20 years old) was recorded within 5 miles of the BSA; or suitable habitat strongly associated with the species occurs in the BSA, but no records or only historic records were found in the database search.

Presumed Absent: Habitat (including soils and elevation factors) does not exist in the BSA; or the site in not in the known geographic range of the species.

Of the nine special plant species assessed, four species were determined to have a potential to occur within the BSA. Table 8 lists the nine special-status plant species and their associated regulatory status, general habitat associations, and determination for their potential to occur in the BSA.

Table 8. Special-Status Plant Species Potential to Occur in Imperial County BSA

Scientific Name **Common Name**	**Status**		**Bloom Period Elevation (meters)**	**Habitat**	**Potential for Occurrence**
Abronia villosa* var. *aurita chaparral sand-verbena	Fed: Ca: CNPS:	none none 1B.1	January-September 75 - 600	Chaparral, Coastal Scrub, and Desert Dunes in sandy soils	**Presumed absent.** No suitable habitat mapped/ expected to be present within the BSA.
Astragalus cotalariae Salton milkvetch	Fed: Ca: CNPS:	none none 4.3	January-April -60 - 250	Sonoran Desert Scrub in sandy or gravelly soils.	**Moderate.** Suitable habitat is mapped within the BSA and historical occurrences (more than 25 years old) recorded within 0.5 miles.
Astragalus insularis* var. *hardwoodii Hardwood's milkvetch	Fed: Ca: CNPS:	none none 2B.2	January-May 0 - 710	Desert Dunes and Mojavean Desert Scrub on open sandy flats or stony desert washes; usually in creosote bush scrub	**Low.** Suitable habitat potentially occurs in the BSA; however, no records of species occur within 10 miles of the BSA.
Astragalus sabulonum gravel milkvetch	Fed: Ca: CNPS:	None none 2B.2	February-June -60 - 885	Desert Dunes, Mojavean Desert Scrub, and Sonoran Desert Scrub in sandy/gravelly flats, washes, and roadsides.	**Low.** Suitable habitat potentially occurs in the BSA; however, no recent occurrences are recorded in the vicinity and no historical records occur within 14 miles.
Astragalus tricarinatus triple-ribbed milkvetch	Fed: Ca: CNPS:	**END** none 1B.2	February-May 455 -1,585	Joshua Tree Woodland and Sonoran Desert Scrub on rocky slopes and edges of boulder-strewn washes.	**Presumed absent.** No suitable habitat/ elevational range within the BSA.
Cladium californicum California sawgrass	Fed: Ca: CNPS:	None none 2B.2	June-September 60 - 600	Meadows and seeps, marshes and swamps (alkaline or freshwater).	**Presumed absent.** No suitable habitat mapped/ expected to be present within the BSA.
Petalonyx linearis narrow-leaf sandpaper-plant	Fed: Ca: CNPS:	None none 2B.3	March-May -25 - 1,115	Mojavean Desert Scrub and Sonoran Desert Scrub in sandy or rocky canyons.	**Presumed absent.** No suitable habitat within the BSA.
Salvia greatae Orocopia sage	Fed: Ca: CNPS:	None none 1B.3	March-April -40 - 825	Mojavean desert scrub and Sonoran Desert Scrub.	**High.** Suitable habitat is mapped within the BSA and species historically documented in the BSA.
Tiquilia canescens* var. *pulchella Chocolate Mountains tiquilia	Fed: Ca: CNPS:	None none 3.2	February-May 250 - 700	Sonoran Desert Scrub, on slopes, ridges, or washes.	**Presumed absent.** No suitable habitat mapped/ expected to be present within the BSA.

Federal Designations: (Federal ESA, USFWS)
END: Federally listed, endangered
THR: Federally listed, threatened

State Designations: (CESA, CDFW)
END: State-listed, endangered
THR: State-listed, threatened

Table 8. Special-Status Plant Species Potential to Occur in Imperial County BSA				
Scientific Name **Common Name**	**Status**	**Bloom Period Elevation (meters)**	**Habitat**	**Potential for Occurrence**

CNPS List Designations:
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3: Plants about which we need more information; a review list
4: Plants of limited distribution: a watch list
List Extensions
.1: Seriously threatened in California (over 80 percent of occurrences threatened)
.2: Moderately threatened in California (20 to 80 percent occurrences threatened)
.3: Not very threatened in California (less than 20 percent of occurrences threatened)

4.2.3 Special-Status Wildlife

Special-status wildlife species include those classified as endangered or threatened, proposed or candidate species for listing by the USFWS or CDFW, or considered a CDFW Species of Concern. Within the Riverside County portion of the 2020 Plan area, special-status wildlife species includes wildlife that are covered by the CVMSHCP.

4.2.3.1 Riverside County

Special-status wildlife species within the Coachella Valley covered by the CVMSHCP includes two insect, one fish, one amphibian, three reptile, eleven bird, and four mammal species. Table 9 summarizes the special-status wildlife species, associated habitats, and potential for occurrence in the Riverside County Portion of the BSA based on modeled habitat. Modeled wildlife habitats that occur within the BSA of projects proposed in the 2020 Plan are listed in Table 10 and shown in Appendix A: Figures 8 through 11c. Special-status wildlife species with a potential to occur in the BSA are discussed in more detail below.

Table 9. Special-Status Wildlife Species in Riverside County					
Species	**Status**		**Natural Community Association**	**Potential Occurrence in CVWD Service Area**	**Potential Occurrence in the BSA**
INSECTS					
Coachella Valley giant sand-treader cricket *Macrobaenetes valgum*	Fed: State:	none none	Sand Dune/Sand Fields, Desert Scrub	Yes	Yes
Coachella Valley Jerusalem cricket *Stenopelmatus cahuilaensis*	Fed: State:	none none	Sand Dune/Sand Fields, Dry Wash Woodland and Mesquite	Yes	Yes
FISH					
Desert pupfish *Cyprinodon macularius*	Fed: State:	**END** **END**	Marsh, Riparian	Yes	No

Table 9. Special-Status Wildlife Species in Riverside County					
Species	**Status**		**Natural Community Association**	**Potential Occurrence in CVWD Service Area**	**Potential Occurrence in the BSA**
AMPHIBIANS					
Arroyo toad *Anaxyrus californicus*	Fed: State:	**END** CSC	Riparian Scrub, Woodland and Forest	No	No
REPTILES					
Desert tortoise *Gopherus agassizii*	Fed: State:	**THR** **END**	Sand Dune/Sand Fields, Desert Scrub, Chaparral, Dry Wash Woodland and Mesquite, Riparian, Woodland and Forest	Yes	Yes
Flat-tailed horned lizard *Phrynosoma mcallii*	Fed: State:	none CSC	Sand Dune/Sand Fields, Desert Dune, Desert Alkali Scrub	Yes	Yes
Coachella Valley fringe-toed lizard *Uma inornata*	Fed: State:	**THR** **END**	Sand Dune/Sand Fields, Desert Dune	Yes	Yes
BIRDS					
Burrowing Owl *Athene cunicularia*	Fed: State:	none CSC	Agriculture, Sand Dune/Sand Fields, Desert Scrub, Developed/Disturbed	Yes[1]	Yes[1]
Southwestern willow flycatcher *Empidonax traillii extimus*	Fed: State:	**END** **END**	Desert Alkali Scrub, Dry Wash Woodland and Mesquite, Riparian	Yes	Yes
Yellow-breasted chat *Icteria virens*	Fed: State:	none CSC	Desert Alkali Scrub, Dry Wash Woodland and Mesquite, Riparian	Yes	Yes
California black rail *Laterallus jamaicensis*	Fed: State:	none **THR**/FP	Marsh	Yes	Yes
Summer tanager *Piranga rubra*	Fed: State:	none CSC	Desert Alkali Scrub, Dry Wash Woodland and Mesquite, Riparian	Yes	Yes
Yuma clapper (Ridgway's) rail *Rallus longirostris* (=*obsoletus*) *yumanensis*	Fed: State:	**END** **THR**/FP	Marsh	Yes	Yes
Yellow warbler *Setophaga aestiva brewsteri*	Fed: State:	none CSC	Desert Alkali Scrub, Dry Wash Woodland and Mesquite, Riparian	Yes	Yes
Crissal thrasher *Toxostoma crissale*	Fed: State:	none CSC	Desert Alkali Scrub, Dry Wash Woodland and Mesquite, Riparian	Yes	Yes

Table 9. Special-Status Wildlife Species in Riverside County					
Species	**Status**		**Natural Community Association**	**Potential Occurrence in CVWD Service Area**	**Potential Occurrence in the BSA**
Le Conte's thrasher *Toxostoma lecontei*	Fed: State:	none CSC	Sand Dune/Sand Fields, Sand Dune/Sand Fields, Desert Alkali Scrub, Dry Wash Woodland and Mesquite	Yes	Yes
Least Bell's vireo *Vireo bellii pusillus*	Fed: State:	**END** **END**	Desert Alkali Scrub, Dry Wash Woodland and Mesquite, Riparian	Yes	Yes
Gray vireo *Vireo vicinior*	Fed: State:	none CSC	Chaparral, Woodland and Forest	Yes	No
MAMMALS					
Western yellow bat[2] *Lasiurus xanthinus*	Fed: State:	none CSC	Riparian	Yes	Yes
Peninsular bighorn sheep *Ovis canadensis nelsoni*	Fed: State:	**END** **THR**/FP	Desert Scrub, Chaparral, Dry Wash Woodland and Mesquite, Riparian, Woodland and Forest	Yes	Yes
Palm Springs pocket mouse *Perognathus longimembris bangsi*	Fed: State:	none CSC	Sand Dunes/Sand Fields, Desert Scrub, Dry Wash Woodland and Mesquite	Yes	Yes
Coachella Valley (=Palm Springs) round-tailed ground squirrel *Xerospermophilus tereticaudus chlorus*	Fed: State:	CAN CSC	Desert Scrub, Dry Wash Woodland and Mesquite, Sand Dune/Sand Fields	Yes	Yes

Federal Designations: (Federal ESA, USFWS)
END: Federally listed, endangered
THR: Federally listed, threatened
CAN: Candidate species

State Designations: (CESA, CDFW)
END: State-listed, endangered
THR: State-listed, threatened
CSC: California Species of Concern
FP: Fully Protected

[1]Burrowing owl habitat was not modeled for the CVMSHCP; therefore, potential for occurrence based on known locations.
[2]Previously considered a subspecies of southern yellow bat (*Lasiurus ega*).

Table 10. Special-Status Modeled Wildlife Habitat in the Riverside County BSA by Project

Projects[1]	Coachella Valley giant sand-treader cricket	Coachella Valley Jerusalem cricket	Desert tortoise	Flat-tailed horned lizard	Coachella Valley fringe-toed lizard	Southwestern willow flycatcher	Yellow-breasted chat	Summer tanager	California black rail	Yuma clapper rail	Yellow warbler	Crissal thrasher	Le Conte's thrasher	Least Bell's vireo	Western yellow bat	Peninsular bighorn sheep	Palm Springs pocket mouse	Coachella valley round-tailed squirrel
WRP 2 Capital Improvement Projects																		
2-1						√	√	√			√		√	√			√	√
WRP 4 Capital Improvement Projects																		
4-4						√	√	√			√			√			√	√
4-5											√						√	√
4-6											√						√	√
4-7						√	√	√			√			√			√	√
4-8						√	√	√			√			√			√	√
4-9						√	√	√			√			√			√	√
4-10						√	√	√			√			√			√	√
4-11						√	√	√			√			√			√	√
4-12						√	√	√			√			√			√	√
4-13						√	√	√			√			√			√	√
4-14						√	√	√			√			√			√	√
WRP 7 Capital Improvement Projects																		
7-2	√			√	√								√				√	√
7-6	√			√	√								√				√	√
7-7	√			√	√								√				√	√
7-8	√			√	√								√				√	√
WRP 10 Capital Improvement Projects																		
10-1																	√	√
10-2																	√	√
10-3																	√	√
10-4																	√	√
10-5																	√	√
10-6																	√	√
10-7																	√	√
10-8																	√	√
10-10	√			√	√	√	√	√			√	√	√	√			√	√
10-11	√			√	√	√	√	√			√	√	√	√			√	√
10-12	√			√	√	√	√	√			√	√	√	√			√	√
10-13											√	√	√	√			√	√
10-14	√			√	√	√	√	√			√	√	√	√			√	√
10-16	√			√	√												√	√
10-17	√			√	√	√	√	√			√	√	√	√			√	√
10-18																	√	√

Table 10. Special-Status Modeled Wildlife Habitat in the Riverside County BSA by Project

Projects[1]	Coachella Valley giant sand-treader cricket	Coachella Valley Jerusalem cricket	Desert tortoise	Flat-tailed horned lizard	Coachella Valley fringe-toed lizard	Southwestern willow flycatcher	Yellow-breasted chat	Summer tanager	California black rail	Yuma clapper rail	Yellow warbler	Crissal thrasher	Le Conte's thrasher	Least Bell's vireo	Western yellow bat	Peninsular bighorn sheep	Palm Springs pocket mouse	Coachella valley round-tailed squirrel
Capacity Capital Improvement Projects																		
CS-WRP4-1	√			√	√	√	√	√			√	√	√	√			√	√
CS-WRP4-2			√			√	√	√			√	√	√	√		√	√	√
CS-WRP4-3						√	√	√			√	√	√	√				√
CS-WRP4-4						√	√	√	√	√	√	√	√	√			√	√
CS-WRP4-5			√	√		√	√	√			√	√	√	√			√	√
CS-WRP4-7						√	√	√			√	√	√	√			√	√
CS-WRP7-1	√	√	√	√	√	√	√	√			√	√	√	√			√	√
CS-WRP7-2	√	√		√	√								√				√	√
CS-WRP7-3	√	√		√	√								√				√	√
CS-WRP7-4	√	√		√	√	√	√	√			√		√	√			√	√
CS-WRP7-6	√			√	√	√	√	√			√	√	√	√	√		√	√
CS-WRP7-7			√										√				√	√
CS-WRP7-8			√										√				√	√
CS-WRP7-10	√			√	√	√	√	√			√	√	√	√			√	√
CS-WRP10-1	√	√		√	√								√				√	√
Condition and Risk Assessment (Renewal Pipe) Capital Improvement Projects																		
WCCA-1			√										√*				√	√
WCCA-2	√		√	√	√								√*				√	√
WCCA-3	√			√	√								√				√	√
WCCA-4	√			√	√								√				√	√
WCCA-5						√	√	√			√	√	√	√			√	√
WCCA-6						√	√	√			√	√	√	√			√	√
Septic-to-Sewer Capital Improvement Projects																		
SWS-1						√	√	√	√	√				√			√	√
SWS-2																		
SWS-3						√	√	√			√	√	√	√				√
SWS-4						√	√	√			√	√	√	√				√
SWS-5						√	√	√	√	√	√	√	√	√			√	√
SWS-6			√	√		√	√	√			√	√	√	√			√	√

[1] Projects were only included if sufficient location information was available for assessment and modeled habitat was identified in the BSA.

Coachella giant sand-treader cricket has no official state or federal status. The Coachella giant sand-treader cricket is strongly associated with wind-blown, active sand dunes and fields and occurs exclusively

in the active sand hummocks and dunes in the Coachella Valley (CVAG 2016). This species is most abundant in the active dunes and ephemeral sand fields at the west end of the Coachella Valley, west of Palm Drive at least to Snow Creek Road, adjacent to the Whitewater River and San Gorgonio River washes. Suitable Habitat also occurs within the Whitewater Floodplain Preserve and at the Thousand Palms Preserve, on the main dunes and on the Simone Dunes.

Coachella Valley Jerusalem cricket has no official state or federal status. The Coachella Valley Jerusalem cricket occurs in gravelly sandy soils and are considered obligate sand species. This species requires cool, moist conditions and may be limited to sand dunes and sand fields at the western edge of the Coachella Valley. They do not necessarily require active blowsand habitat and have been found in loose wind-blown drift sands, dunes, and sand in vacant lots if native vegetation exists. Core habitat for this species occurs within the San Gorgonio and Whitewater River floodplains (CVAG 2016).

Desert tortoise was federally listed as a threatened species in 1990 and state listed as an endangered species in 1990. This species is also considered to be a BLM-sensitive species. This species is typically associated with creosote bush scrub, succulent scrub, shadscale scrub, microphyll woodland, and saltbush-allscale scrub vegetation communities. Desert tortoises prefer loamy substrate, southwest exposures, and areas with relatively high plant coverage. They typically inhabit flats, gently sloping terrain, valleys and bajadas, washes, rocky hillsides, and open flat desert areas with sandy to sandy-gravel soils that offer suitable substrates for burrowing and nesting.

Critical Habitat

The USFWS designated critical habitat for the desert tortoise in 1994 (USFWS 1994a). The BSA does not contain any areas of designated critical habitat for desert tortoise. The closest critical habitat unit to the BSA is the Chuckwalla Unit, located northeast of the BSA, in the Chocolate Mountains.

Flat-tailed horned lizard is a California Species of Concern that occurs throughout most of the Colorado Desert extending from the north end of the Coachella Valley southward into northeastern Baja California, Mexico. This species is a specialized sand-dweller that has not been observed outside of areas with a shifting sand substrate. It requires fine, wind-blown (aeolian) sand deposits and has been recorded in several vegetative associations where such a substrate is present, including those where creosote bush, burrobush, bursage (Ambrosia dumosa), and indigo bush are abundant (FTHLICC 2003).

Coachella Valley fringe-toed lizard is a federally listed threatened and state-listed endangered species. It is a small, highly specialized reptile that inhabits fine, windblown sand deposits in the sandy plains, sand hummocks, and mesquite dunes of the Coachella Valley (Jennings 1994). The formation process of this aeolian sand system by floodwater sediment deposition and consequential shifting caused by high desert winds is integral for the survival of this species. Coachella Valley fringe-toed lizard is found in sparsely vegetated habitat with windblown sand dunes or flats and requires fine, loose sand for burrowing.

Critical Habitat

The USFWS designated critical habitat for Coachella fringe-toed lizard in portions of the Coachella Valley in 1980 (USFWS 1980). Portions of the BSA for proposed projects CS-WRP7-3, CS-WRP7-4, and CS-WRP7-6 contain areas of designated critical habitat (shown in Appendix A: Figure 12). These areas of the BSA are also located in or adjacent to the Thousand Palms Conservation Areas.

Burrowing owl is a California Species of Concern. This species occurs in open, dry annual or perennial grasslands, characterized by low-growing vegetation. Burrowing owls typically nest and overwinter in mammal burrows but can also use surrogate burrows, such as rock piles, tires, or large pipes. It is a common year-round resident of the Salton Sea and Imperial Valley (Garrett and Dunn 1981). Most burrows around the Salton Sea are found along irrigation banks and canals. Due to the wide distribution and variety of habitats utilized by burrowing owls, habitat distribution for this species in the CVMSHCP area is based on known occurrences only (CVAG 2016).

Southwestern willow flycatcher is a state and federally listed threatened endangered species that breeds in dense riparian vegetation along rivers and streams in the southwestern United States from May through September. They construct nests in dense thickets of willows, mulefat (*Baccharis salicifolia*), and other trees and shrubs approximately 4 to 7 meters in height. They virtually always nest near surface water or saturated soil.

Habitat for southwestern willow flycatcher includes breeding habitat and migration habitat. Habitat elements include Sonoran cottonwood-willow riparian forest, southern arroyo will riparian forest, and southern sycamore-alder riparian woodland for breeding and mesquite hummocks, desert dry wash woodland, desert saltbush scrub, desert sink scrub, mesquite bosque, coastal and valley freshwater marsh, arrowweed scrub, and cismontane alkali marsh habitats for migration.

Critical Habitat

The USFWS initially designated critical habitat for the southwestern willow flycatcher in 1997 and revised the designation in 2005, and again in 2013 (USFWS 2013b). The BSA does not contain any areas of designated critical habitat for southwestern willow flycatcher. Designated critical habitat closest to the BSA occurs in the Santa Ana Management Unit subunits Mill Creek, located approximately 22 miles to the northwest, and Bautista Creek, located approximately 20 miles to the southwest.

Least Bell's vireo is a state and federally listed endangered species. This species inhabits riparian woodland habitats consisting of Fremont's cottonwoods (*Populus fremontii*), willows, and mulefat. Least Bell's vireos are found in areas with a dense shrub cover and a dense, stratified canopy (USFWS 1998). Nests occur in dense thickets of willow or mulefat, one or two meters from the ground.

Habitat for least Bell's vireo includes breeding habitat and migration habitat. Habitat elements include Sonoran cottonwood-willow riparian forest, southern arroyo will riparian forest, and southern sycamore-alder riparian woodland for breeding and mesquite hummocks, desert dry wash woodland, desert saltbush scrub, desert sink scrub, mesquite bosque, coastal and valley freshwater marsh, arrowweed scrub, and cismontane alkali marsh habitats for migration.

Critical Habitat

The USFWS designated critical habitat for least Bell's vireo in 1994 (USFWS 1994b). The BSA does not contain any areas of designated critical habitat for least Bell's vireo. Designated critical habitat closest to the BSA occurs in the Coyote Creek habitat unit, located approximately 18 miles to the southwest.

Yellow-breasted chat is a California Species of Concern. This is a riparian species that nests in dense riparian thickets and brushy tangles in the lower portions of foothill canyons and in the lowlands. Habitat for yellow-breasted chat includes breeding habitat and migration habitat. Habitat elements include Sonoran cottonwood-willow riparian forest, southern arroyo will riparian forest, and southern sycamore-alder riparian woodland for breeding and fan palm oasis woodland, mesquite hummocks, desert dry wash woodland, desert saltbush scrub, desert sink scrub, mesquite bosque, coastal and valley freshwater marsh, arrowweed scrub, and cismontane alkali marsh habitats for migration.

Summer tanager is a California Species of Concern. This is a riparian species that nests in mature riparian groves dominated by cottonwoods and willows. Nests are typically built in large trees on limbs that overhang an opening, such as a creek bed. Habitat for summer tanager includes breeding habitat and migration habitat. Habitat elements include Sonoran cottonwood-willow riparian forest, southern arroyo will riparian forest, and southern sycamore-alder riparian woodland for breeding and mesquite hummocks, desert dry wash woodland, desert saltbush scrub, desert sink scrub, mesquite bosque, coastal and valley freshwater marsh, arrowweed scrub, and cismontane alkali marsh habitats for migration.

California black rail is a state-listed threatened species and California fully protected species. This species inhabits dense coastal and inland marsh habitats dominated by bulrush. California black rails nest in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation (Eddelman et al. 1994). In the Salton Sea area, it is known to occur at Salt Creek and the Whitewater Delta. This is a covered species under the CVMSHCP; however, because California black rail is a fully protected species, no take of this species is allowed.

Yuma clapper rail, also known as Yuma Ridgway's rail, is federally listed as endangered, state listed as threatened, and is a California fully protected species. There is currently no designated critical habitat for this species. The Yuma clapper rail occurs along the lower Colorado River and tributaries Virgin River, Bill Williams River, lower Gila River in Arizona, California, Nevada, and Utah; the Salton Sea in California; and the Cienega de Santa Clara and Colorado River Delta in Mexico. This species inhabits freshwater marshes dominated by cattail and bulrush. At the Salton Sea, marsh habitats are created in fields or cells with managed water levels (USFWS 2009b). This is a covered species under the CVMSHCP; however, because Yuma clapper rail is a fully protected species, no take of this species is allowed.

Critical Habitat

The USFWS has not designated critical habitat for Yuma clapper rail.

Yellow warbler is a California Species of Concern. This is a riparian species that prefers wetlands and mature riparian woodlands dominated by cottonwoods, alders, and willows. Yellow warblers typically nest in areas with intermediate shrub density and height. Habitat for yellow warbler includes breeding habitat and migration habitat. Habitat elements include Sonoran cottonwood-willow riparian forest, southern arroyo will riparian forest, and southern sycamore-alder riparian woodland for breeding and desert palm oasis woodland, mesquite hummocks, desert dry wash woodland, desert saltbush scrub, desert sink scrub,

mesquite bosque, coastal and valley freshwater marsh, arrowweed scrub, and cismontane alkali marsh habitats for migration.

Crissal thrasher is a California Species of Concern that is a year-round resident in the Coachella Valley. This species occupies arid habitats and is associated with desert washes, riparian brush and mesquite thickets at lower elevations and dense scrub in arroyos at higher elevations. In the Coachella Valley, crissal thrasher occurs in areas dominated by mesquite hummocks and thickets with acacias, arrowweed, and in desert saltbush scrub. This species commonly nests in mesquite (CVAG 2016).

Le Conte's thrasher is a California Species of Concern. Habitat for this species typically consists of sparsely vegetated desert flats, dune, alluvial fans, or gently rolling hills with a high proportion of one or more species of saltbush and/or cholla. Desert dry wash woodland bordered by mixed woody and succulent scrub or Sonoran creosote bush scrub below toe of slope provides suitable habitat, but it is rarely found in habitats consisting entirely of creosote bush. Le Conte's thrashers nest in thick, dense, and thorny shrubs or cholla cactus (CVAG 2016).

Western yellow bat is a California Species of Concern. It is an obligate foliage roosting species that prefers dead palm fronds to other types of tree substrates. It is primarily non-colonial, but small colonies have been documented in some areas. Unlike many other bats found in this region, it appears that this species is found throughout the year in southern California. It is most commonly associated with desert fan palm oasis woodland and other desert riparian habitats (WBWG 2005).

Peninsular bighorn sheep is a federally listed endangered and state-listed threatened species that is restricted to the lower, east-facing slopes of the Peninsular Ranges in Southern California and Mexico. This species occurs in open desert slopes below 4,000 feet in elevation. Habitat is characterized by steep slopes and cliffs, rugged canyons, sandy washes, and alluvial fan with available water.

Critical Habitat

The USFWS designated critical habitat for Peninsular bighorn sheep in 2001 (USFWS 2001). The BSA does not contain any areas of designated critical habitat for Peninsular bighorn sheep. The closest critical habitat unit to the BSA is Critical Habitat Unit 1, located in the mountain ranges southwest of the BSA.

Palm Springs pocket mouse is a California Species of Concern known from various vegetation communities, including creosote scrub, desert scrub, and grasslands, generally occurring on loosely packed or sandy soils with sparse to moderately dense vegetative cover. In the northern Coachella Valley Palm Springs pocket mice is most abundant in creosote-dominated desert scrub on flat to gentle slopes with sandy soil (CDFW 1986). This species is absent or present in low numbers in areas with compacted, stony, and cobbly soils, in saltbush (*Atriplex* sp.)-dominated communities, in areas disturbed by human habitation, and on wind-formed dunes devoid of vegetation.

Coachella Valley round-tailed squirrel (also known as Palm Springs round-tailed ground squirrel) is a California Species of Concern. The most favorable habitat for this species appears to be areas where hummocks of sand accumulate at the base of large shrubs that provide burrow sites and adequate cover (Grinnell and Dixon 1918). Coachella Valley round-tailed squirrels also may occur in areas of coarse sands associated with washes. In some areas, they are numerous in the transition between dunes and creosote

bush scrub (CVAG 2016). Ball et al. (2005) found that this species is more likely to occupy mesquite on dunes/hummocks than creosote bush on dunes/hummocks or other vegetation/substrate types.

4.2.3.2 Imperial County

Twenty-two special-status wildlife species were identified in a CNDDB records search of the Imperial County 2020 Plan area vicinity and assessed for their potential to occur within the BSA. Of the 22 species, 9 species were determined to have a potential to occur within the BSA. Table 11 lists the 22 special-status wildlife species and their associated regulatory status, general habitat associations, and determination for their potential to occur in the BSA.

Table 11. Special-Status Wildlife Species Potential to Occur in Imperial County BSA

Scientific Name **Common Name**	**Status**		**Habitat**	**Potential for Occurrence**
FISH				
Cyprinodon macularius desert pupfish	Fed: Ca:	**END** **END**	Occurs in desert ponds, springs, marshes, and streams in southern California.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Xyrauchen texanus razorback sucker	Fed: Ca:	**END** **END**	Occurs in the Colorado River bordering California. Swims in swift currents but also requires quiet waters. Spawns in sand, gravel, and rocks in shallow water.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
AMPHIBIANS				
Lithobates yavapaiensis lowland leopard frog	Fed: Ca:	none CSC	Occurs along the Colorado River and in streams near the Salton Sea.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Incilius alvarius Sonoran Desert toad	Fed: Ca:	none CSC	Breeds in temporary pools and irrigation ditches along the Colorado River and Southern Imperial Valley.	**Low.** Suitable habitat potentially occurs in the BSA; however, no recent occurrences are recorded in the vicinity and no historical records occur within 13 miles.
Scaphiopus couchii Couch's spadefoot	Fed: Ca:	none CSC	Temporary desert rain pools lasting at least 7 days, temperatures greater than 77 °F and nearby subterranean refuge sites. An insect food base, especially termites, required.	**Low.** Suitable habitat potentially occurs in the BSA; however, no occurrences are recorded within 11 miles.
REPTILES				
Gopherus agassizii desert tortoise	Fed: Ca:	**THR** **THR**	Occurs in almost every desert habitat but most commonly in desert scrub, desert wash, and Joshua tree habitats, with friable soil for burrowing and nest construction. Creosote bush habitat with large annual wildflower blooms is preferred.	**Low.** Suitable habitat potentially occurs in the BSA; however, no occurrences are recorded within 12 miles.

Table 11. Special-Status Wildlife Species Potential to Occur in Imperial County BSA				
Scientific Name **Common Name**	**Status**		**Habitat**	**Potential for Occurrence**
Phrynosoma mcallii flat-tailed horned lizard	Fed: Ca:	none CSC	Found only in desert washes and desert flats in central Riverside, Eastern San Diego, and Imperial Counties. Requires fine sand for burrowing, vegetative cover, and ants.	**High**. Suitable habitat potentially occurs in the BSA and several occurrences of the species have been recorded within 3 miles, including immediately adjacent to the BSA.
BIRDS				
Athene cunicularia burrowing owl	Fed: Ca:	none CSC	Found in open, dry grasslands, deserts, and scrublands with low-growing vegetation. Nests and overwinters in abandoned mammal burrows or surrogate burrows.	**Moderate.** Suitable habitat potentially occurs in the BSA. The closest recorded occurrence is approximately 6.75 miles southeast of the BSA.
Charadrius alexandrinus nivosus western snowy plover	Fed: Ca:	**THR** **THR**	Forages in dry or wet sandy beaches often among washed up kelp. Needs sandy, gravelly or friable soils above high tide line for nesting.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Charadrius montanus mountain plover	Fed: Ca:	none CSC	Occurs in flat areas with short vegetation or bare ground, including short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Prefers grazed areas and areas with burrowing rodents.	**Moderate.** Suitable habitat potentially occurs in the BSA. Only one occurrence has been recorded in the vicinity, approximately 6 miles northwest of the BSA.
Empodonax traillii extimus southwestern willow flycatcher	Fed: Ca:	**END** **END**	Riparian willow woodlands in southern California.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Icteria virens yellow-breasted chat (nesting)	Fed: Ca:	none CSC	Nests in low, dense willow riparian thickets near watercourses.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Laterallus jamaicensis coturniculus California black rail	Fed: Ca:	none **THR**/FP	Found in freshwater marshes, wet meadows, and the shallow margins of saltwater marshes in large bay. Requires water depths of approximately one inch that do not fluctuate during the year and dense vegetation for nesting.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Pelecanus occidentalis californicus California brown pelican	Fed: Ca:	DL DL/FP	Colonial nester on coastal islands just outside the surf line which afford immunity from attack by ground-dwelling predators. Roosts communally on islands and breakwaters.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.

Table 11. Special-Status Wildlife Species Potential to Occur in Imperial County BSA				
Scientific Name **Common Name**	**Status**		**Habitat**	**Potential for Occurrence**
Rallus obsoletus yumanensis Yuma Ridgway's rail	Fed: Ca:	**END THR**/FP	Nests in freshwater marshes along the Colorado River and along the south and east ends of the Salton Sea. Prefers stands of cattails and tules dissected by narrow channels of flowing water.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
Setophaga petechia yellow warbler (nesting)	Fed: Ca:	none CSC	Nests and forages in riparian vegetation close to water including willow shrubs and thickets, cottonwoods, sycamores, ash, and alders.	**Presumed absent.** No suitable habitat is mapped/expected to be present within the BSA.
MAMMALS				
Antrozous pallidus pallid bat	Fed: Ca:	none CSC	Occurs in deserts, grasslands, shrublands, woodlands, and forests with open, dry habitats with rocky areas for roosting	**Low.** Limited suitable roosting and foraging habitat may be present within the BSA. Only one historical occurrence is recorded in the vicinity, approximately 6.5 miles northwest of the BSA.
Eumops perotis californicus western mastiff bat	Fed: Ca:	none CSC	Roosts 15 feet or more above ground in rock and cliff crevices, buildings, trees, and tunnels in open arid and semi-arid habitats near water.	**Low.** Limited suitable roosting and foraging habitat may be present within the BSA. Only one historical occurrence is recorded in the vicinity, approximately 11 miles northwest of the BSA.
Lasiurus xanthinus western yellow bat	Fed: Ca:	none CSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in foliage and is closely associated with introduced palm trees, particularly when dead fronds remain. Forages over water and among trees.	**Presumed absent.** No suitable roosting habitat mapped/expected to be present in or within the vicinity of the BSA.
Ovis canadensis desert bighorn sheep	Fed: Ca:	none FP	Occurs on open, rocky, steep areas with available water and herbaceous forage.	**Presumed absent.** BSA in not within known range for the species.
Perognathus longimembris bangsi Palm Springs pocket mouse	Fed: Ca:	none CSC	Found in desert riparian, desert scrub, desert wash, and sagebrush habitats. Commonly occurs in creosote-dominated desert scrub.	**Low**. Suitable habitat is mapped/expected to occur within the BSA. Only one historical occurrence of the species was recorded approximately 12 miles northwest of the BSA.
Sigmondon hispidus eremicus Yuma hispid cotton rat	Fed: Ca:	none CSC	Found along the Colorado River and in grass and agricultural areas near irrigation waters in wetlands and uplands with dense grass and herbaceous plants. Nests on surface and in burrows.	**Presumed absent.** No suitable roosting habitat mapped/expected to be present in or within the vicinity of the BSA.

Federal Designations: (Federal ESA, USFWS)
END: Federally listed, endangered
THR: Federally listed, threatened
DL: Delisted

State Designations: (CESA, CDFW)
END: State-listed, endangered
THR: State-listed, threatened
CSC: California Species of Concern
FP: Fully Protected
DL: Delisted

4.2.4 Nesting Bird Species

The BSA supports a variety of habitats that provides suitable nesting habitat for native migratory and resident bird species, including birds covered by the CVMSHCP. Virtually all of native nesting songbirds and raptors are protected by the MBTA (USFWS 1918).

4.3 Wildlife Movement Corridors, Linkages, and Significant Ecological Areas

The concept of habitat corridors addresses the linkage between large blocks of habitat that allow the safe movement of mammals and other wildlife species from one habitat area to another. The definition of a corridor is varied, but corridors may include such areas as greenbelts, refuge systems, underpasses, and biogeographic land bridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix, which connects two or more large blocks of habitat. Wildlife movement corridors are critical for the survivorship of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife responses to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. Naturally, corridor use and wildlife movement patterns varies greatly among species.

Under the CVMSHCP, Conservation Areas include biological corridors and linkages that provide connectivity of covered species populations to other populations both in and outside of the CVMSHCP area, where feasible. Portions of the BSA are located in CVMSHCP-designated biological corridors and linkages in the Edom Hill, Indio Hills/Joshua Tree National Park Linkage, Thousand Palms, Whitewater Floodplain, and Willow Hole Conservation Areas. Additionally, portions of the BSA are located in and adjacent to eleven Conservation Areas (Table 3 and Appendix A: Figure 5. *CVMSHCP Conservation Areas*) and may provide contiguous habitat for plant and wildlife species within these areas.

Outside of the Conservation Areas, the majority of the Riverside County portion of the BSA is comprised of urban and agricultural areas, with discontinuous blocks and patches of habitat. Wildlife movement through these areas is limited to avian species which can disperse through urban areas and select mammals that have learned to tolerate and utilize urban environments, such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and coyote (*Canis latrans*). Portions of the BSA that occur along the Whitewater River or other drainages provide for wildlife movement; however, these areas are limited within the BSA. As a result of these factors, the Riverside County portion of the BSA outside of the Conservation Areas only offers marginal local corridor value.

The undeveloped areas in and adjacent to the Imperial County portion of the BSA allows for movement of wildlife in the surrounding area; however, the southern portion of the BSA is intersected by the Union pacific railroad and the SR 111 and wildlife movement is limited to established crossings.

4.4 Jurisdictional Aquatic Resources

Aquatic resources that meet the definition of waters of the United States fall under the jurisdiction of the USACE and subject to regulation under Section 404 of the CWA. Waters of the United States are also subject to regulation by the RWQCB under Section 401 of the CWA. Some aquatic resources that are excluded from the definition of waters of the United States and not regulated under the CWA, such as isolated wetlands and manmade water features, may still be regulated at the state level by the RWQCB and/or the CDFW.

Discharge of waste to waters of the state, defined as "any surface water or groundwater, including saline waters, within the boundaries of the state," is regulated by the RWQCB under the Porter-Cologne Water Quality Control Act.

Aquatic resources under the jurisdiction of the CDFW include the definable bed, bank, or channel, areas of rivers, streams, and lakes that support periodic or intermittent flows, perennial flows, subsurface flows, support fish or other aquatic life and areas that support riparian or hydrophytic vegetation in association with a streambed. This includes areas where waters flow as well as surrounding vegetation that is riparian in nature or tied hydrologically to the associated aquatic feature.

A formal study to delineate aquatic resources within the BSA was not conducted. However, aquatic features that are potentially under the jurisdiction of the USACE and the CDFW were identified within the BSA (shown in Appendix A: Figure 13. *Potential Aquatic Features*) using information obtained from the USFWS National Wetland Inventory database (USFWS 2019) and National Hydrography Dataset (USGS 2016).

5.0 IMPACT ANALYSIS

Potential biological impacts resulting from implementation of the 2020 Plan would vary by project type (i.e. WRP facilities, pipelines, lift stations, and manholes), location, and project design. Location information on projects identified for the CIP (included in Appendix B) is conceptual. The final location and design for each project will be determined over time as the phased program is implemented.

5.1 Sensitive Natural Communities

Direct impacts to sensitive natural communities would result from the direct destruction of sensitive natural communities from clearing, grubbing, grading, and other initial land disturbance activities. Indirect effects to these natural communities could result from degradation of vegetation due to increased erosion and modified surface hydrology in graded or developed areas and/or invasion by non-native and invasive weed species. Impacts to sensitive natural communities in the Riverside County and Imperial County portions of the BSA are discussed below.

5.1.1 Riverside County

Sixteen CVMSHCP modeled conserved natural communities are mapped within the Riverside County portion of the BSA. These communities are described in Section 4.2.1.1 and Table 4 lists the natural

communities mapped within the BSA for each proposed project. Direct impacts to sensitive natural communities would result from the direct destruction of sensitive natural communities from clearing, grubbing, grading, and other initial land disturbance activities. Indirect effects to these natural communities could result from degradation of vegetation due to increased erosion and modified surface hydrology in graded or developed areas and/or invasion by non-native and invasive weed species. Specific project-related impacts to sensitive vegetation communities would be identified during the individual project-specific review. Direct and indirect impacts from project activities could significantly impact sensitive natural communities if unmitigated.

The CVMSHCP provides for conservation of sensitive natural communities through the preservation of Conservation Areas and includes measures to avoid or minimize both direct and indirect impacts and prevent significant impacts to sensitive communities. These provisions of the CVMSHCP are included in mitigation measures BIO-1 and BIO-2. Additionally, projects planned in areas that support wetland or riparian habitats may require jurisdictional analysis and acquisition of regulatory permits from the USACE and/or CDFW, included as mitigation measure BIO-6. These regulatory permits would include mitigation measures to avoid or reduce impacts to the habitats.

Through compliance with the provisions of the CVMSHCP, as required by mitigation measures BIO-1 and BIO-2, and the implementation of Mitigation Measure BIO-6, impacts to sensitive natural communities identified by the CVMSHCP and the CDFW would be mitigated. Impacts would be less than significant with the mitigation.

5.1.2 Imperial County

Two CDFW-designated sensitive natural communities, four-wing saltbush Alliance and mesquite thickets Alliance, are mapped within the Imperial County portion of the BSA. Projects within the Imperial County are proposed to occur within the existing WRP 1 facility. The sensitive natural communities are mapped outside of the existing WRP 1 facility and no significant impacts to natural communities outside of the facility are not anticipated and impacts would be less than significant.

5.2 Special Status Plant and Wildlife Species

5.2.1 Riverside County

Two special-status plant species (Coachella Valley milkvetch and Mecca aster), two special-status insect species (Coachella Valley giant sand-treader cricket and Coachella Valley Jerusalem cricket), three special-status reptile species (desert tortoise, flat-tailed horned lizard, and Coachella Valley fringe-toed lizard), nine special status bird species (southwestern willow flycatcher, yellow-breasted chat, California black rail, summer tanager, Yuma clapper rail, yellow warbler, crissal thrasher, Le Conte's thrasher, and least Bell's vireo), and four special-status mammal species (western yellow bat, Peninsular bighorn sheep, Palm Springs pocket mouse, and Coachella Valley round-tailed squirrel) occur within the BSA in Riverside County. Additionally, nesting bird species protected by the MBTA have the potential to occur within the BSA.

Direct impacts to special-status species could occur as a result of grading, vegetation removal, or other ground disturbing activities that cause harm or loss of individual species, including nestlings and eggs of protected birds. Indirect impacts that could result from project activities include disturbance from increased

human presence, dust, noise, and ground vibrations associated with construction activities, alteration and fragmentation of habitat, or the introduction of invasive exotic plant species that can replace native plants and habitat.

Potential Impacts will vary by project and the effects will be dependent on several factors including, the location, the project footprint, the timing and duration of the project, and the species and habitats affected. Table7 lists modeled habitat for special-status plant species that occurs in the BSA for individual projects and Table 10 lists modeled habitat for special-status wildlife species that occurs in the BSA for individual projects. Although there is no CVMSHCP modeled habitat for burrowing owl, this species also has the potential to occur throughout the BSA. If unmitigated, impacts to these species could be significant.

For projects occurring within a Conservation Area (listed in Table 3), compliance with the provisions of the CVMSHCP requiring specific mitigation measures for each Conservation Area (included in mitigation measures BIO-1 through BIO-3), and implementation of mitigation measures BIO-4 and BIO-5, impacts to special-status species within Conservation Areas would be mitigated. Outside of the Conservation Areas, implementation of mitigation measures BIO-3 through BIO-6, and payment of mitigation fees imposed by responsible jurisdiction, would provide mitigation for impacts to special-status plant and wildlife species. Impacts would be less than significant with the mitigation.

5.2.2 Imperial County

Four special-status plant species (Salton milkvetch, Hardwood's milkvetch, gravel milkvetch, and Orocopia sage), four special-status reptile species (Sonoran Desert toad, Couch's spadefoot toad, desert tortoise, and flat-tailed horned lizard), two bird special-status species (burrowing owl and mountain plover), and three special-status mammal species (pallid bat, western mastiff bat, and Palm Springs pocket mouse) were determined to have the potential to occur within the BSA in Imperial County. Additionally, nesting bird species protected by the MBTA have the potential to occur within the BSA.

The proposed project activities are expected to occur entirely within the existing WRP 1 facility and, therefore, significant impacts to special-status species and not anticipated. However, implementation of mitigation measures BIO-3 and BIO-5 will ensure that impacts to less than significant.

5.3 Wildlife Corridors and Nursery Sites

5.3.1 Riverside County

Within the Riverside County portion of the BSA, wildlife corridors and linkages occur primarily in the CVMSCHP modeled corridors and Conservation Areas, but also occur within the Whitewater River floodplain and other drainages in other areas of the Riverside County BSA. Direct impacts to wildlife corridors resulting from the implementation of some of the proposed projects would occur from blocking movement or removal of habitat leading to fragmentation. Indirect impacts could also result from increased human disturbance, noise, lighting, and other edge effects. Impacts to wildlife corridors would be significant if unmitigated.

Wildlife nursery sites include areas that provide habitat for breeding locations, including nests, roosts, burrows, and dens. Direct impacts to wildlife nursery sites from the implementation of the 2020 Plan would result from the removal of this habitat during project activities such as vegetation clearing, grading, or other

ground disturbance. Indirect impacts to nursery sites could result from increased human disturbance, noise, lighting, change in hydrology, or introduction of non-native species.

Compliance with the CVMSHCP, through implementation of mitigation measures BIO-1 and BIO-2, would conserve large blocks of native habitat within the Conservation Area that serve as wildlife corridors and provide wildlife nursery sites. Additionally, implementation of BIO-3 would protect burrowing owl burrows, BIO-4 and BIO-5 would protect habitat of CDFW fully-protected bird species and nests of birds protected under the MBTA and CFGC, and implementation of mitigation measure BIO-6 would protect drainages that support wildlife movement. Implementation of these mitigation measures would reduce impacts to wildlife corridors and wildlife nursery sites to less than significant.

5.3.2 Imperial County

The open space and natural communities within the Imperial County portion of the BSA have the potential to support both wildlife movement and wildlife nursery sites. The proposed projects in the Imperial County portion of the BSA are expected to be limited to the existing WRP 1 facility and would not directly impact wildlife corridors or nursery sites in the vicinity. Indirect impacts from increased human disturbance, noise, lighting, or other edge effects could occur; however, based on the availability of habitat and open space surrounding the facility, impacts to wildlife movement and nursery sites would be less than significant.

5.4 Jurisdictional Aquatic Resources

Federally protected aquatic resources as defined in Section 404 of the CWA include wetlands and waters of the United States and state protected aquatic resources as defined under Section 1602 of the CFGC, include streams, rivers, or lakes supporting fish or other aquatic life and wetlands. Wetlands typically include areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wetlands and waters that are potentially under the jurisdiction of the USACE and the CDFW occur throughout the BSA (shown in Appendix A: Figure 13. *Potential Aquatic Features*). Additional aquatic resources may also occur throughout the BSA or may develop in the future due to changing hydrological conditions. Substantial impacts to federally and state protected aquatic resources would occur if construction or projects resulted in the direct removal, filling, or hydrological interruption of any jurisdictional wetlands or waters. Implementation of mitigation measure BIO-6 would reduce impacts to jurisdictional aquatic resources to less than significant levels.

5.5 Local Policies and Ordinances

5.5.1 Riverside County

Local policies of relevant jurisdictions within Riverside County that protect biological resources are designed to support and adhere to the CVMSHCP. Compliance with the CVMSHCP, through the implementation of mitigation measures BIO-1 through BIO-3, and the implementation of mitigation measure BIO-4 to avoid impacts to CDFW fully-protected bird species, BIO-5 to minimize or avoid impacts to nesting birds, and

BIO-6 to minimize or avoid impacts to jurisdictional wetlands and riparian vegetation, implementation of the 2020 Plan would be consistent with local policies.

No portions of the BSA within the unincorporated area of Riverside County are located above 5,000 feet and, therefore, implementation of the 2020 Plan would not conflict with Riverside County Ordinance No. 559, which prohibits the removal of living native trees. No other jurisdictions have tree preservation policies.

5.5.2 Imperial County

The Imperial County General Plan Land Use Element and Conservation and Open Space Element contain objectives for the protection of biological resources. Although implementation of the 2020 Plan are not expected to impact biological resources in the Imperial County portion of the BSA, implementation of mitigation measures BIO-3 through BIO-6 would ensure that impacts that would potentially conflict with Imperial County's objectives for the protection of biological resources would be less than significant.

5.6 HCPs and NCCPs – CVMSHCP

5.6.1 Riverside County

The Riverside County portion of the 2020 Plan area is within the boundary of the CVMSHCP, which includes an NCCP. Portions of the BSA for the proposed projects associated with the 2020 Plan are within Conservation Areas and will be subject to a JPR process and compliance with applicable avoidance, minimization, and mitigation measures in Section 4.4 of the CVMSHCP and the Land Use Adjacency Guidelines in Section 4.5 of the CVMSHCP. Through implementation of mitigation measures BIO-1 through BIO-3, impacts to resources covered under the CVMSHCP would be less than significant.

Although the 2020 Plan also falls within the boundaries of the prepared THCP, no formal permit processing has currently been completed. Therefore, this document has not yet been implemented, and no impact would be associated with the THCP.

No other habitat conservation plan (HCP) or NCCP are within the 2020 Plan area in Riverside County

5.6.2 Imperial County

The BSA does not occur within any HCP or NCCP areas in Imperial County and, therefore, no analysis of impacts is required for the 2020 Plan area in Imperial County.

6.0 MITIGATION MEASURES

The following mitigation measures have been developed based on the applicable avoidance, minimization, and mitigation measures in Section 4.4 of the CVMSHCP, the Land Use Adjacency Guidelines in Section 4.5 of the CVMSHCP, and other applicable avoidance and minimization measures to minimize significant adverse impacts to biological resources to a less than significant level.

BIO-1 Conservation Area Surveys: Prior to the start of project activities within a CVMSHCP Conservation Area, a preconstruction survey shall be conducted by a qualified biologist familiar with the biological resources associated with the associated Conservation Area. The preconstruction survey shall take place a maximum of 14 days prior to the start of ground disturbing activities and shall be conducted so that 100

percent coverage of the project site and surrounding areas is achieved. Surveys shall include the following species and associated actions as determined for each Conservation Area in Section 4.3 of the CVMSHCP. A JPR will also be required to ensure the project is in compliance with the CVMSHCP and consistent with the Conservation Area Conservation Objectives and required conservation measures.

- **Covered Riparian Bird Species**: CVMSHCP covered activities in riparian habitat (including southern arroyo willow riparian forest, Sonoran cottonwood-willow riparian forest, desert fan palm oasis woodland, and southern sycamore-alder riparian woodland) in the Thousand Palms, Coachella Valley Stormwater Channel and Delta, and Santa Rosa and San Jacinto Mountains Conservation Areas shall be conducted outside of the nesting season for least Bell's vireo (March 15 through September 15) and the nesting season for southwestern willow flycatcher, summer tanager, yellow warbler, and yellow-breasted chat, to the maximum extent feasible. If covered activities must occur during the nesting season, surveys shall be conducted to determine if any active nests are present. If active nests are identified, the covered activity shall not be conducted within 200 feet of an active nest. If surveys conducted during the nesting season document that covered nesting riparian bird species are not present, the covered activity may proceed.

- **Crissal thrasher**: If covered activities intersect modeled crissal thrasher habitat in the Willow Hole, Thousand Palms, Indio Hills Palms, East Indio Hills, Dos Palmas, and Coachella Valley Stormwater Channel and Delta Conservation Areas, surveys will be conducted by a qualified biologist prior the start of construction activities during the breeding season (January 15 through June 15) to determine if active nest sites for this species occur in the project work area and/or within 500 feet of the project area (or to the edge of the property boundary if less than 500 feet). If nesting crissal thrashers are found, a 500-foot buffer (or a buffer to the edge of the property boundary if less than 500 feet) will be established around the nest site. The buffer will be staked and flagged. No construction activities will be permitted within the buffer during the breeding season or until the young have fledged.

- **Desert tortoise:** If covered activities within a Conservation Area intersect modeled desert tortoise habitat, a qualified biologist shall conduct a presence/absence survey of the project area and adjacent areas within 200 feet of the project area (or to the property boundary if less than 200 feet and permission from the adjacent landowner cannot be obtained) for fresh sign of desert tortoise, including live tortoises, tortoise remains, burrows, tracks, scat, or egg shells. The presence/absence survey must be conducted during the window between February 15 and October 31. Presence/absence surveys require 100% coverage of the survey area.

  If fresh sign is identified, the project area must be enclosed in tortoise-proof fencing and a clearance survey will be required during the clearance window (February 15 through June 15 and September 1 through October 31) or in accordance with the most recent protocol. Clearance surveys must be conducted during different tortoise activity periods (morning and afternoon) and include 100 percent of the project area. If no sign is found, a clearance survey is not required. A presence/absence survey is valid for 90 days or indefinitely if tortoise-proof fencing is installed around the project site.

- **Le Conte's Thrasher**: If covered activities occur in modeled Le Conte's thrasher habitat in a Conservation Area during the breeding season (January 15 through June 15), surveys will be conducted by a qualified biologist prior to the start of construction activities. Surveys will be conducted on the project site and within 500 feet of the site, or to the property boundary if less than 500 feet. If nesting Le Conte's thrashers are found, a 500-foot buffer (or to the property boundary if less than 500 feet) will be established around the nest site. The buffer will be staked and flagged. No construction will be permitted within the buffer during the breeding season or until the young have fledged.

- **Palm Springs Pocket Mouse:** If covered activities are planned within the Willow Hole Conservation Area, ground disturbing activities and clearing of vegetation should be avoided during the peak breeding season of the Palm Springs pocket mouse (approximately March to May), and activity should be limited as much as possible during the rest of the breeding season (January to February and June to August) to avoid impacts to the species and its habitat. If disturbance to Palm Springs pocket mouse habitat occurs, activity should be phased to the extent feasible and practicable so that suitable habitat islands are no farther than 300 feet apart at any given time to allow pocket mice to disperse between habitat patches across non-suitable habitat (i.e., unvegetated and/or compacted soils). Prior to project construction, a biological monitor familiar with this species should assist construction crews in planning access routes to avoid impacts to occupied habitat as much as feasible (i.e., placement of preferred routes on project plans and incorporation of methods to avoid as much suitable habitat/soil disturbance as possible). Furthermore, during construction activities, the biological monitor will ensure that connected, naturally vegetated areas with sandy soils and typical native vegetation remain intact to the extent feasible and practicable. If native vegetation (e.g., creosote, rabbitbrush, burrobush, cheesebush) is cleared, cleared areas should be revegetated through natural reestablishment and other means that result in habitat types of equal or superior biological value for Palm Springs pocket mouse.

  If trapping or subsequent translocation between distinct population groups is determined necessary, the activities shall be conducted in accordance with accepted protocols and by a qualified biologist who possesses a Memorandum of Understanding with CDFW for live trapping of the species in Southern California. Translocation programs will be coordinated by or conducted by the CVCC to determine the appropriate trapping, holding, marking, and handling methods and potential translocation sites.

- **Peninsular Bighorn Sheep Habitat:** Covered Activities in Peninsular bighorn sheep Habitat in the Santa Rosa and San Jacinto Mountains Conservation Areas will be conducted outside of the lambing season (January 1 through June 30) unless otherwise authorized through a Minor Amendment to the CVMSHCP with concurrence from the USFWS and CDFW. For projects in this Conservation Area, no toxic or invasive plant species may be used for landscaping.

- **Triple-ribbed milkvetch**: If covered activities occur within modeled triple-ribbed milkvetch habitat in the Whitewater Floodplain and Santa Rosa and San Jacinto Mountains Conservation Areas, a qualified biologist will conduct surveys during the growing and flowering period from February 1 through May 15. Prior to the start of ground-breaking project activities, any occurrences of triple-

ribbed milkvetch will be flagged or fenced under the direction of a biologist or botanist and avoided to the maximum extent feasible. Known occurrences mapped by CVCC shall also be avoided.

- **Fluvial Sand Transport:** Covered activities in fluvial sand transport areas in the Whitewater Floodplain, Willow Hole, Long Canyon, Edom Hill, Thousand Palms, West Deception Canyon, and Indio Hills/Joshua Tree National Park Linkage Conservation Areas will be conducted in a manner to maintain the fluvial sand transport capacity of the system.
- **Mesquite Hummocks and Mesquite Bosque Natural Communities:** If covered activities occur in the Willow Hole, Thousand Palms, East Indio Hills, Coachella Valley Stormwater Channel and Delta, and Santa Rosa and San Jacinto Mountains Conservation Areas mesquite hummocks and mesquite bosque habitat will be flagged or fenced under the direction of a biologist or botanist prior to ground-disturbing activities, and impacts will be avoided to the maximum extent feasible.

BIO-2 CVMSHCP Land Use Adjacency Guidelines: Prior to final design approval for projects within or adjacent to a Conservation Area, compliance with Section 4.5 (Land Use Adjacency Guidelines) of the CVMSHCP shall be demonstrated. Such compliance shall include, but not necessarily be limited to, demonstrating the design of the project would not result in the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within or adjacent to a Conservation Area.

BIO-3 Focused Burrowing Owl Surveys: For covered activities in Conservation Areas, or other areas as designated in Section 4.4 of the CVMSHCP, a preconstruction burrowing owl survey will be conducted by a qualified biologist within 14 days of ground disturbing activities. The project area and within 500 feet of the project area (or to the edge of the property if less than 500 feet) will be surveyed for burrows that could be used by burrowing owl. If burrows are located, the biologist will determine if owls are present in the burrow. If the burrow is determined to be occupied, the burrow will be flagged and a 160-foot non-breeding season buffer or 250-foot breeding season buffer will be established around the burrow. No activities will be permitted within the buffer until the young are no longer dependent on the burrow.

If unoccupied burrows are identified, then burrow excavation and collapse activities will be necessary; however, burrow excavation and collapse activities shall only be conducted during the non-breeding season for burrowing owls (September 1 through January 31). Coordination with CDFW on burrow excavation and collapse activities will need to occur, and methods will follow the specific protocols and guidance outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (2012).

BIO-4 Yuma Clapper (Ridgeway's) Rail and California Black Rail Surveys: If covered activities occur in modeled or potential habitat for Yuma Clapper (Ridgeway's) rail and/or California black rail, surveys conducted by a qualified biologist will be required prior to the start of activities. If rails are found, the habitat must be avoided, and measures approved by the USFWS and CDFW will be taken to ensure that no take of an individual of these species occurs.

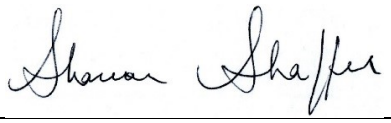
BIO-5 Preconstruction Survey for Nesting Birds: Construction activities of projects shall be conducted during the non-breeding season for birds (September 16 through December 31). This will avoid violations of the MBTA and CFGC Sections 3503, 3503.5 and 3513. If activities with the potential to disrupt nesting birds are scheduled to occur during the bird breeding season (January 1 through July 31 for raptors and

March 1 through September 15 for songbirds), a pre-construction nesting bird survey shall be conducted by a qualified biologist within the project area and adjacent areas where project activities have the potential to cause nest failure. If no nesting birds are observed during the survey, implementation of project activities may begin. If nesting birds (including nesting raptors) are found to be present, then avoidance or minimization measures shall be undertaken in consultation with CDFW. Measures shall include establishment of an avoidance buffer until nesting has been completed. The width of the buffer will be determined by the biologist. Typically, this is a minimum of 300 feet from the nest site in all directions (500 feet is typically recommended by CDFW for raptors), until the juveniles have fledged and there has been no evidence of a second attempt at nesting.

BIO-6 Avoidance of Jurisdictional Waters: Prior to construction of a project that could affect riparian/riverine or wetland habitat, as defined by Section 404 of the CWA or Section 1600 et seq. of the CFGC, necessary authorizations will need to be obtained from regulatory agencies for proposed impacts to jurisdictional waters, as applicable. Project specific delineation may be required to determine the limits of USACE, RWQCB, and CDFW jurisdiction. Required authorizations could include a Section 404 permit from the USACE, a Section 401 Water Quality Certification from the RWQCB, and a Section 1602 Streambed Alteration Agreement from CDFW.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Desktop Analysis conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or the applicant's representative and that I have no financial interest in the project.

SIGNED:  DATE: May 20, 2020

Shannan Shaffer
Senior Biologist

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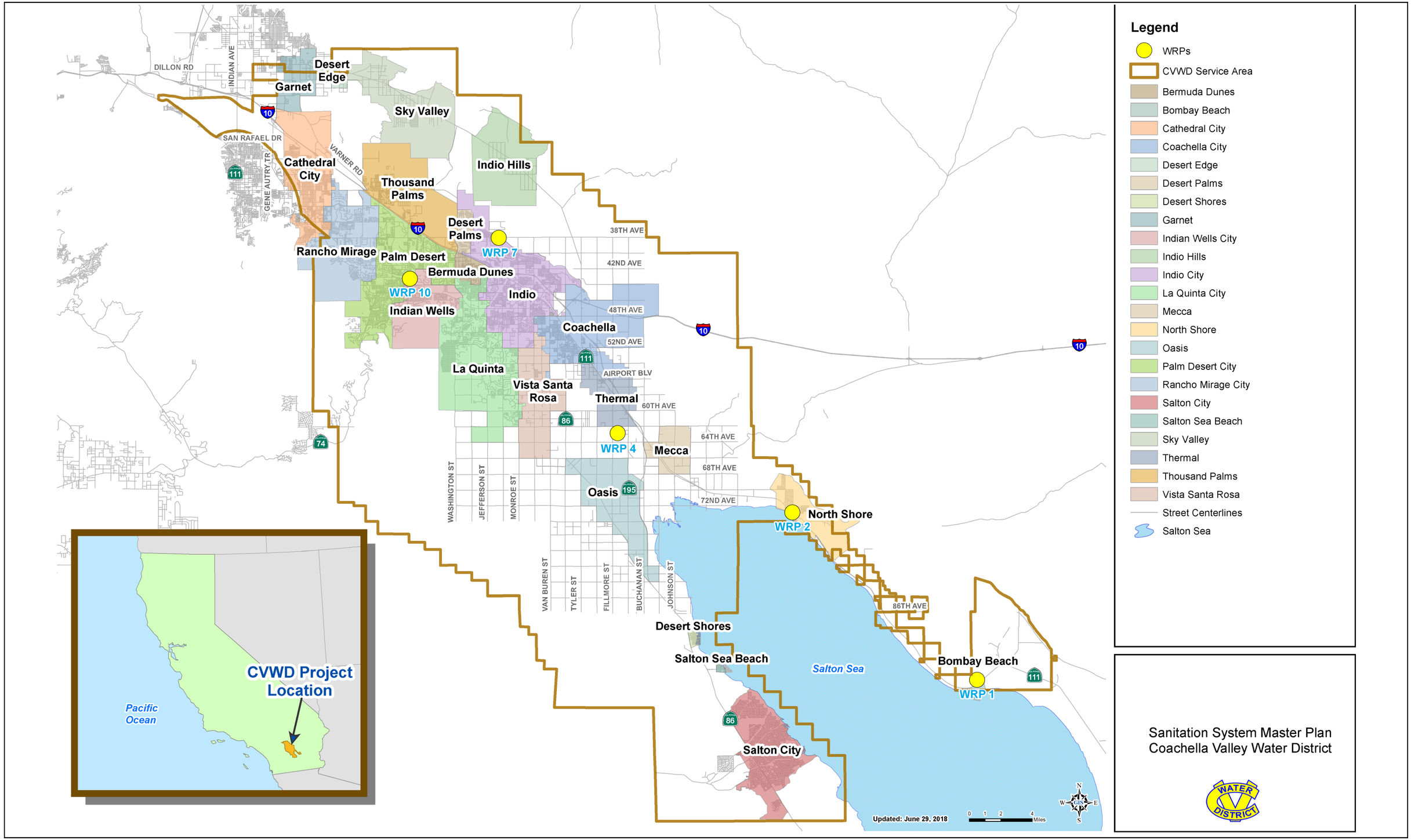
LIST OF APPENDICES

Appendix A – Figures

Appendix B – Project Description

APPENDIX A

Figures



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Source: AKEL Engineering

Figure 1: Project Location and CVWD Service Area
2019-144 CVWD Sanitation Master Plan

Desert Hot Springs
62
Cathedral City
Palm Springs
Rancho Mirage
Palm Desert
WRP #10
Indian Wells
WRP #7
Indio
86
10
Coachella
La Quinta
74
371
WRP #4
86S
195
111
WRP #2
WRP #1
Escondido

Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- W — WRP
- L — Lift Station
- A — Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

Sources: CVWD, USFWS, Esri

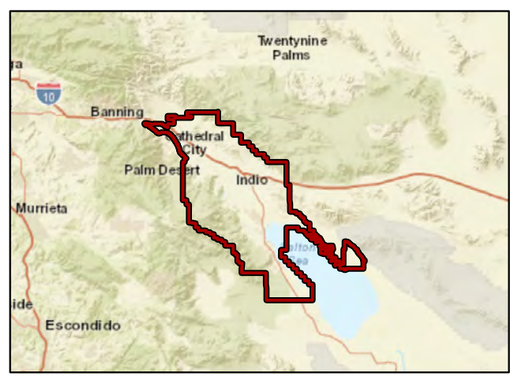

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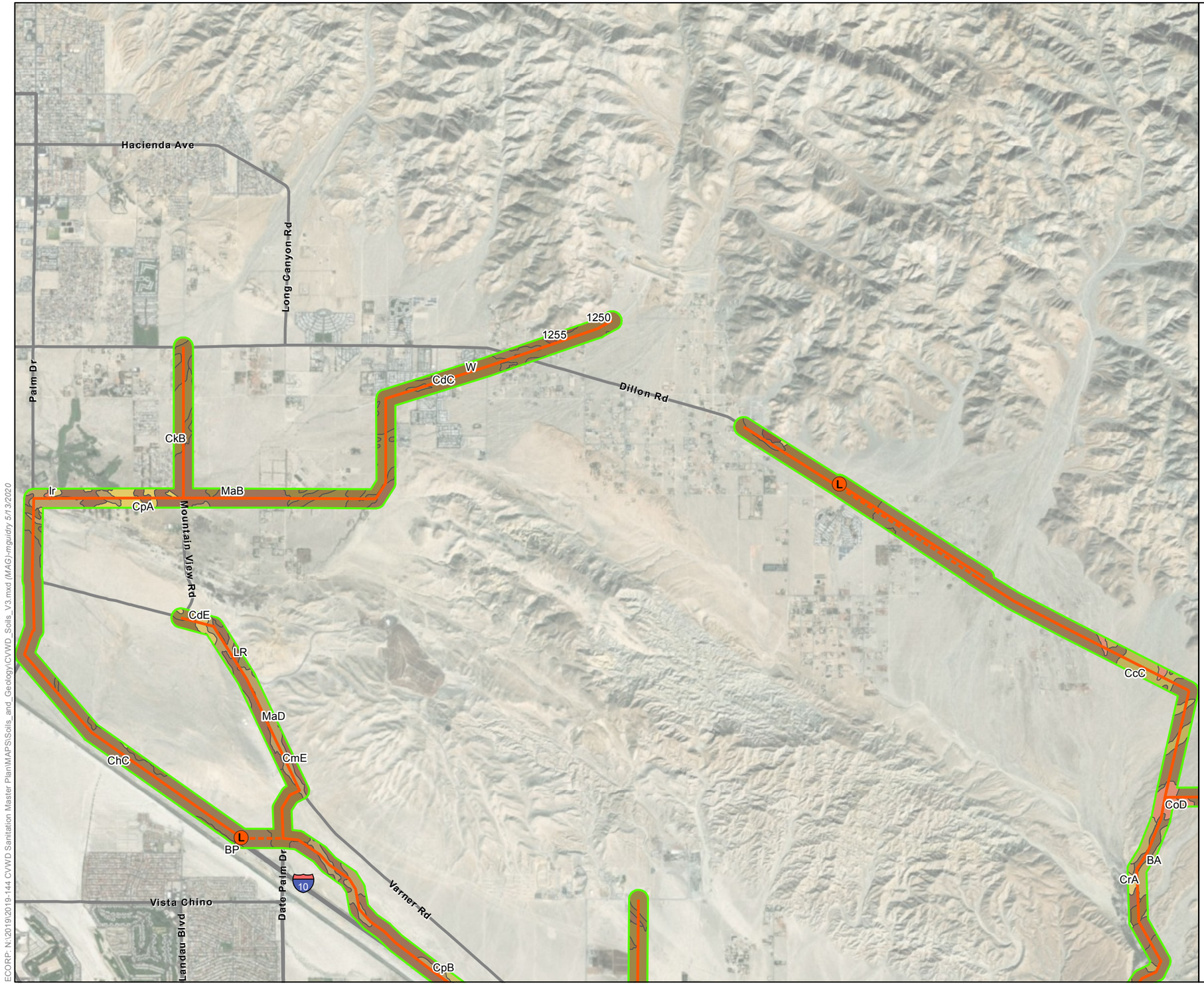
Figure 2: Biological Study Area

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- Lift Station

Capacity Pipe Improvements

- Force Main
- Gravity Main

Series Number - Series Name

- 1250 - Ironlung-Rock outcrop complex, 30 to 75 percent slopes
- 1255 - Goldenhills-Bulletproof-Fanhill-Whiterobe complex, 30 to 75 percent slopes
- BA - Badland
- BP - Borrow pits
- CcC - Carrizo stony sand, 2 to 9 percent slopes
- CdC - Carsitas gravelly sand, 0 to 9 percent slopes
- CdE - Carsitas gravelly sand, 9 to 30 percent slopes
- ChC - Carsitas cobbly sand, 2 to 9 percent slopes
- CkB - Carsitas fine sand, 0 to 5 percent slopes
- CmE - Carsitas variant, 5 to 30 percent slopes
- CoD - Chuckawalla very gravelly sandy clay loam, 5 to 15 percent slopes
- CpA - Coachella fine sand, 0 to 2 percent slopes
- CpB - Coachella fine sand, hummocky, 2 to 5 percent slopes
- CrA - Coachella fine sand, wet, 0 to 2 percent slopes
- Ir - Indio fine sandy loam, wet
- LR - Lithic Torripsamments-Rock outcrop complex
- MaB - Myoma fine sand, 0 to 5 percent slopes
- MaD - Myoma fine sand, 5 to 15 percent slopes
- W - Water

Sources: CVWD, USFWS, Esri

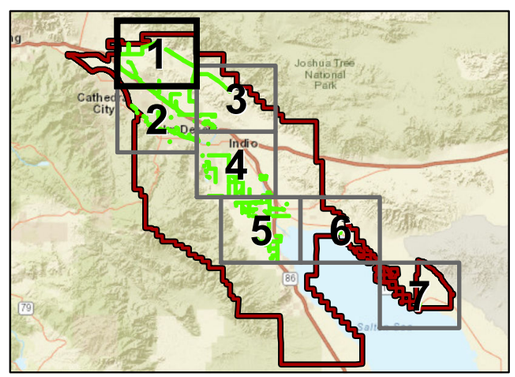


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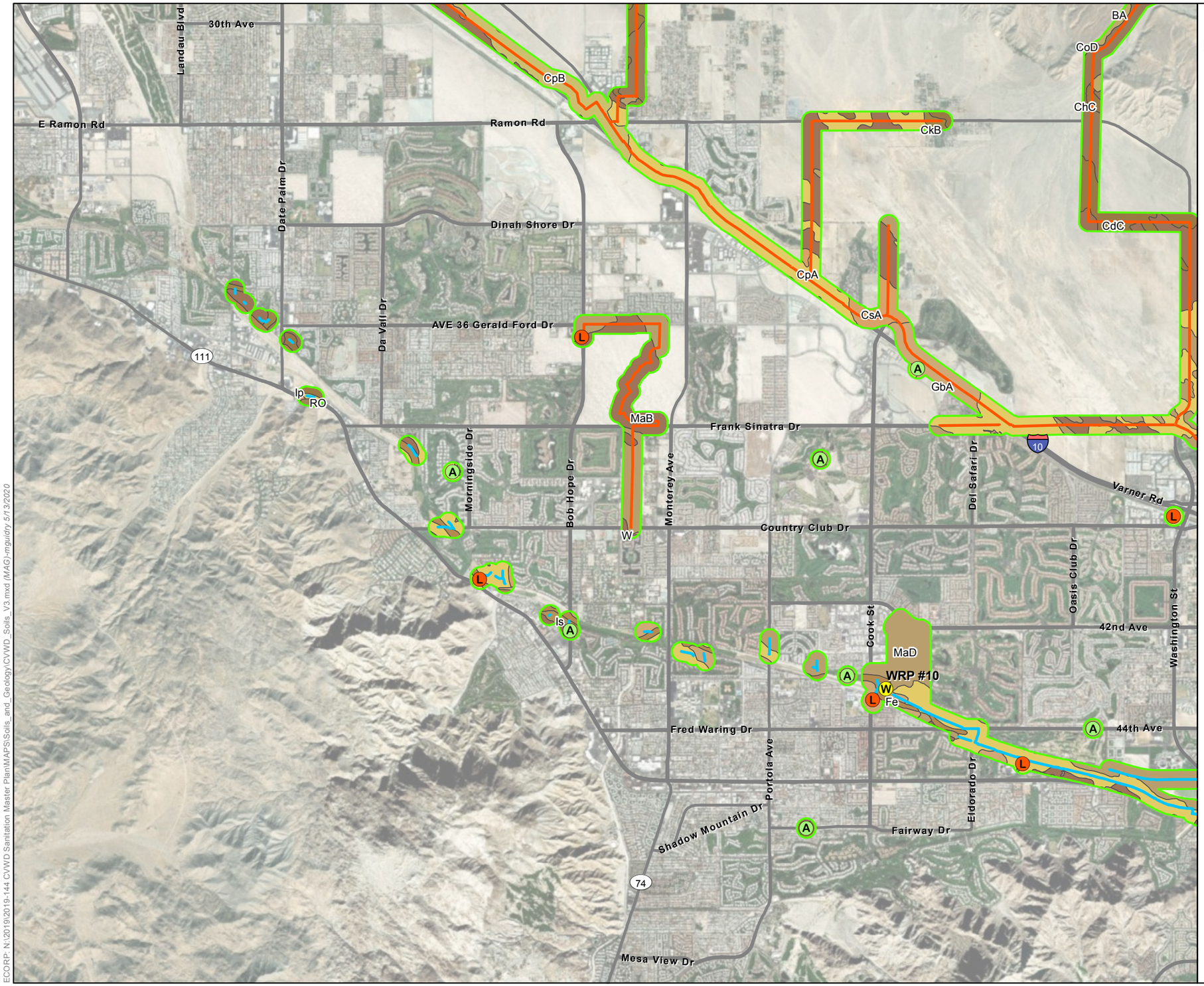
Figure 4: NRCS Soil Map Sheet 1 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

Series Number - Series Name

- BA - Badland
- CdC - Carsitas gravelly sand, 0 to 9 percent slopes
- ChC - Carsitas cobbly sand, 2 to 9 percent slopes
- CkB - Carsitas fine sand, 0 to 5 percent slopes
- CoD - Chuckawalla very gravelly sandy clay loam, 5 to 15 percent slopes
- CpA - Coachella fine sand, 0 to 2 percent slopes
- CpB - Coachella fine sand, hummocky, 2 to 5 percent slopes
- CsA - Coachella fine sandy loam, 0 to 2 percent slopes
- Fe - Fluvents
- GbA - Gilman fine sandy loam, 0 to 2 percent slopes
- Ip - Indio fine sandy loam
- Is - Indio very fine sandy loam
- MaB - Myoma fine sand, 0 to 5 percent slopes
- MaD - Myoma fine sand, 5 to 15 percent slopes
- RO - Rock outcrop
- W - Water

Sources: CVWD, USFWS, Esri

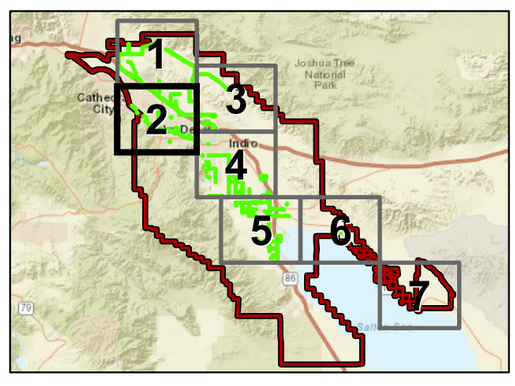


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Figure 4: NRCS Soil Map Sheet 2 of 7

2019-144 CVWD Sanitation Master Plan

Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- WRP
- Lift Station

Capacity Pipe Improvements

- Force Main
- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

Series Number - Series Name

- BP - Borrow pits
- CcC - Carrizo stony sand, 2 to 9 percent slopes
- CdC - Carsitas gravelly sand, 0 to 9 percent slopes
- ChC - Carsitas cobbly sand, 2 to 9 percent slopes
- CoB - Chuckawalla very gravelly sandy clay loam, 2 to 5 percent slopes
- CoD - Chuckawalla very gravelly sandy clay loam, 5 to 15 percent slopes
- CpA - Coachella fine sand, 0 to 2 percent slopes
- CsA - Coachella fine sandy loam, 0 to 2 percent slopes
- GaB - Gilman loamy fine sand, 0 to 5 percent slopes
- GbA - Gilman fine sandy loam, 0 to 2 percent slopes
- Ip - Indio fine sandy loam
- Is - Indio very fine sandy loam
- MaB - Myoma fine sand, 0 to 5 percent slopes
- MaD - Myoma fine sand, 5 to 15 percent slopes
- RO - Rock outcrop

Sources: CVWD, USFWS, Esri

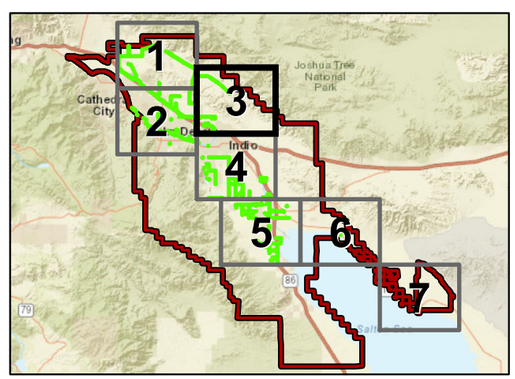

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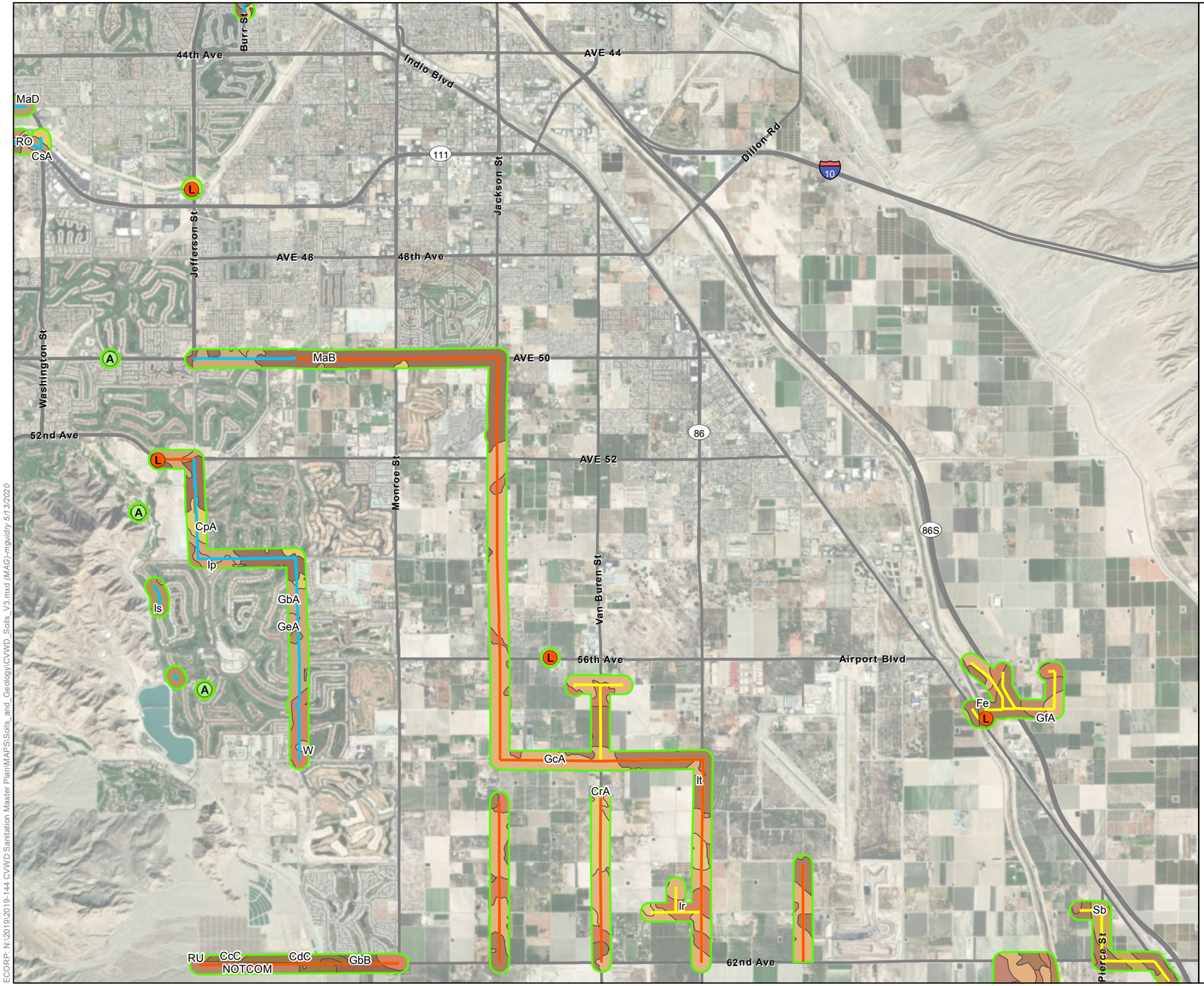
Figure 4: NRCS Soil Map Sheet 3 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements
- Force Main
- Gravity Main

Septic to Sewer
- Gravity Main

Renewal Pipe Improvements
- Whitewater Canal

Series Number - Series Name
- CcC - Carrizo stony sand, 2 to 9 percent slopes
- CdC - Carsitas gravelly sand, 0 to 9 percent slopes
- CpA - Coachella fine sand, 0 to 2 percent slopes
- CrA - Coachella fine sand, wet, 0 to 2 percent slopes
- CsA - Coachella fine sandy loam, 0 to 2 percent slopes
- Fe - Fluvents
- GbA - Gilman fine sandy loam, 0 to 2 percent slopes
- GbB - Gilman fine sandy loam, 2 to 5 percent slopes
- GcA - Gilman fine sandy loam, wet, 0 to 2 percent slopes
- GeA - Gilman silt loam, 0 to 2 percent slopes
- GfA - Gilman silt loam, wet, 0 to 2 percent slopes
- Ip - Indio fine sandy loam
- Ir - Indio fine sandy loam, wet
- Is - Indio very fine sandy loam
- It - Indio very fine sandy loam, wet
- MaB - Myoma fine sand, 0 to 5 percent slopes
- MaD - Myoma fine sand, 5 to 15 percent slopes
- NOTCOM - No Digital Data Available
- RO - Rock outcrop
- RU - Rubble land
- Sb - Salton silty clay loam
- W - Water

Sources: CVWD, USFWS, Esri

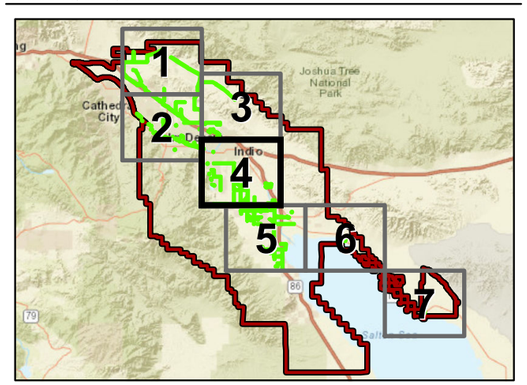


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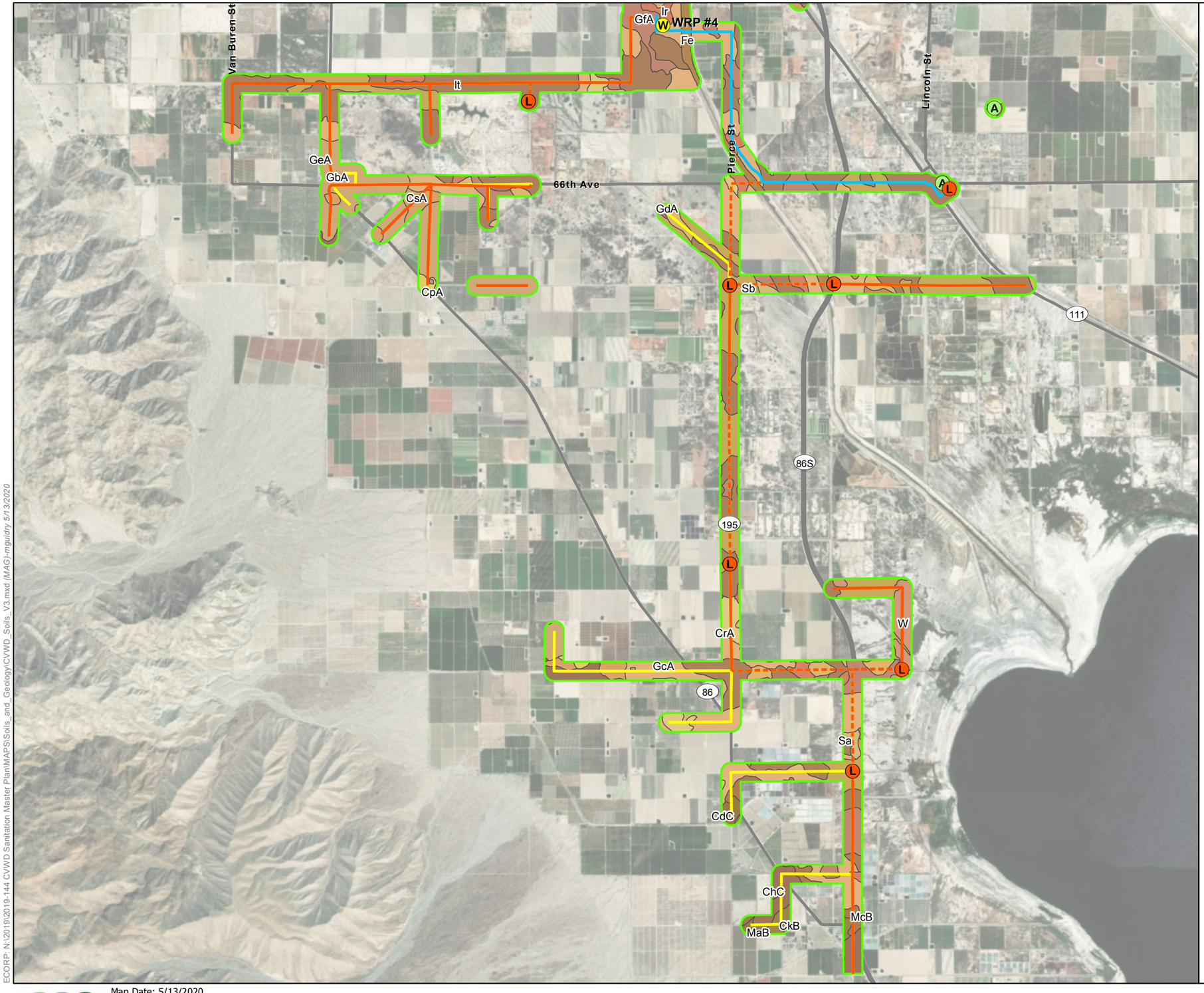
Figure 4: NRCS Soil Map Sheet 4 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

Series Number - Series Name

- CdC - Carsitas gravelly sand, 0 to 9 percent slopes
- ChC - Carsitas cobbly sand, 2 to 9 percent slopes
- CkB - Carsitas fine sand, 0 to 5 percent slopes
- CpA - Coachella fine sand, 0 to 2 percent slopes
- CrA - Coachella fine sand, wet, 0 to 2 percent slopes
- CsA - Coachella fine sandy loam, 0 to 2 percent slopes
- Fe - Fluvents
- GbA - Gilman fine sandy loam, 0 to 2 percent slopes
- GcA - Gilman fine sandy loam, wet, 0 to 2 percent slopes
- GdA - Gilman fine sandy loam, moderately fine substratum, 0 to 2 percent slopes
- GeA - Gilman silt loam, 0 to 2 percent slopes
- GfA - Gilman silt loam, wet, 0 to 2 percent slopes
- Ir - Indio fine sandy loam, wet
- It - Indio very fine sandy loam, wet
- MaB - Myoma fine sand, 0 to 5 percent slopes
- McB - Myoma fine sand, wet, 0 to 5 percent slopes
- Sa - Salton fine sandy loam
- Sb - Salton silty clay loam
- W - Water

Sources: CVWD, USFWS, Esri

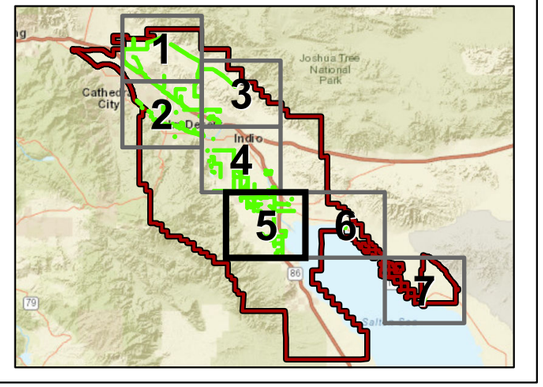


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Figure 4: NRCS Soil Map Sheet 5 of 7

2019-144 CVWD Sanitation Master Plan

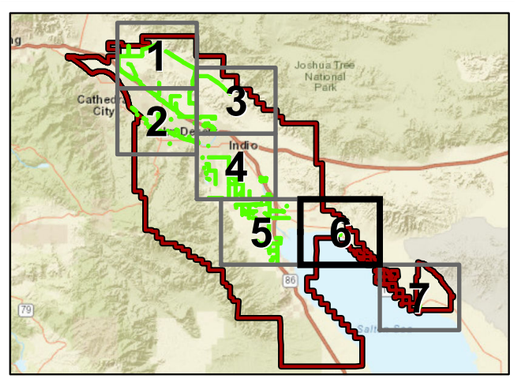
Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- WRP

Series Number - Series Name

- CdC - Carsitas gravelly sand, 0 to 9 percent slopes

Sources: CVWD, USFWS, Esri



ECORP: N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\Soils_and_Geology\CVWD_Soils_V3.mxd (MAG)-mguidry 5/13/2020

Map Date: 5/13/2020

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Figure 4: NRCS Soil Map Sheet 6 of 7

2019-144 CVWD Sanitation Master Plan

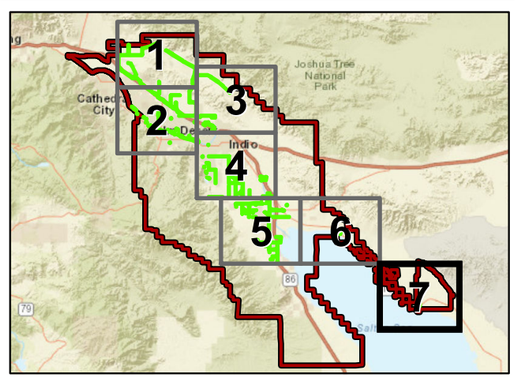
Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)
- WRP

Series Number - Series Name

- NOTCOM - No Digital Data Available

Sources: CVWD, USFWS, Esri



ECORP- N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\Soils_and_Geology\CVWD_Soils_V3.mxd (MAG)-mguidry 5/13/2020

Map Date: 5/13/2020

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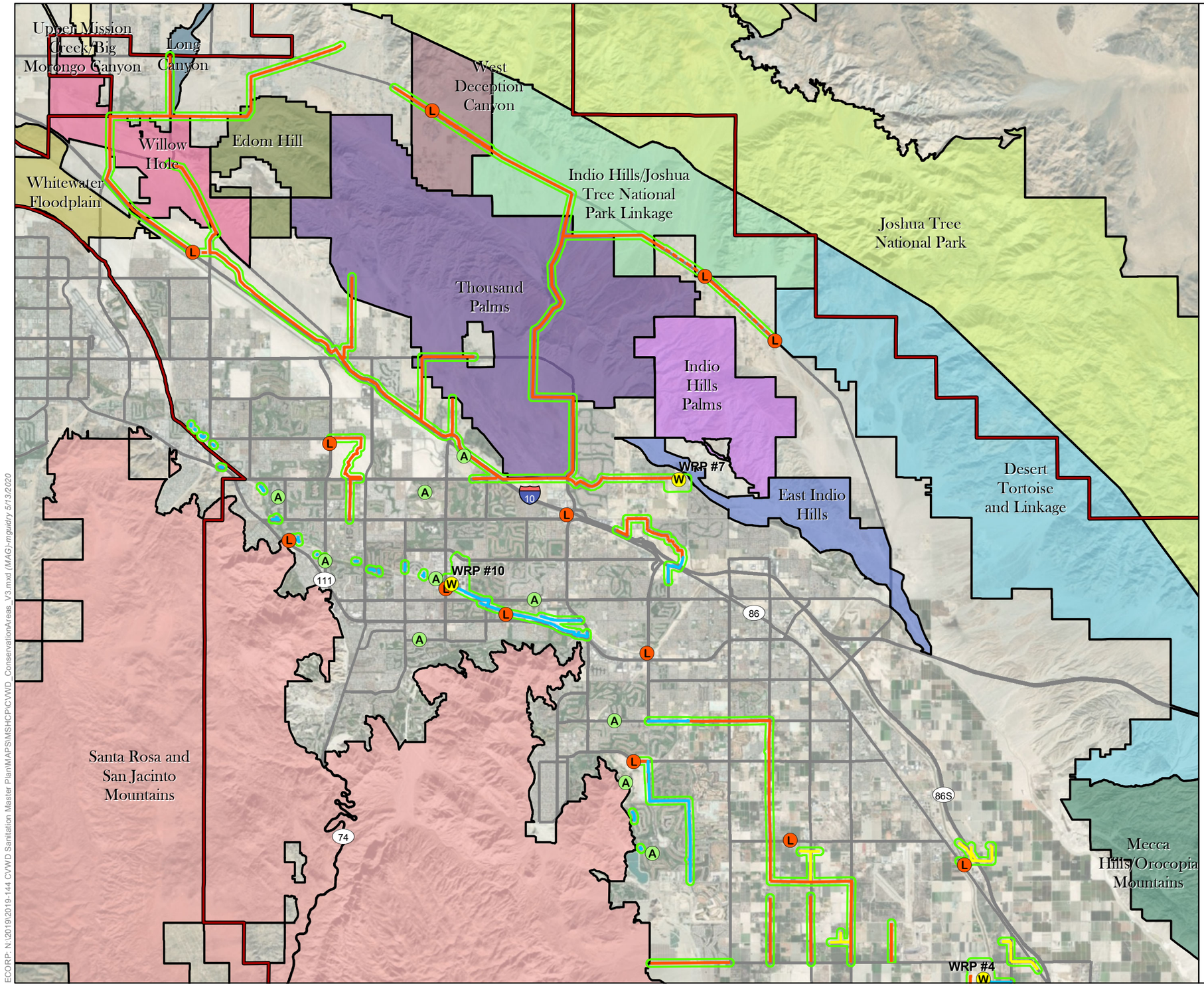
Figure 4: NRCS Soil Map Sheet 7 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Gravity Main

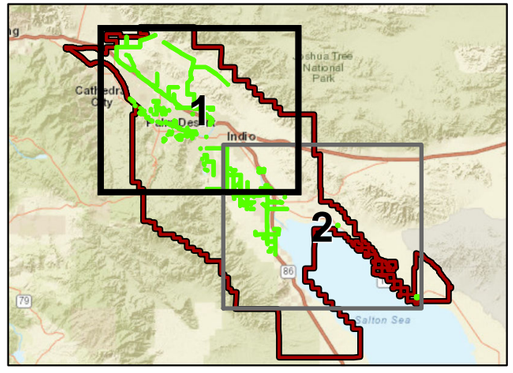
Renewal Pipe Improvements

- Whitewater Canal

Conservation Area

- Desert Tortoise and Linkage Conservation
- East Indio Hills Conservation Area
- Edom Hill Conservation Area
- Indio Hills Palms Conservation Area
- Indio Hills/Joshua Tree National Park Linkage Conservation Area
- Joshua Tree National Park Conservation
- Long Canyon Conservation Area
- Mecca Hills/Orocopia Mountains Conservation Area
- Santa Rosa and San Jacinto Mountains Conservation Area
- Thousand Palms Conservation Area
- Upper Mission Creek/Big Morongo Canyon Conservation Area
- West Deception Canyon Conservation Area
- Whitewater Floodplain Conservation Area
- Willow Hole Conservation Area

Sources: CVWD, USFWS, Esri



ECORP- N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\MSHCP\CVWD_ConservationAreas_V3.mxd (MAG)-mguidry 5/13/2020

Map Date: 5/13/2020

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Figure 5: CVMSHCP Conservation Areas Sheet 1 of 2

2019-144 CVWD Sanitation Master Plan

Joshua Tree National Park

Desert Tortoise and Linkage

Mecca Hills/Orocopia Mountains

Coachella Valley Stormwater Channel and Delta

Santa Rosa and San Jacinto Mountains

Dos Palmas

WRP #4

WRP #2

WRP #1

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Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

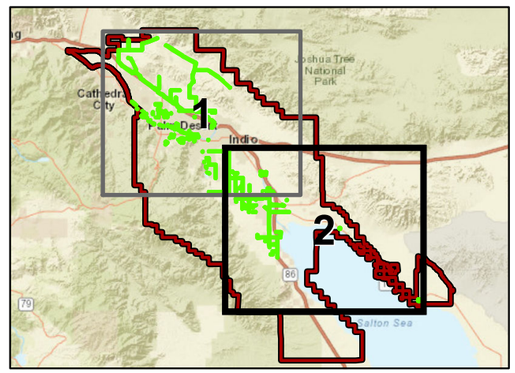
Renewal Pipe Improvements

- Whitewater Canal

Conservation Area

- Coachella Valley Stormwater Channel and Delta Conservation Area
- Desert Tortoise and Linkage Conservation
- Dos Palmas Conservation Area
- Joshua Tree National Park Conservation
- Mecca Hills/Orocopia Mountains Conservation Area
- Santa Rosa and San Jacinto Mountains Conservation Area

Sources: CVWD, USFWS, Esri



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Map Date: 5/13/2020

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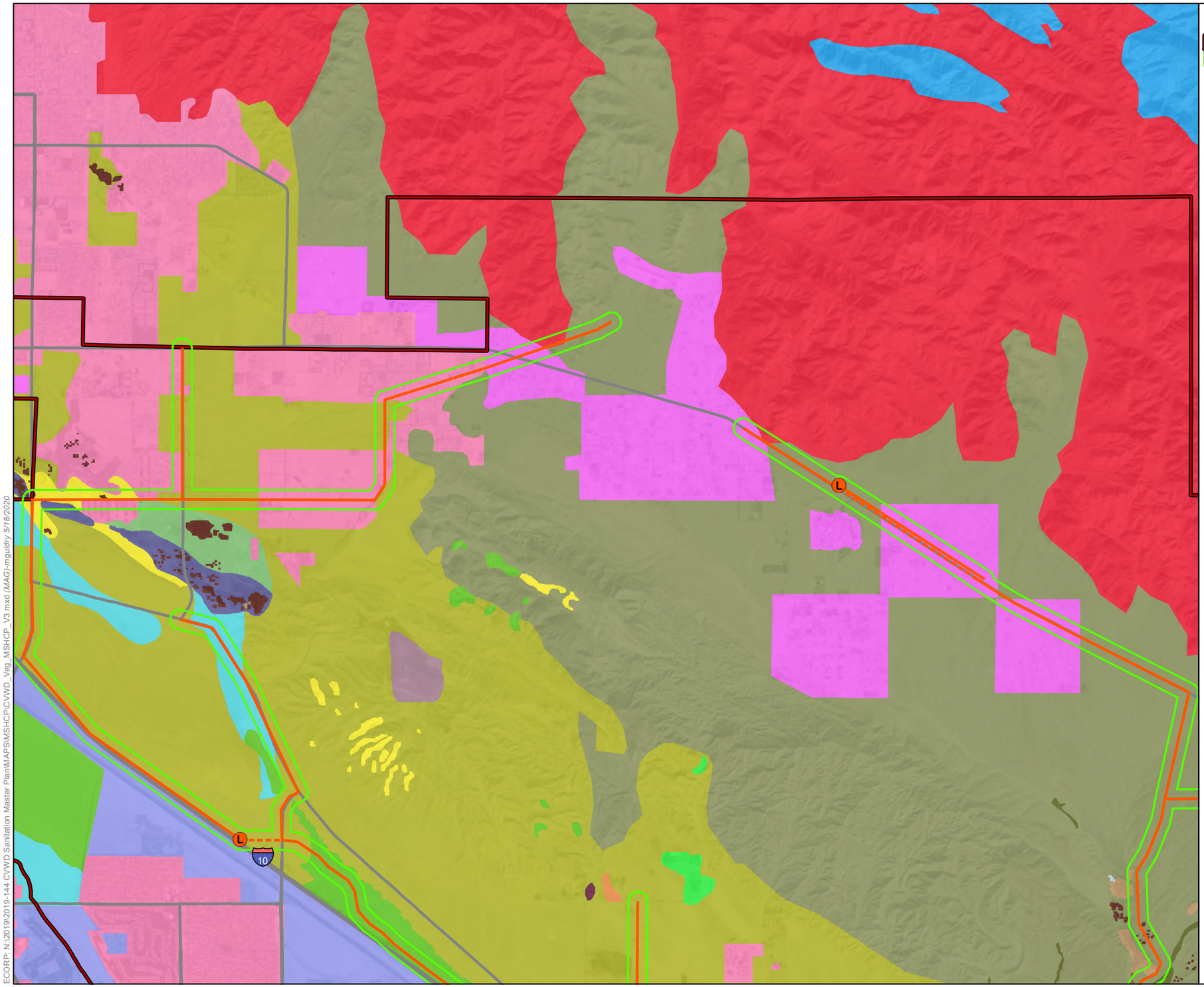
Figure 5: CVMSHCP Conservation Areas Sheet 2 of 2

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- Lift Station

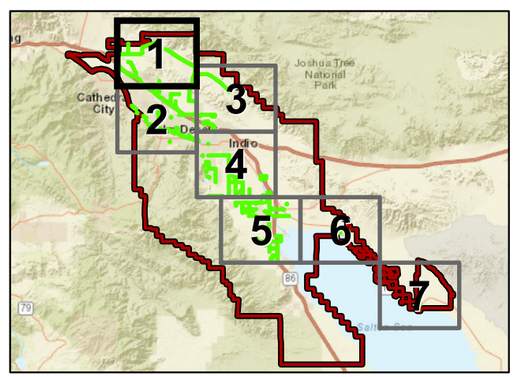
Capacity Pipe Improvements

- Force Main
- Gravity Main

Vegetation Community

- Active desert dunes
- Active sand fields
- Desert dry wash woodland
- Desert fan palm oasis woodland
- Desert saltbush scrub
- Ephemeral sand fields
- Landfill
- Landfill (Edom Hill)
- Mesquite hummocks
- Mojave mixed woody scrub
- Mojavean pinyon & juniper woodland
- Quarry (A1 plant)
- Quarry (Yeager)
- Rural
- Sonoran cottonwood-willow riparian forest
- Sonoran creosote bush scrub
- Sonoran mixed woody & succulent scrub
- Stabilized desert dunes
- Stabilized desert sand fields
- Stabilized shielded sand fields
- Urban

Sources: CVWD, CDFW, CVMSHCP, Esri



ECORP: N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\MSHCP\CVWD_Veg_MSHCP_V3.mxd (MAG)-mguidry 5/18/2020

Map Date: 5/13/2020

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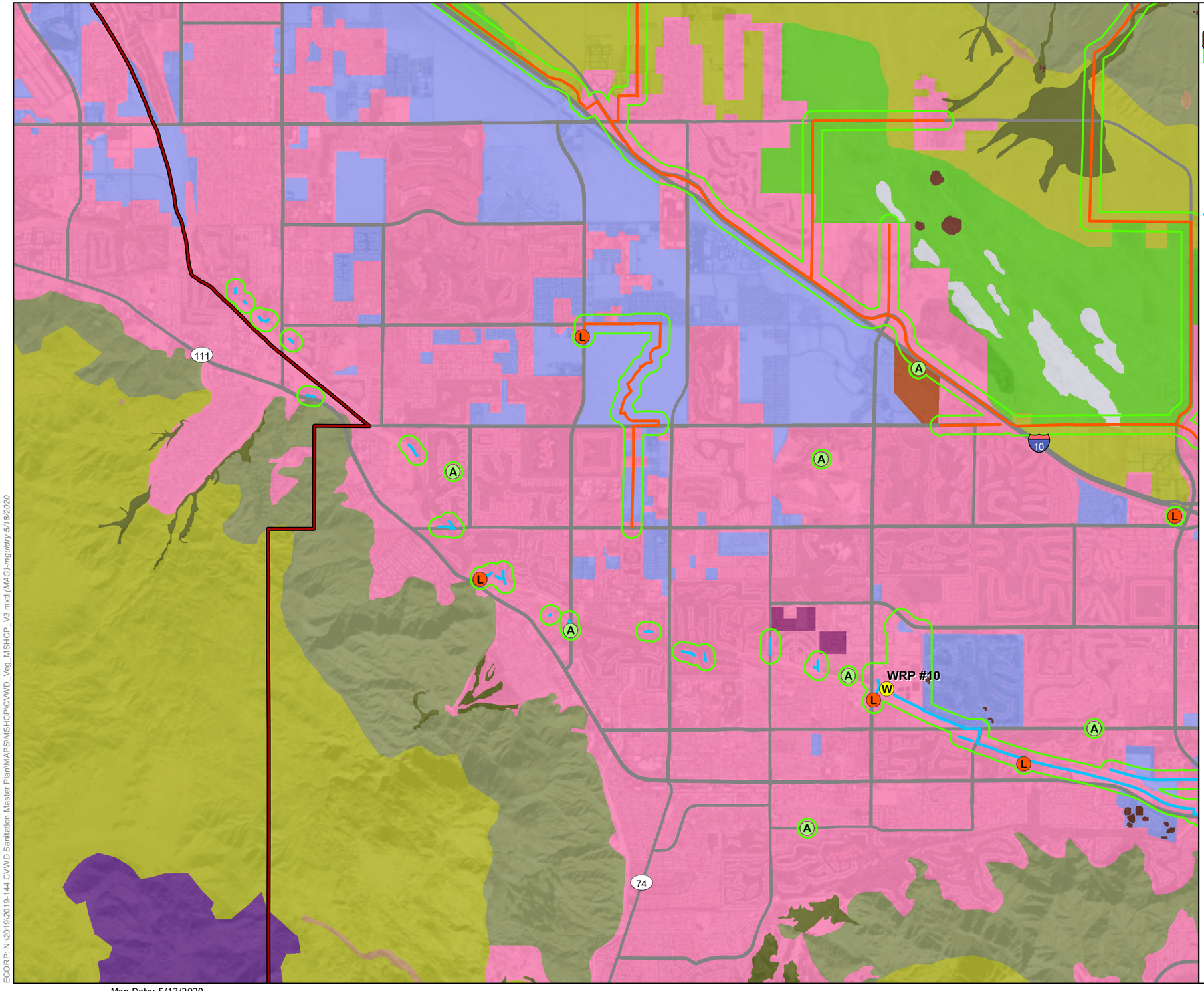
Figure 6: Natural Communities Sheet 1 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Gravity Main

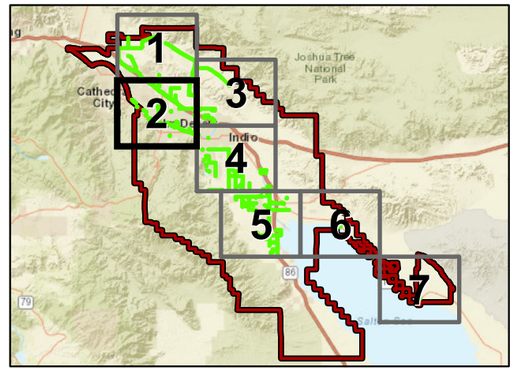
Renewal Pipe Improvements

- Whitewater Canal

Vegetation Community

- Active desert dunes
- Active sand fields
- Active shielded desert dunes
- Agriculture
- Desert dry wash woodland
- Desert fan palm oasis woodland
- Mesquite hummocks
- Peninsular juniper woodland & scrub
- Sonoran cottonwood-willow riparian forest
- Sonoran creosote bush scrub
- Sonoran mixed woody & succulent scrub
- Stabilized shielded sand fields
- Urban

Sources: CVWD, CDFW, CVMSHCP, Esri



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Map Date: 5/13/2020

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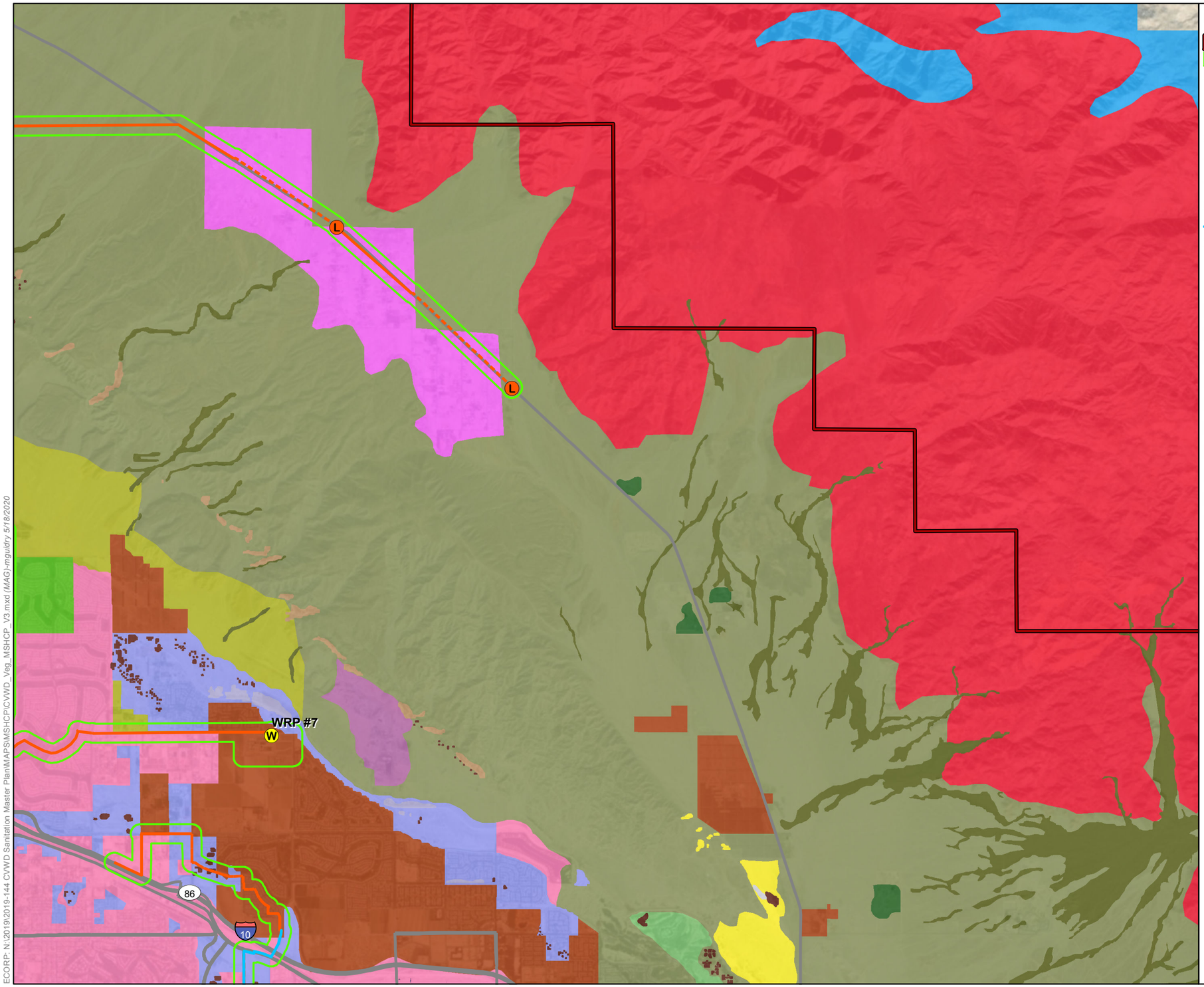
Figure 6: Natural Communities Sheet 2 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station

Capacity Pipe Improvements

- Force Main
- Gravity Main

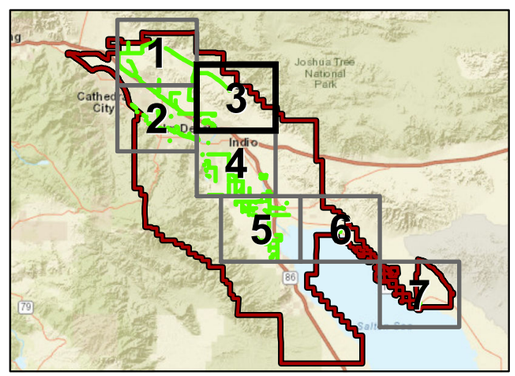
Renewal Pipe Improvements

- Whitewater Canal

Vegetation Community

- Active desert dunes
- Active sand fields
- Agriculture
- Coastal and valley freshwater marsh
- Desert dry wash woodland
- Desert fan palm oasis woodland
- Desert saltbush scrub
- Mesquite hummocks
- Mojave mixed woody scrub
- Mojavean pinyon & juniper woodland
- Quarry
- Quarry (Granite Construction)
- Rural
- Sonoran creosote bush scrub
- Sonoran mixed woody & succulent scrub
- Stabilized desert sand fields
- Stabilized shielded sand fields
- Tamarisk scrub
- Urban

Sources: CVWD, CDFW, CVMSHCP, Esri



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Map Date: 5/13/2020

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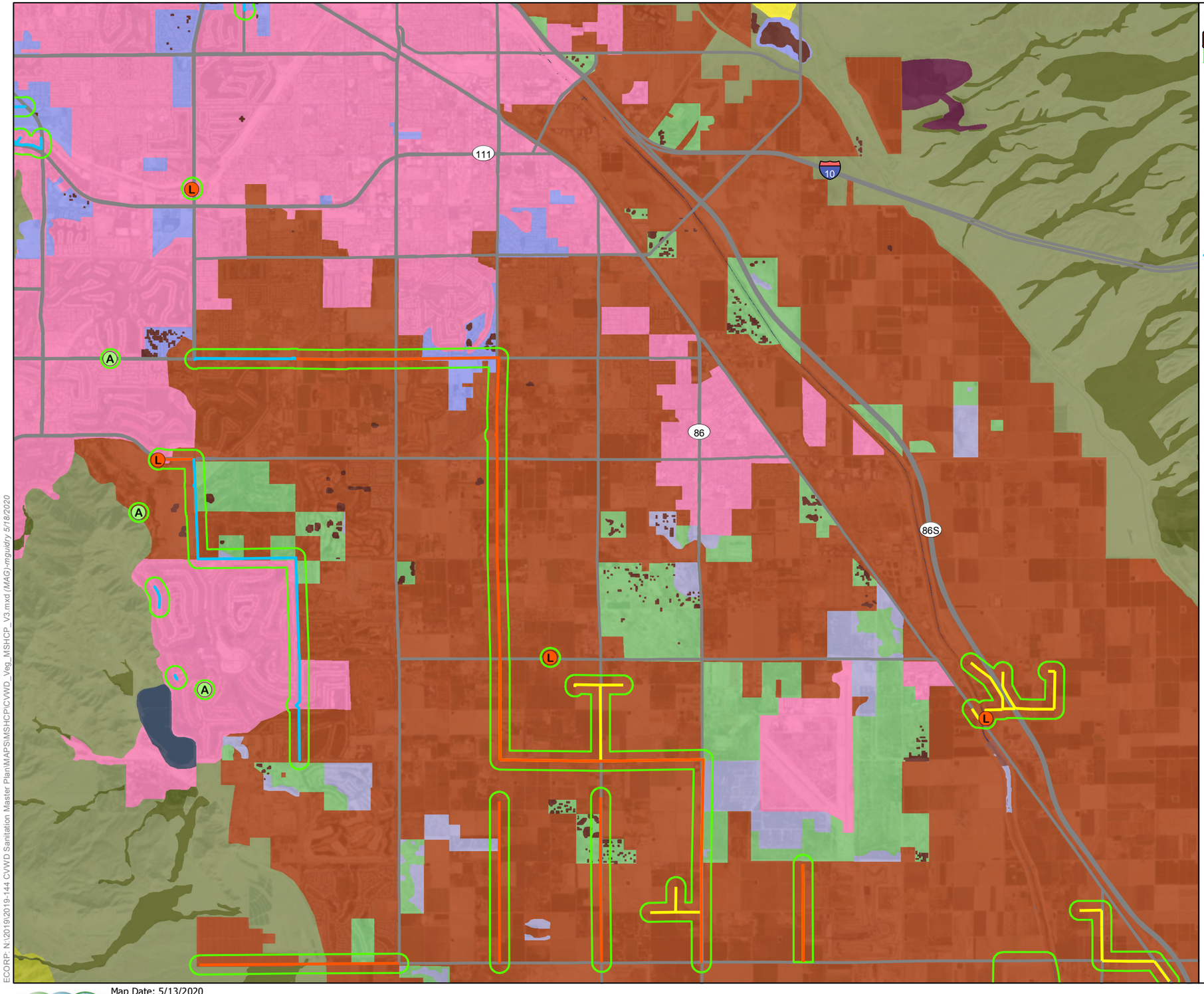
Figure 6: Natural Communities Sheet 3 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

Coachella Valley Water District Service Area

Biological Study Area (500' Buffer)

Project Components

Lift Station

Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

Force Main

Gravity Main

Septic to Sewer

Gravity Main

Renewal Pipe Improvements

Whitewater Canal

Vegetation Community

Agriculture

Coastal and valley freshwater marsh

Desert dry wash woodland

Desert saltbush scrub

Landfill

Mesquite hummocks

Reservoir

Sonoran cottonwood-willow riparian forest

Sonoran creosote bush scrub

Sonoran mixed woody & succulent scrub

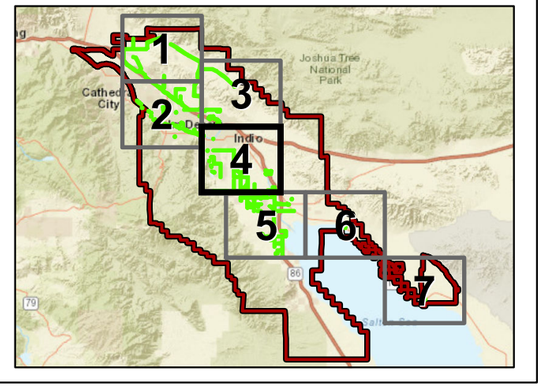
Stabilized desert sand fields

Stabilized shielded sand fields

Tamarisk scrub

Urban

Sources: CVWD, CDFW, CVMSHCP, Esri



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Map Date: 5/13/2020

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Figure 6: Natural Communities Sheet 4 of 7

2019-144 CVWD Sanitation Master Plan

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Map Features

Coachella Valley Water District Service Area

Biological Study Area (500' Buffer)

Project Components

WRP

Lift Station

Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

Force Main

Gravity Main

Septic to Sewer

Force Main

Gravity Main

Renewal Pipe Improvements

Whitewater Canal

Vegetation Community

Agriculture

Coastal and valley freshwater marsh

Desert dry wash woodland

Desert saltbush scrub

Desert sink scrub

Lake

Mesquite hummocks

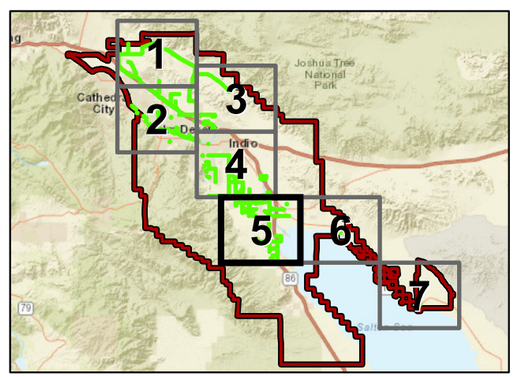
Sonoran cottonwood-willow riparian forest

Sonoran creosote bush scrub

Sonoran mixed woody & succulent scrub

Tamarisk scrub

Sources: CVWD, CDFW, CVMSHCP, Esri



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Map Date: 5/13/2020

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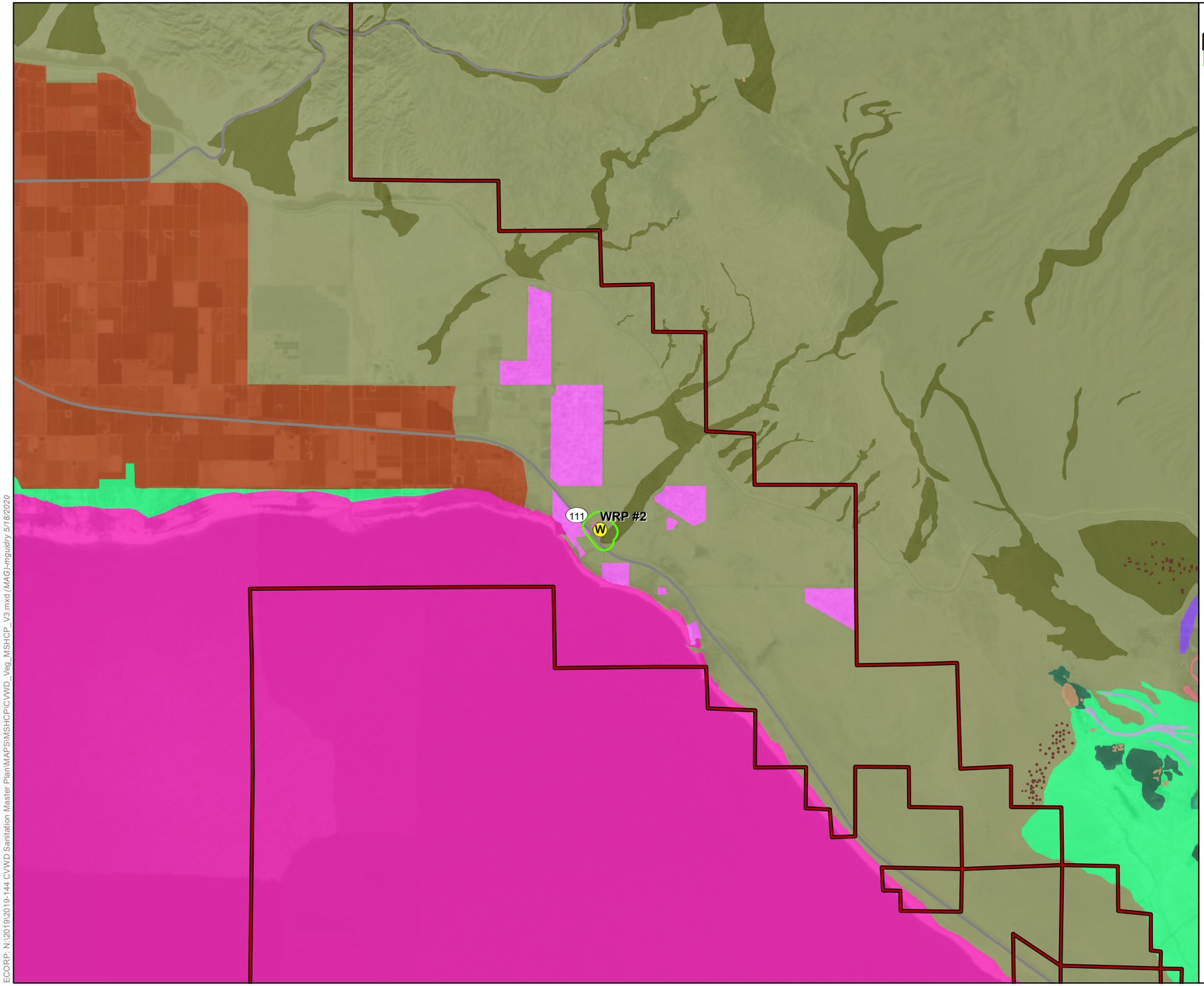
Figure 6: Natural Communities Sheet 5 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

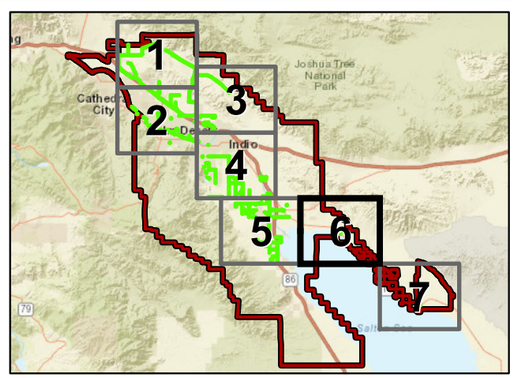
Project Components

- WRP

Vegetation Community

- Agriculture
- Arrowweed scrub
- Cismontane alkali marsh
- Desert dry wash woodland
- Desert fan palm oasis woodland
- Desert sink scrub
- Lake
- Mesquite hummocks
- Naturally Barren Landscape
- Palo Verde
- Reservoir (ponds at Dos Palmas)
- Reservoir (water ski pond)
- Rural
- Sonoran creosote bush scrub
- Tamarisk scrub

Sources: CVWD, CDFW, CVMSHCP, Esri



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Map Date: 5/13/2020

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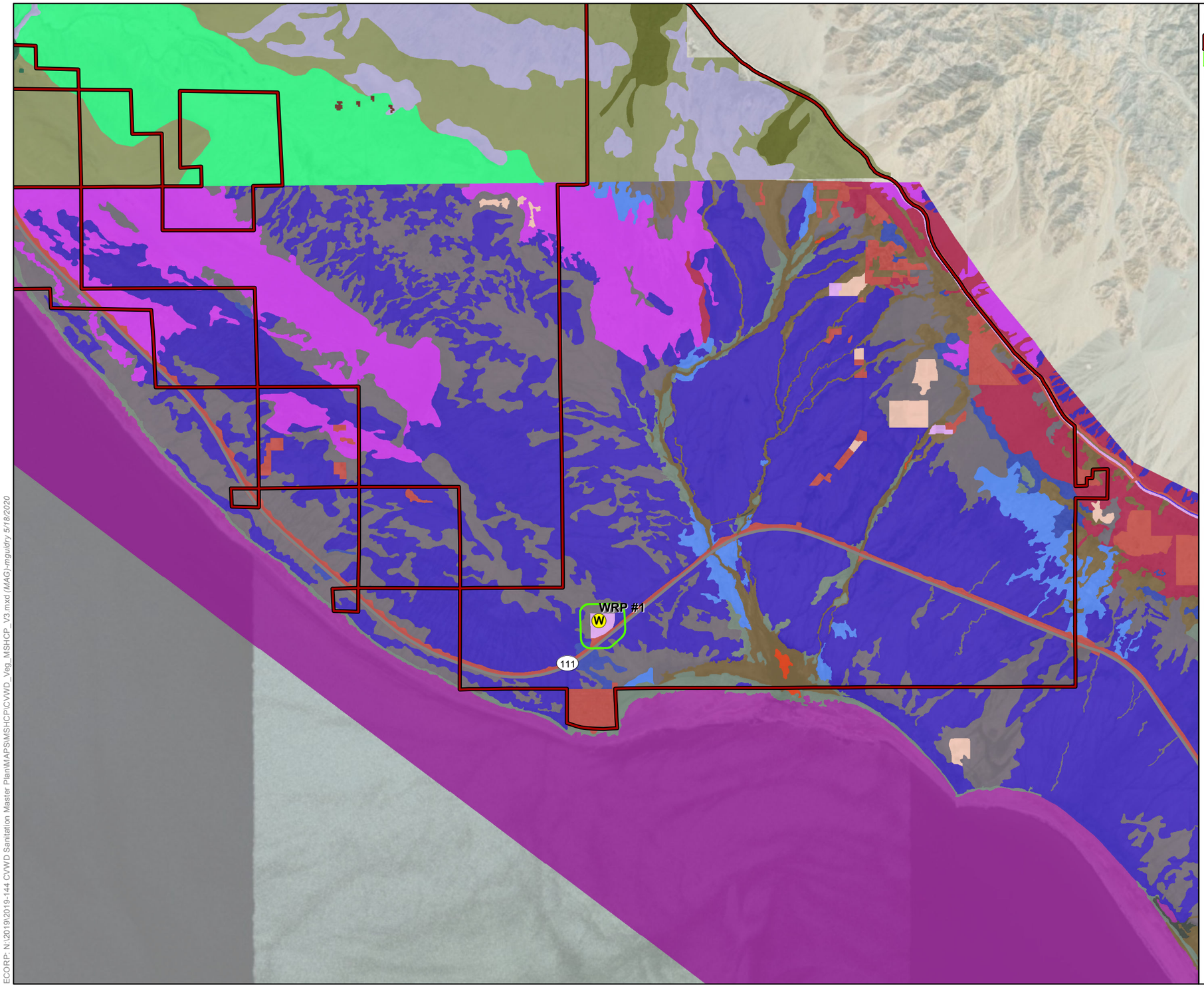
Figure 6: Natural Communities Sheet 6 of 7

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

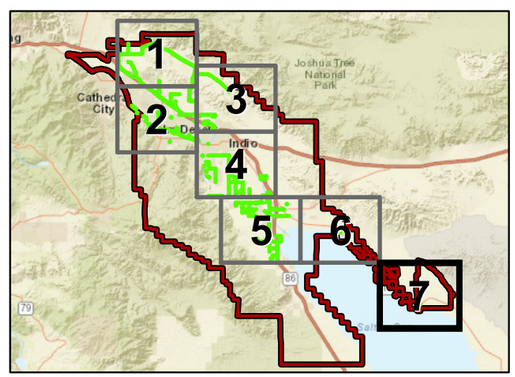
Project Components

- WRP

Vegetation Community

- Alkaline Mixed Grasses and Forbs
- Alkaline Mixed Scrub
- Arrowweed
- Arrowweed scrub
- Barren
- Creosote Bush
- Desert dry wash woodland
- Desert sink scrub
- Developed Water Features
- Greasewood
- Mesquite
- Mesquite hummocks
- Palo Verde
- Saltbush
- Sonoran creosote bush scrub
- Tamarisk
- Tamarisk scrub
- Tule-Cattail
- Urban - Related Bare Soil
- Urban or Developed
- Water (General)

Sources: CVWD, CDFW, CVMSHCP, Esri



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Map Date: 5/13/2020

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Figure 6: Natural Communities Sheet 7 of 7

2019-144 CVWD Sanitation Master Plan

WRP #7
WRP #10
WRP #4
WRP #2
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Map Features

Coachella Valley Water District Service Area

Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

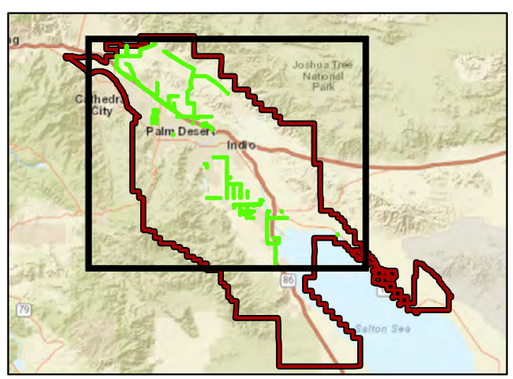
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Coachella Valley Milkvetch
- Mecca Aster

Sources: CVWD, USFWS, Esri



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Map Date: 5/19/2020

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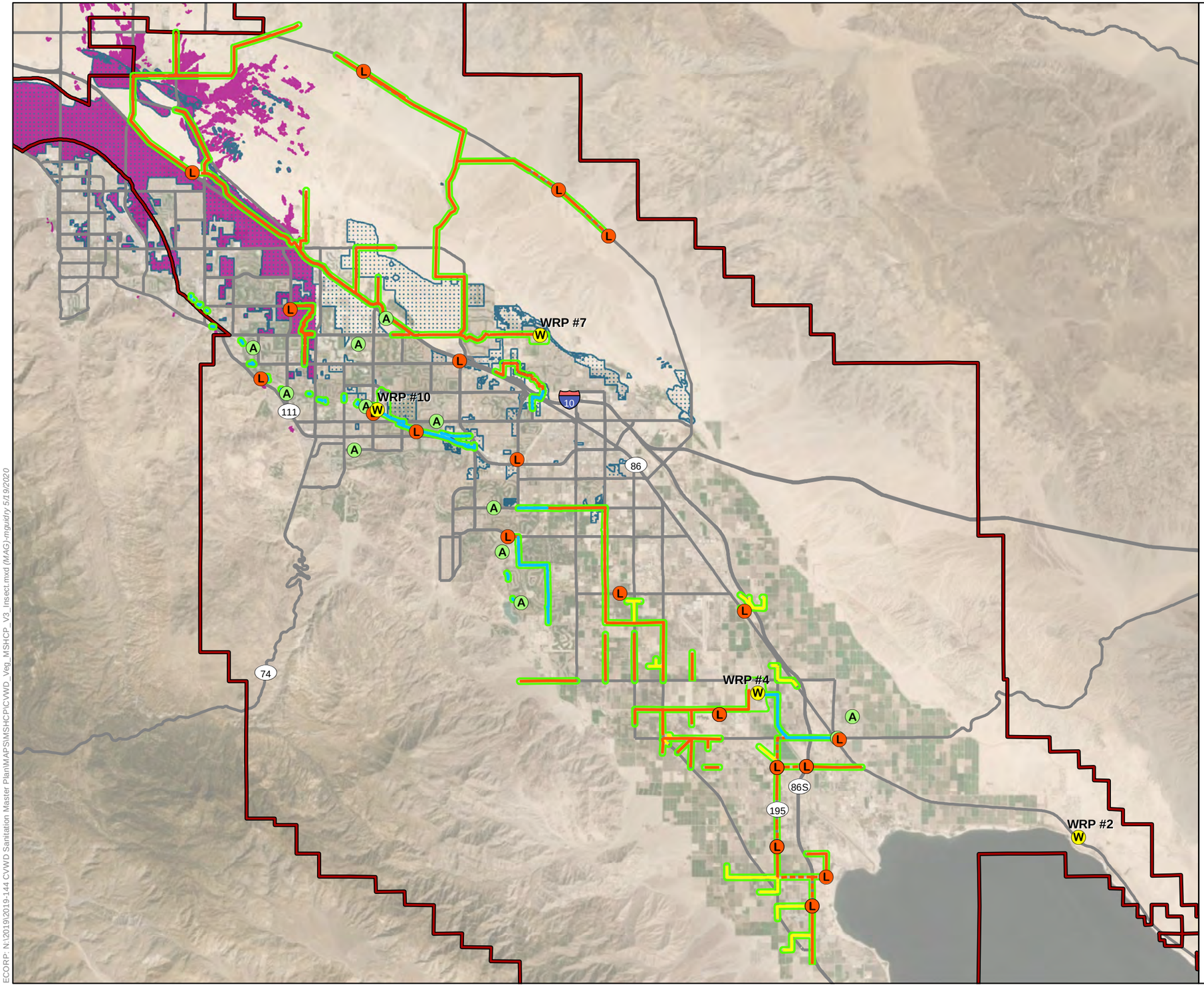
Figure 7: CVMSHCP Modeled Plant Habitat

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

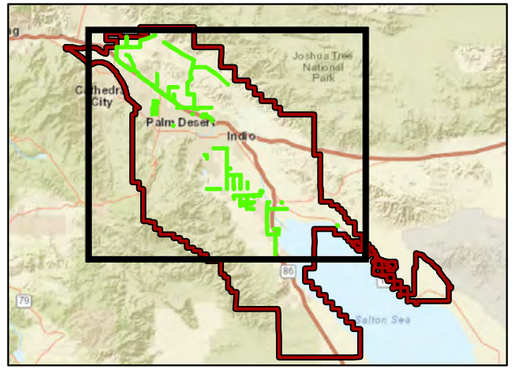
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Coachella Giant Sand Treader Cricket
- Coachella Valley Jerusalem Cricket

Sources: CVWD, USFWS, Esri



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Map Date: 5/19/2020

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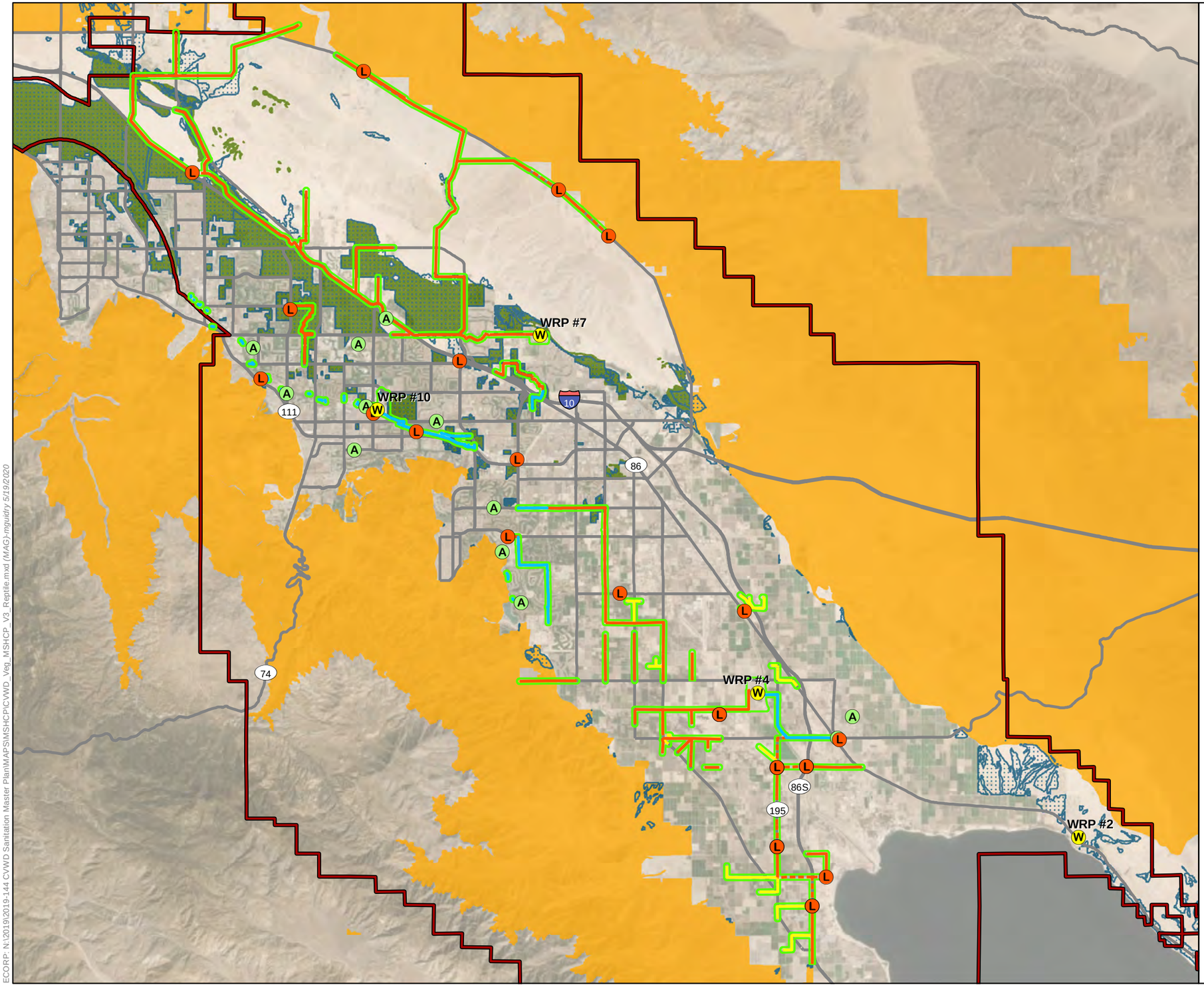
Figure 8: CVMSHCP Modeled Insect Habitat

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

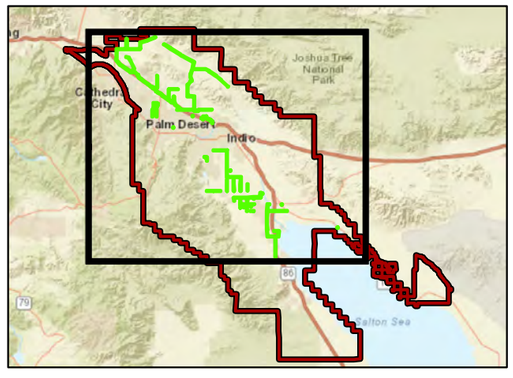
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Desert Tortoise
- Flat-tailed Horned Lizard
- Fringe-toed Lizard

Sources: CVWD, USFWS, Esri



Map Date: 5/19/2020

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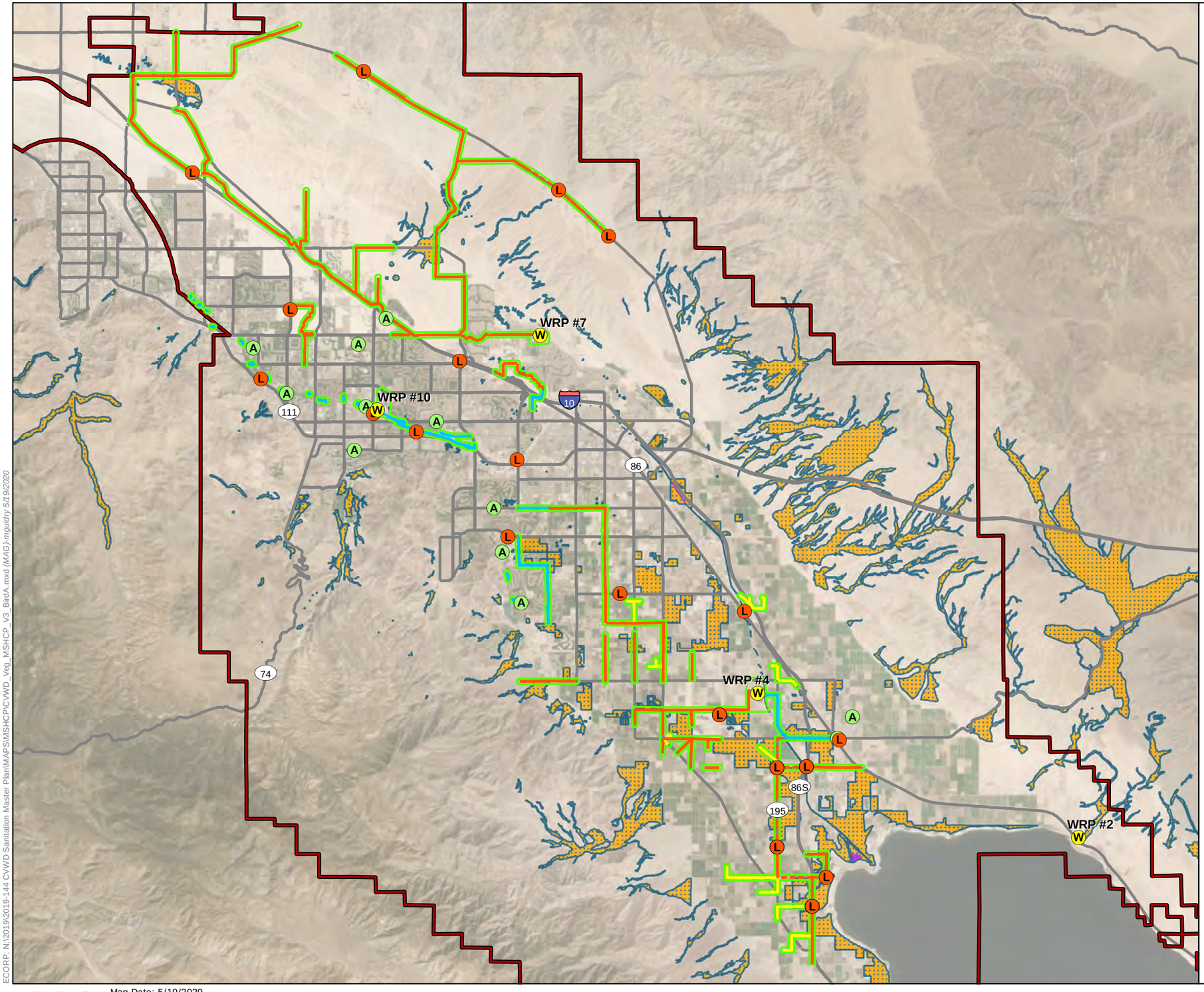
Figure 9: CVMSHCP Modeled Reptile Habitat

2019-144 CVWD Sanitation Master Plan

ECORP- N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\MSHCP\CVWD_Veg_MSHCP_V3_Reptile.mxd (MAG)-mguidry 5/19/2020



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

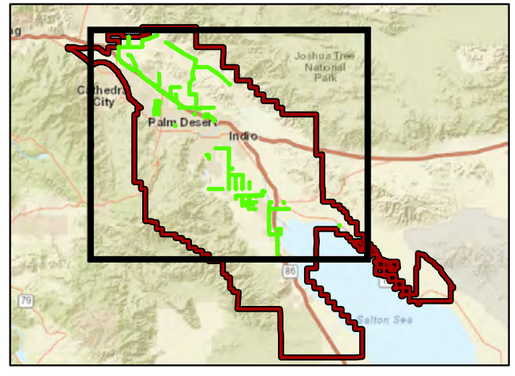
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Summer Tanager
- California Black Rail
- Yellow-breasted Chat

Sources: CVWD, USFWS, Esri



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Map Date: 5/19/2020

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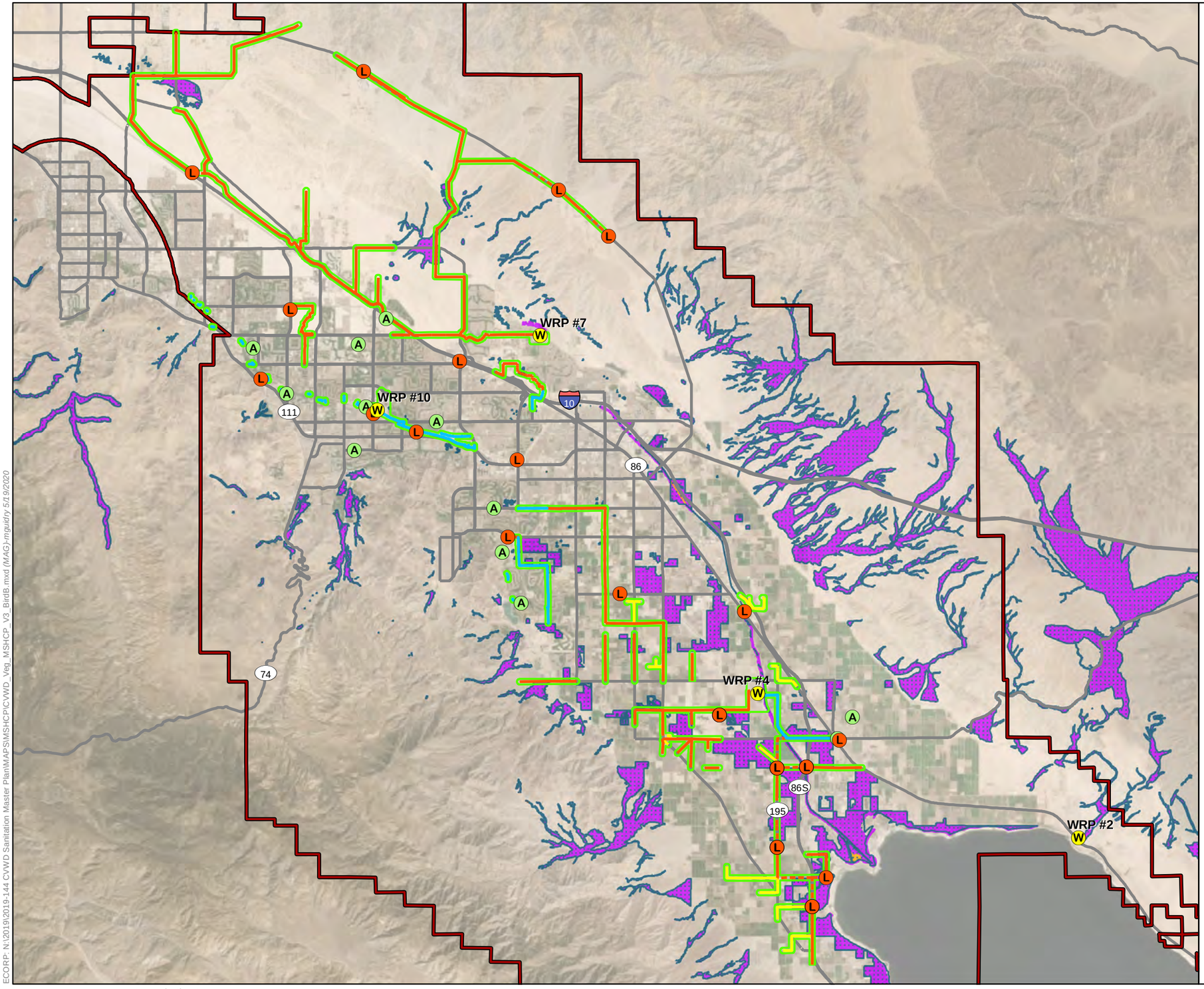
Figure 10a: CVMSHCP Modeled Bird Habitat

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

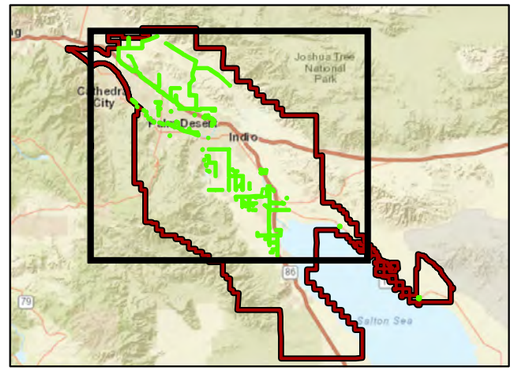
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Least Bell's Vireo
- Yellow Warbler
- Yuma Clapper Rail

Sources: CVWD, USFWS, Esri



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Map Date: 5/19/2020

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Figure 10b: CVMSHCP Modeled Bird Habitat

2019-144 CVWD Sanitation Master Plan

WRP #7
WRP #10
WRP #4
WRP #2
111
74
10
86
86S
195

Map Features

Coachella Valley Water District Service Area

Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

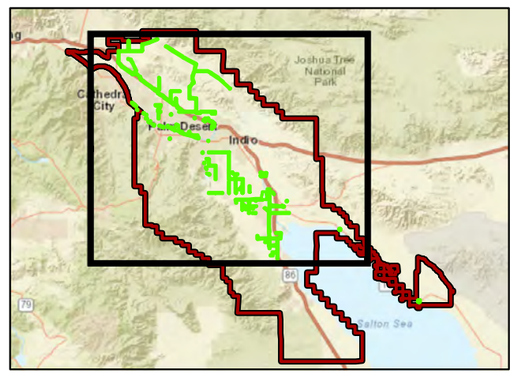
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Palm Springs Ground Squirrel
- Palm Springs Pocket Mouse

Sources: CVWD, USFWS, Esri



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Map Date: 5/19/2020

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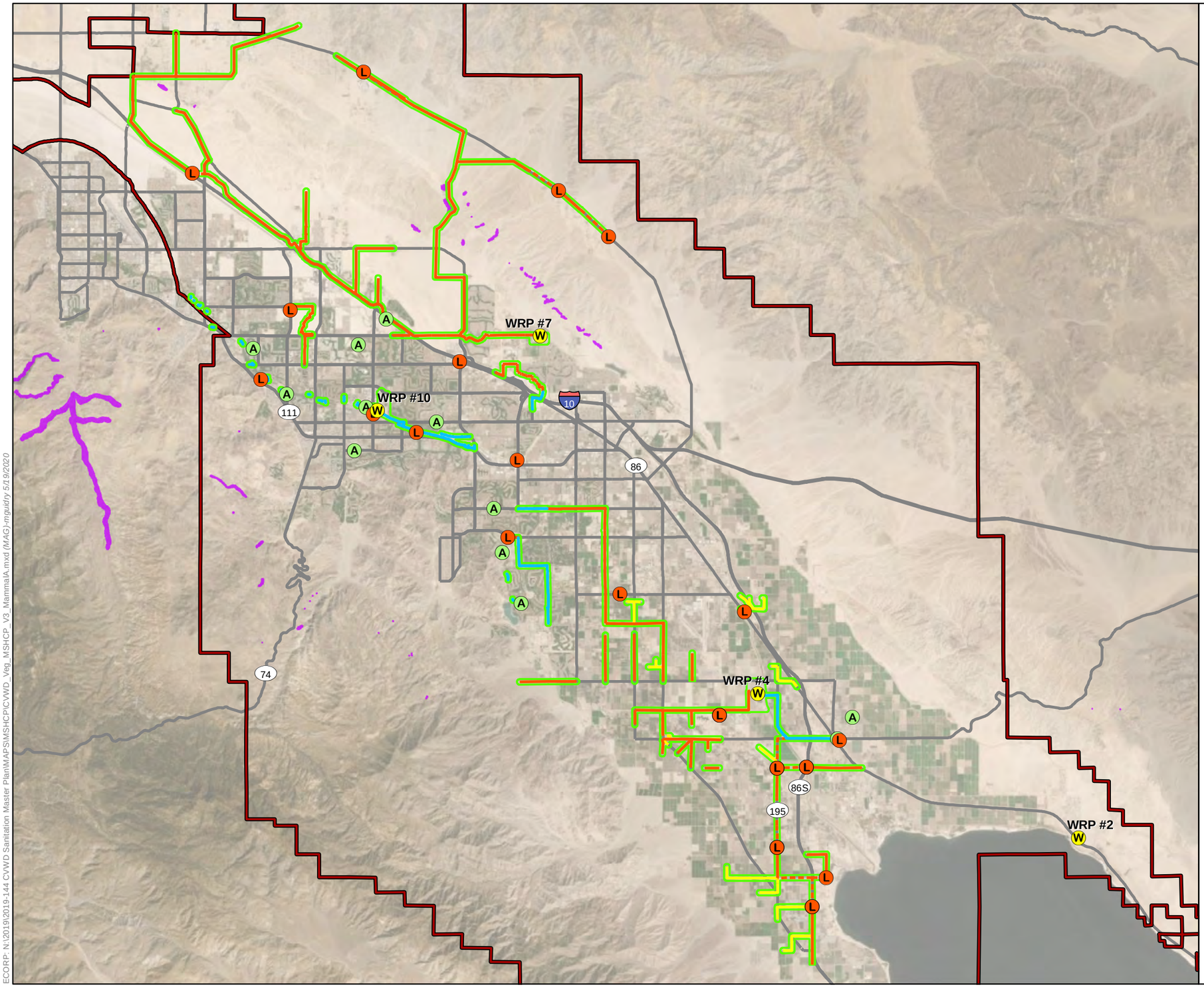
Figure 10c: CVMSHCP Modeled Bird Habitat

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

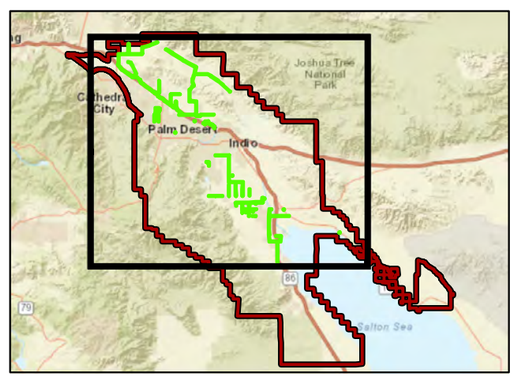
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Western Yellow Bat

Sources: CVWD, USFWS, Esri



ECORP: N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\MSHCP\CVWD_Veg_MSHCP_V3_MammalA.mxd (MAG)-mguidry 5/19/2020

Map Date: 5/19/2020

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Figure 11a: CVMSHCP Modeled Mammal Habitat

2019-144 CVWD Sanitation Master Plan

WRP #7
WRP #10
WRP #4
WRP #2
74
111
86
10
86S
195

Map Features

Coachella Valley Water District Service Area

Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

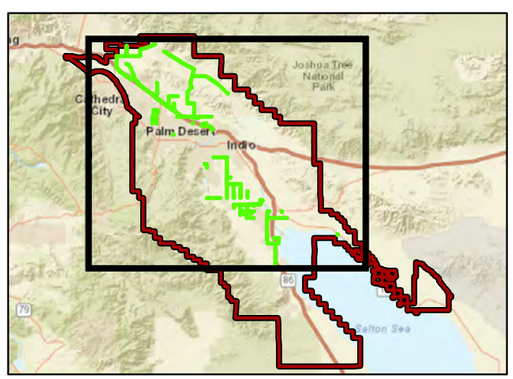
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Peninsular Bighorn Sheep

Sources: CVWD, USFWS, Esri



ECORP- N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\MSHCP\CVWD_Veg_MSHCP_V3_MammalB.mxd (MAG)-mguidry 5/19/2020

Map Date: 5/19/2020

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Figure 11b: CVMSHCP Modeled Mammal Habitat

2019-144 CVWD Sanitation Master Plan

WRP #7
WRP #10
WRP #4
WRP #2
74
111
10
86
86S
195

Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

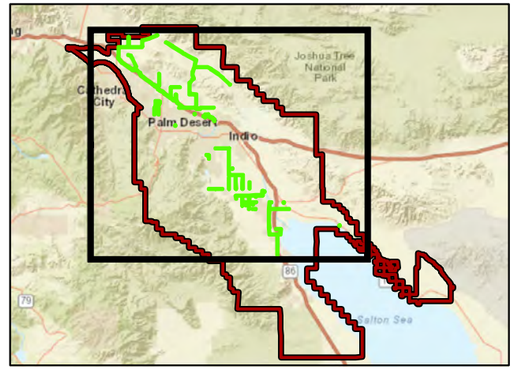
Renewal Pipe Improvements

- Whitewater Canal

CVMSHCP Modeled Habitat

- Flat-tailed Horned Lizard; Crissal Thrasher
- Le Conte's Thrasher

Sources: CVWD, USFWS, Esri



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Map Date: 5/19/2020

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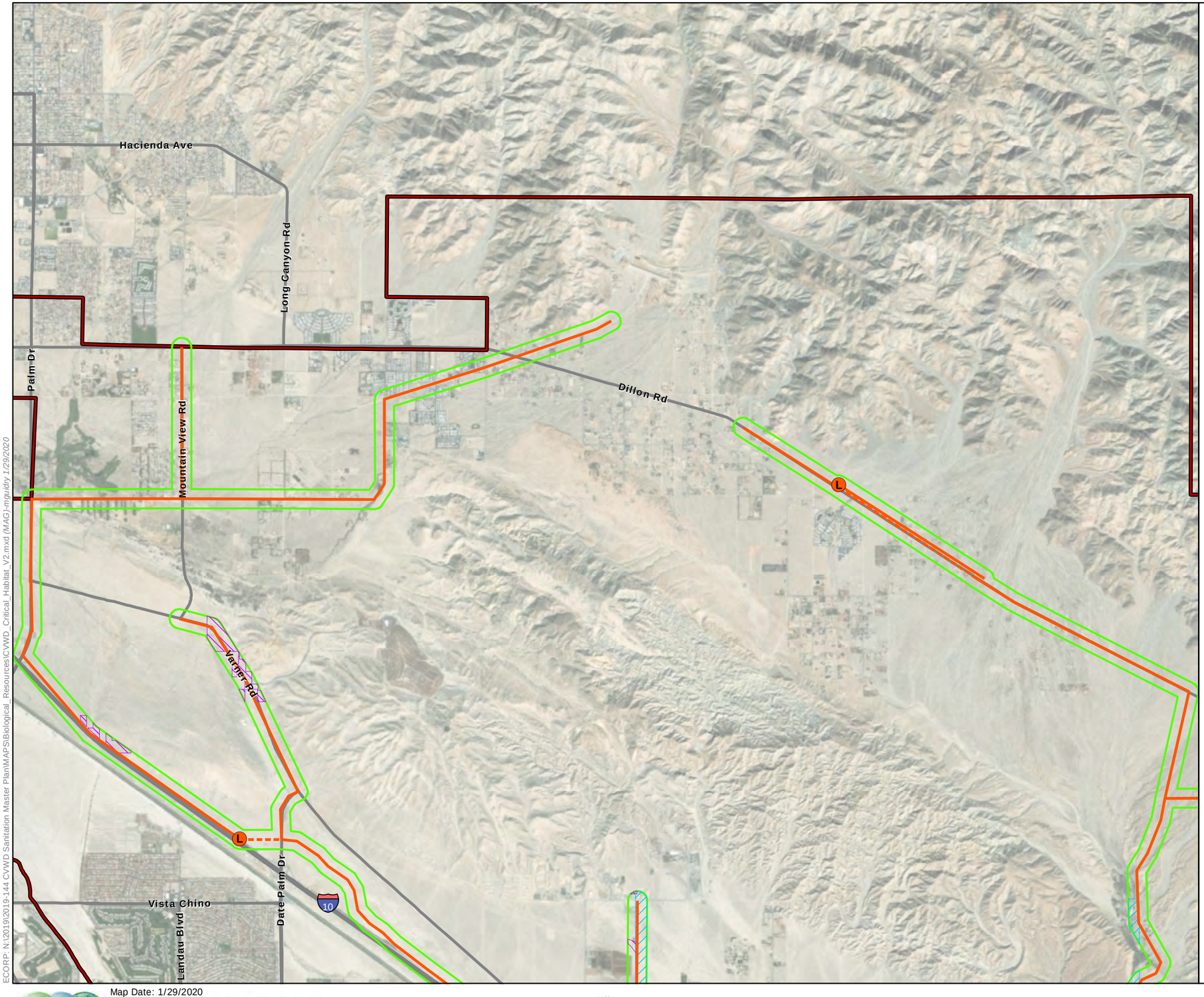
Figure 11c: CVMSHCP Modeled Mammal Habitat

2019-144 CVWD Sanitation Master Plan



ECORP: N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\Biological_Resources\CVWD_Critical_Habitat_V2.mxd (MAG) mguidry 1/29/2020

Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- Lift Station

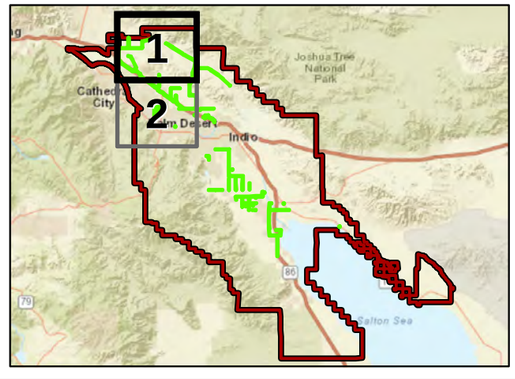
Capacity Pipe Improvements

- Force Main
- Gravity Main

Critical Habitat

- Coachella Valley fringe-toed lizard
- Coachella Valley milk-vetch

Sources: CVWD, USFWS, Esri



Map Date: 1/29/2020

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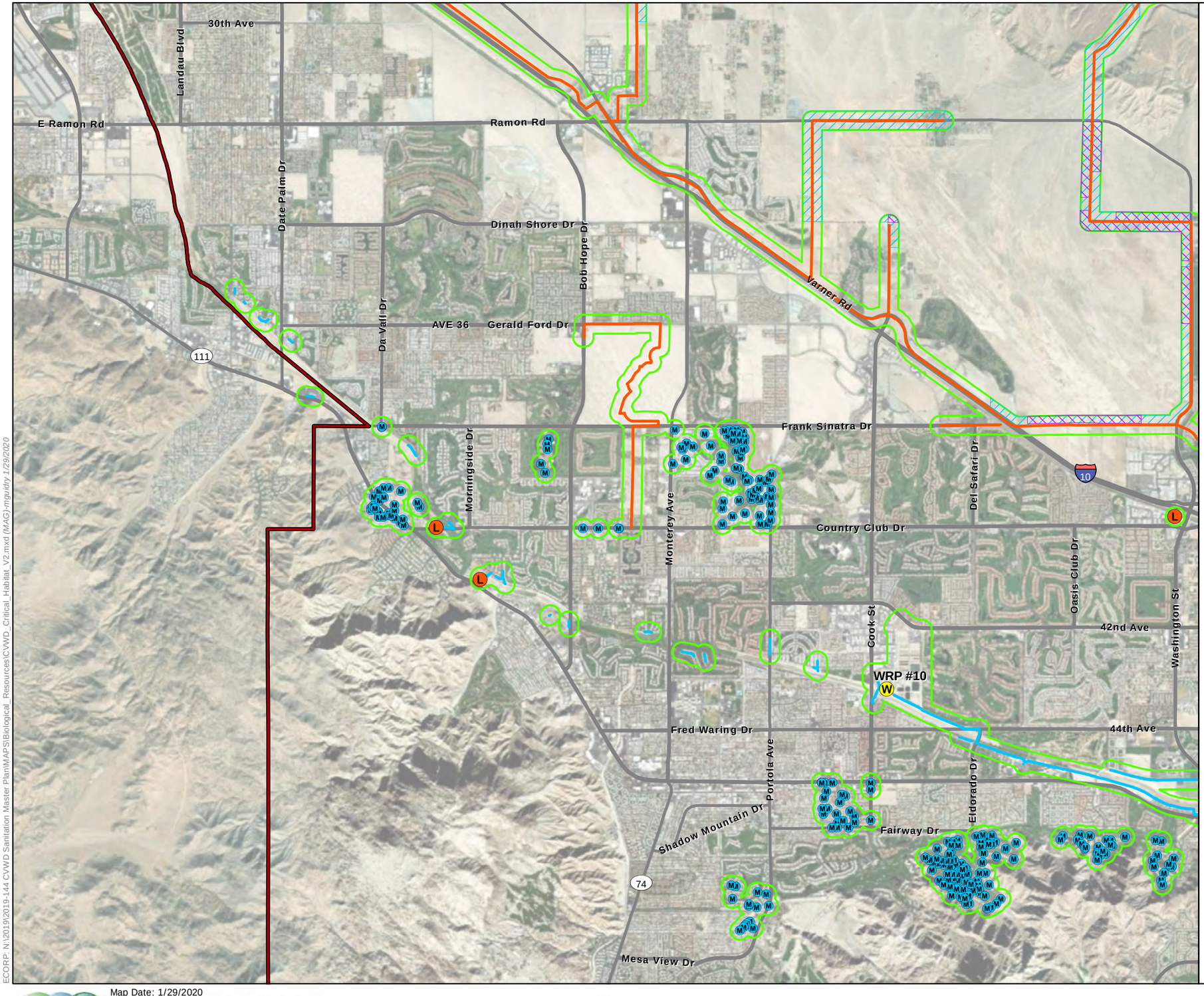
Figure 12. Critical Habitat Sheet 1 of 2

2019-144 CVWD Sanitation Master Plan



Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- Lift Station
- WRP
- Manhole

Capacity Pipe Improvements

- Gravity Main

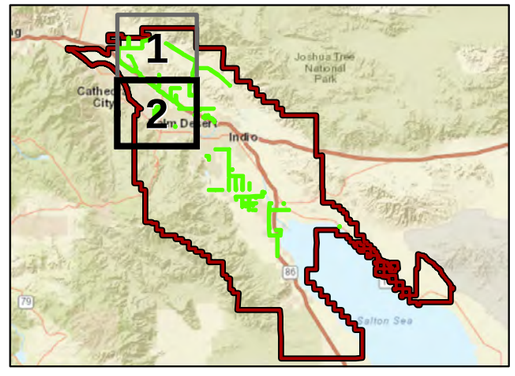
Renewal Pipe Improvements

- Existing Pipe

Critical Habitat

- Coachella Valley fringe-toed lizard
- Coachella Valley milk-vetch

Sources: CVWD, USFWS, Esri



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Map Date: 1/29/2020

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Figure 12. Critical Habitat Sheet 2 of 2

2019-144 CVWD Sanitation Master Plan

WRP #7

WRP #10

WRP #4

111

74

86

86S

10

Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

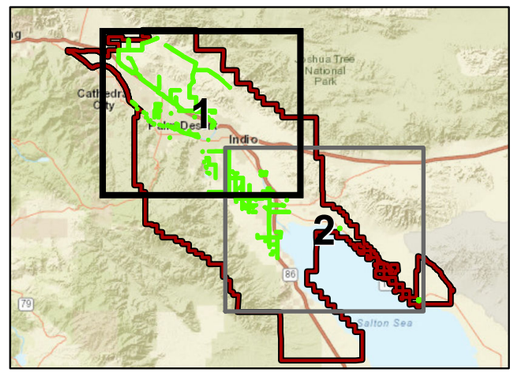
NHD Linear Feature

- ArtificialPath
- CanalDitch
- Connector
- Pipeline
- StreamRiver

NHD Area Feature

- LakePond
- Playa
- Reservoir

Sources: CVWD, USFWS, Esri



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Map Date: 5/13/2020

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Figure 13: Potential Aquatic Features Sheet 1 of 2

2019-144 CVWD Sanitation Master Plan

WRP #4
WRP #2
WRP #1
86S
195
111
86
10

Map Features

- Coachella Valley Water District Service Area
- Biological Study Area (500' Buffer)

Project Components

- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

Septic to Sewer

- Force Main
- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

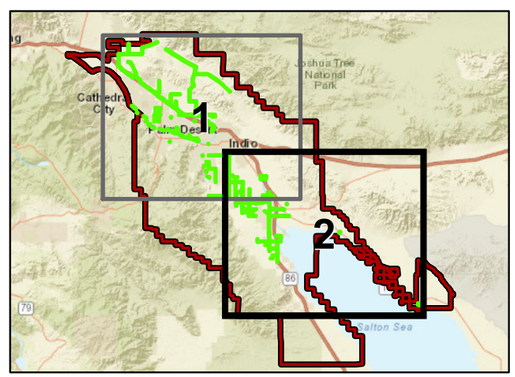
NHD Linear Feature

- ArtificialPath
- CanalDitch
- Connector
- Pipeline
- StreamRiver

NHD Area Feature

- LakePond
- Playa
- Reservoir
- SwampMarsh

Sources: CVWD, USFWS, Esri



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Map Date: 5/13/2020

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Figure 13: Potential Aquatic Features Sheet 2 of 2

2019-144 CVWD Sanitation Master Plan

APPENDIX B

Project Description

Desert Hot Springs
Hacienda Ave
Palm Dr
N Gene Autry Trl
Cathedral City
Landau Blvd
Varner Rd
Ramon Rd
Dillon Rd
Dinah Shore Dr
Bob Hope Dr
Monterey Ave
Date Palm Dr
Da Vall Dr
Palm Springs
Frank Sinatra Dr
WRP #7
Rancho Mirage
Cook St
WRP #10
Portola Ave
Washington St
Country Club Dr
AVE 42
AVE 40
Indio
Jackson St
AVE 44
86
Jefferson St
Fairway Dr
Indian Wells
La Quinta
Palm Desert
Monroe St
AVE 48
Coachella
Indio

Map Features

- Coachella Valley Water District Service Area
- W — WRP
- L — Lift Station
- A — Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

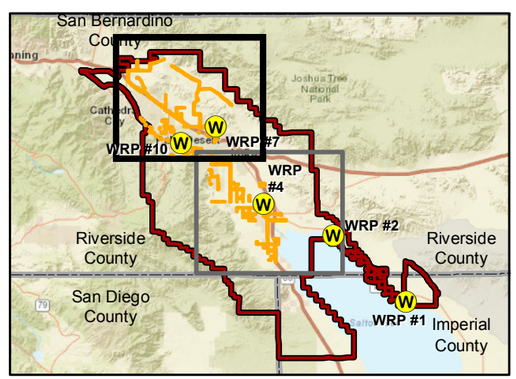
Capacity Pipe Improvements

- Force Main
- Gravity Main

Renewal Pipe Improvements/Risk Management

- Whitewater River/Coachella Valley Stormwater Channel

Sources: CVWD, USFWS, Esri



ECORP: N:\2019\2019-144 CVWD Sanitation Master Plan\MAPS\CEQA\CVWD_Project_Reference_20200330.mxd (MAG)-mguidry 4/3/2020

Map Date: 4/3/2020

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Figure 3-4: CVWD Sanitation Master Plan Update
Capital Improvement Program Projects Sheet 1 of 2

2019-144 CVWD Sanitation Master Plan

Indian Wells
Indio
Coachella
La Quinta
AVE 48
AVE 50
AVE 52
52nd Ave
56th Ave
62nd Ave
66th Ave
Jefferson St
Washington St
Jackson St
Dillon Rd
Eisenhower Dr
Monroe St
Van Buren St
Lincoln St
WRP #4
WRP #2
Box Canyon Rd

Map Features

- Coachella Valley Water District Service Area
- WRP
- Lift Station
- Collection System Asset Management CIPs (Sewer Pipelines and Manholes)

Capacity Pipe Improvements

- Force Main
- Gravity Main

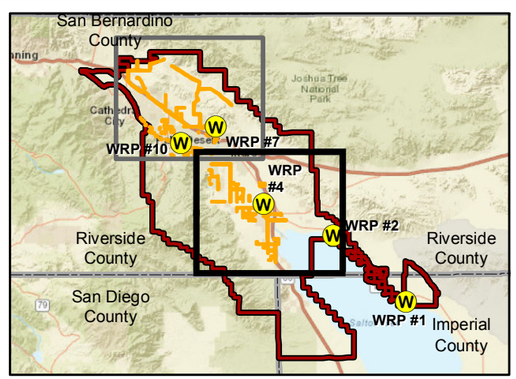
Septic to Sewer

- Force Main
- Gravity Main

Renewal Pipe Improvements

- Whitewater Canal

Sources: CVWD, USFWS, Esri



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Map Date: 4/3/2020

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Figure 3-4: CVWD Sanitation Master Plan Update Capital Improvement Program Projects Sheet 2 of 2

2019-144 CVWD Sanitation Master Plan

3.0 PROJECT DESCRIPTION

3.1 Project Summary

The Sanitation Master Plan Update 2020 identifies 133 improvement projects. These projects are collectively referred to as "proposed CIP projects". The descriptions of the proposed CIP projects are organized into the following 12 categories:

1. WRP 10 Capital Improvement Projects
2. WRP 7 Capital Improvement Projects
3. WRP 4 Capital Improvement Projects
4. WRP 2 Capital Improvement Project
5. WRP 1 Capital Improvement Projects
6. Biosolids Capital Improvement Projects
7. WRP Asset Management Capital Improvement Projects
8. General Capital Improvement Projects
9. Collection System Capacity Capital Improvement Projects
10. Collection System Condition and Risk Assessment Capital Improvement Projects
11. Septic-to-Sewer Conversion Capital Improvement Projects
12. Collection System Asset Management Capital Improvement Projects

Each of the above categories are summarized in a table (excerpted from the Sanitation Master Plan Update 2020), which includes a brief project description and highlights the main purpose of the project. The projects are also documented graphically on figure(s) directly following the corresponding table(s). It should be noted that the order of the proposed projects does not indicate prioritization. The proposed projects may be implemented in any order depending on funding and community needs.

3.1.1 WRP 10 Capital Improvement Projects

Seventeen projects have been identified for the WRP 10 CIP. Each of the projects is shown in Figure 3-5 and listed in Table 3-1. The primary purpose of each project is shown with a **red X** in the table. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project and whether it is included in the 2019/2020 CIP.

Table 3-1. WRP 10 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
10-1	Headworks Improvements & Septage Stabilization	Replace existing headworks with new headworks similar to WRPs 4 & 7, replace the flow split structure to Plants A, B & C, new odor control.	X			X	X			X
10-2	Treatment Expansion Upgrades	This project adds primary sedimentation clarifiers, sludge collectors, and odor control, primary sludge pumps, and thickeners. This project is an alternative to Project 10-3.			X		X	X	X	
10-3	Secondary Process Improvements for Nutrient Removal	Includes construction of additional treatment tanks for anoxic zones, new secondary splitter box, internal recycle pumps, online instrumentation and Supervisory control and data acquisition (SCADA) programming, and modifications to existing return activated sludge (RAS) piping.		X			X	X	X	
10-4	Tertiary Treatment Process Optimization	Implement ammonia-based aeration control and solids retention time (SRT) control improvements based on results of ongoing pilot testing.	X					X		X
10-5	Secondary Clarifier Performance Upgrades	This project optimizes clarifier performance by providing better control for WAS/RAS removal, producing higher concentration of RAS and WAS, and adding a flow control valve and meter from each clarifier to better manage sludge flow out.					X	X		X
10-6	Solids Handling Upgrades	New tank may need aeration/odor control and shading from direct sun. Replace the 2 existing thickened waste activated sludge pumps and rename as stored waste activated sludge pumps. Investigate use of	X				X			X

Table 3-1. WRP 10 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
		existing tanks if structural issues can be resolved.								
10-7	Biosolids Equipment Upgrades	This project upgrades the existing dewatering equipment both as an asset management item and to provide equipment that can dewater un-thickened sludge at the quantities estimated for 2045.	X		X	X				X
10-8	Influent Equalization and Septage Storage Tank	Adds a 4 million-gallon (MG) tank of screened wastewater equalization and new septage receiving station. Add odor control.					X			X
10-9	Tertiary Filter Improvements	This project is a study to evaluate various flocculants and options for replacing the DynaSand filters with alternative filter type.			X		X		X	
10-10	Security System Upgrade	Video monitors will be installed for entry control and site safety and security	X							X
10-11	Perimeter Security Wall Installation	A security wall will be constructed along the perimeter of the plant site	X							X
10-12	Chemical System Safety Upgrade	Upgrade the chlorination building to conform with 2013 CA fire code. Design and install closed-circuit TV (CCTV) cameras for the chlorine building.	X	X						
10-13	Aeration Improvements	This project involves constructing new aeration diffusers, valves, and piping, within Plants B and C center aeration channels, aeration/clarifier gates, RAS/WAS pumps and meters, new electrical conduits and conductors,	X					X		

Table 3-1. WRP 10 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
		replace froth spray pumps, and replace Plant C clarifier drain valves.								
10-14	Backup Generators & Auto Transfer Switch	The existing backup generators and transfer switch will be replaced	X			X				
10-16	Secondary Effluent Pump Station and Storage Ponds Project	Project consist of constructing a 21 MG secondary effluent pump station, piping from secondary effluent to the pump station, backwash water piping, vaults to contain isolation valves, earthwork to expand existing lined ponds to 75 MG.	X		X					
10-17	New Solar Power Facilities	Large photo voltaic assembly system in open areas of plant	X					X		
10-18	Septage Receiving Station Upgrades	Repair/replacement of equipment and portions of existing septage receiving facility	X			X				

Notes:
X = Primary reason for the Project
X = Meets Project Driver(s) and/or Goal(s); included in 2019/2020 CIP
WQ = Water Quality
O&M = Operations and Maintenance

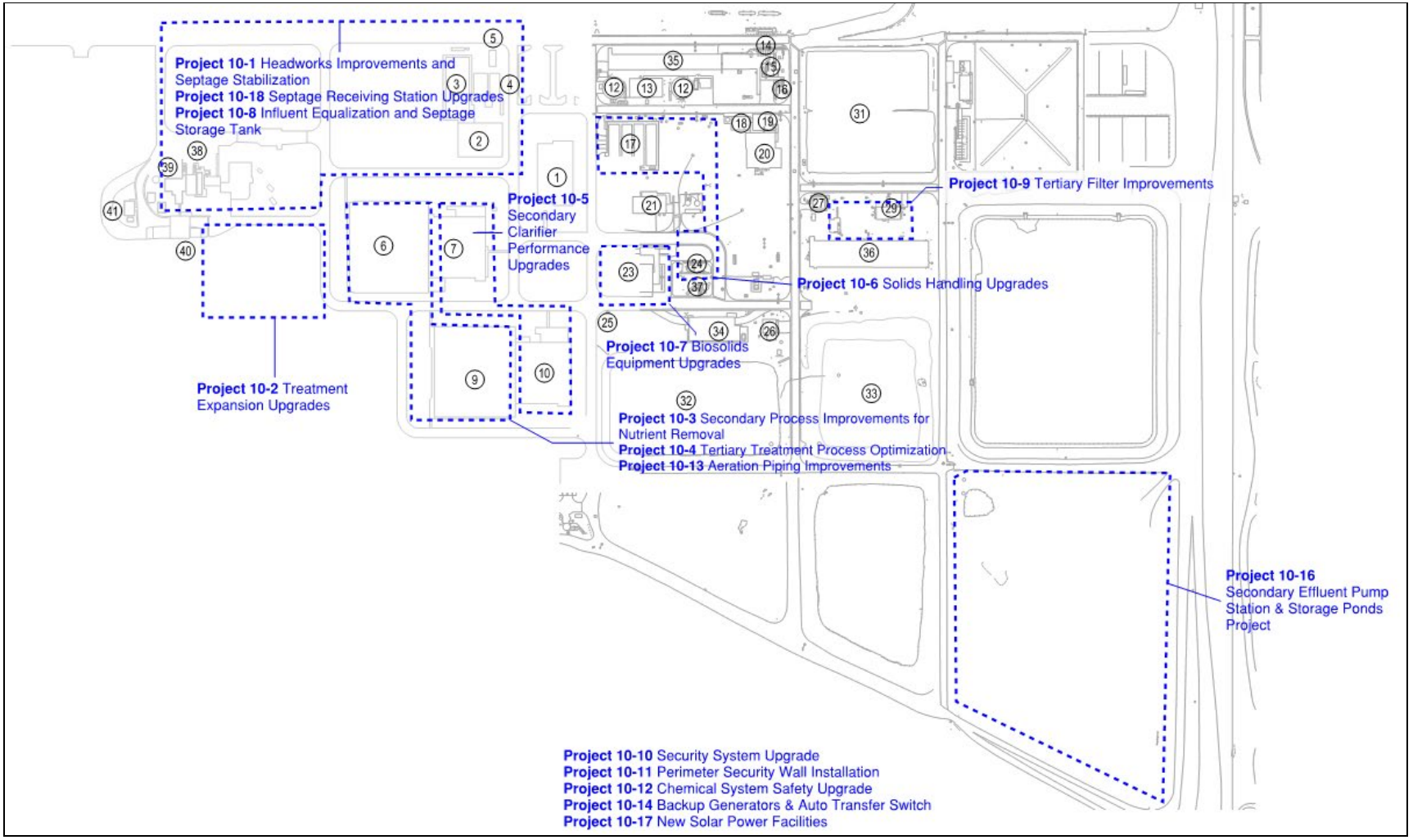

Figure 3-5. WRP 10 Existing Site Plan and Proposed Improvements

3.1.2 WRP 7 Capital Improvement Projects

Six projects have been identified for the WRP 7 CIP. Each of the projects is shown in Figure 3-6 and listed in Table 3-2. The primary purpose of the project is shown with a **red X** in the table. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project and whether it is included in the 2019/2020 CIP.

Table 3-2. WRP 7 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
7-2	Secondary Process Upgrades and Blower/Control Building	Upgrades to the secondary aeration system, replacement of the mixed liquor return pump system, SRT control and aeration optimization to improve process performance, and construction of a new blower and control building	X	X		X		X		
7-4	Recycled Water Expansion	Increases the tertiary treatment capacity by 3 mgd (5.5 mgd total), with the addition of flocculation tanks, chemical feed, gravity multi-media filters, and associated pumps	X	X	X				X	
7-6	Security System Upgrade	This project adds video monitoring system for site security and safety.	X							X
7-7	Chemical System Safety Upgrade	Design and construct upgrades to the chlorination building to conform with 2013 CA fire code. Also design and install CCTV cameras for the chlorine building	X	X						
7-8	Programmable Logic Controller Upgrade	Replace all obsolete programmable logic controllers (PLCs) and control panels, upgrade the plant communications to fiber optic network, and provide as-built information for the electrical controls system.	X			X				

Table 3-2. WRP 7 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
7-9	Energy Efficiency Study	Evaluate alternative energy savings opportunities.	X					X		

Notes:
X = Primary Reason for the Project
X = Meets Project Driver(s) and/or Goal(s) met; included in 2019/2020 CIP
WQ = Water Quality
O&M = Operations and Maintenance

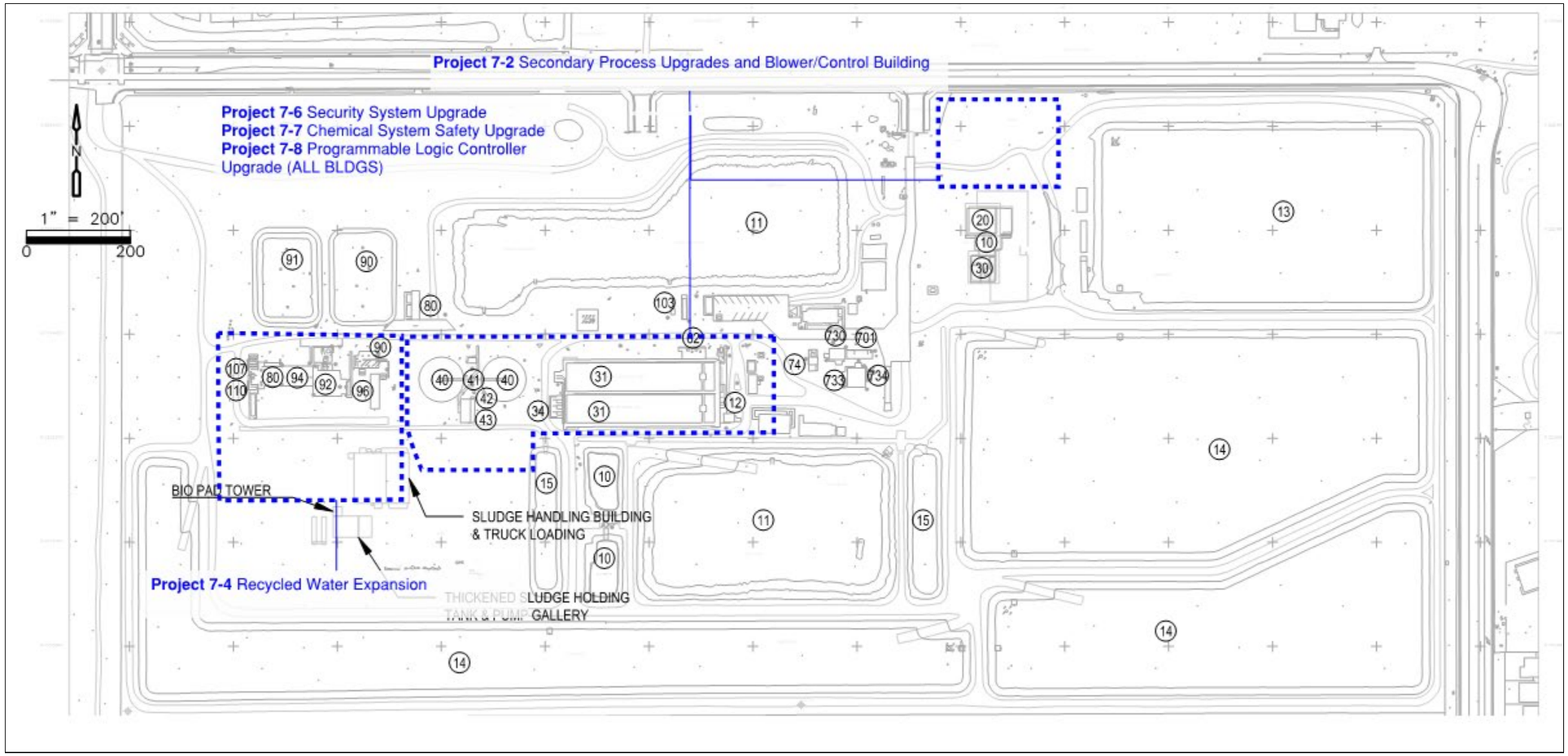

Figure 3-6. WRP 7 Existing Site Plan and Proposed Improvements

3.1.3 WRP 4 Capital Improvement Projects

Sixteen projects have been identified for the WRP 4 CIP. Each of these projects is listed in Table 3-3 and shown in Figure 3-7. The primary purpose of the project is shown with a **red X** in the table. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project and whether it is included in the 2019/2020 CIP.

Table 3-3. WRP 4 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
4-1	Headworks Expansion Phase 1 (15 mgd)	This project will expand the existing headworks facility in two phases to accommodate the addition of new screens, channels, influent pumps, grit chambers, and appurtenances.			X					
4-2	Headworks Expansion Phase 2 (20 mgd)	Phase 2 will add equipment (screen, washer compactor, pumps, grit pumps, grit classifier) to the facilities constructed in Phase 1.			X					
4-3	Primary Treatment Upgrade (20 mgd)	This project includes 3 new 90-ft diameter primary clarifiers (2 in service, 1 standby) and 2 new 100-ft diameter anaerobic digesters (Project Bio4-2) providing a firm capacity of 20 mgd.			X			X		
4-4	Lagoon Aeration Upgrade	Upgrade lagoon aeration	X					X		
4-5	Activated Sludge Expansion Phase 1 (10.5 mgd)	This project adds 10.5 mgd of capacity and includes decommissioning of the lagoons. Three activated sludge trains will be constructed (3.5 mgd each) consisting of bioreactors, secondary clarifiers, RAS and WAS pumping, and a new aeration system.			X				X	

Table 3-3. WRP 4 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
4-6	Activated Sludge Expansion Phase 2 (14.0 mgd)	This project adds 3.5 mgd of capacity and includes one activated sludge basin, one secondary clarifier, a set of RAS/WAS pumps, addition of one aeration blower and aeration piping system			X		X		X	
4-7	Tertiary Treatment Expansion Phase 1A (2.5 mgd)	This project provides 2.5 mgd treatment capacity, includes secondary effluent equalization basin, coagulation/rapid mix, Filter Building, filters, expands the chlorine contact basins and chemical feed systems, adds a new recycled water pump station (2.5 mgd capacity) and pipeline that connects into a new non-potable system off-site (Volume 2 Project). The project will also require a new Waste Discharge permit with California Regional Water Quality Control Board (CRWQCB) and a permit amendment for the NPDES permit #CA0104973.		X	X				X	
4-8	Tertiary Treatment Expansion Phase 1B (5 mgd)	This project adds 2.5 mgd treatment capacity (5 mgd total), includes coagulation/rapid mix, Filter Building, filters, expands the chlorine contact basins and chemical feed systems, and adds 2.5 mgd recycled pump capacity (5 mgd total)		X	X				X	
4-9	Tertiary Treatment Expansion Phase 1C (7.5 mgd)	This project adds 2.5 mgd treatment capacity (5 mgd total), includes coagulation/rapid mix, Filter Building, filters, expands the chlorine contact basins and chemical feed systems, and adds 2.5 mgd recycled pump capacity (7.5 mgd total)		X	X				X	

Table 3-3. WRP 4 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
4-10	Tertiary Treatment Expansion Phase 1D (10 mgd)	This project adds 2.5 mgd treatment capacity (5 mgd total), includes coagulation/rapid mix, Filter Building, filters, expands the chlorine contact basins and chemical feed systems, and adds 2.5 mgd recycled pump capacity (10 mgd total)		X	X				X	
4-11	Tertiary Treatment Expansion Phase 2 (13.3 mgd)	This project provides overall space and structural elements for another 10 mgd of treatment capacity, initially increases capacity to 13.3 mgd by commissioning the fifth filter, and adds equipment to the existing facilities, including coagulation/rapid mix, filters, chlorine contact basins, recycled water pumps.		X	X				X	
4-12	Tertiary Treatment Expansion Phase 3 (16.67 mgd)	This project increases capacity to 16.7 mgd and adds equipment to the existing facilities, including media and equipment to commission the sixth filter		X	X	X			X	X
4-13	Tertiary Treatment Expansion Phase 4 (20 mgd)	This project increases capacity to 20 mgd and adds equipment to the existing facilities, including media and equipment to commission the seventh filter		X	X	X			X	X
4-14	Security System Upgrade	This project will include installing cameras at access points and for general security coverage of the site.	X							X

Table 3-3. WRP 4 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
4-15	Chemical System Safety Upgrade	Design and construct upgrades to the chlorination building to conform to the chemical system safety requirements of the 2013 California Fire Code. Will also design and install closed circuit television cameras for the chlorine building.	X							X
4-16	Operations/Admin/ Lab Building Upgrade	The addition of an Operations Building would provide the WRP with a centralized building with space for a control room, offices, facility rooms, and a lab	X							X

Notes:
X = Primary Reason for the Project
X = Meets Project Driver(s) and/or Goal(s); included in 2019/2020 CIP
WQ = Water Quality
O&M = Operations and Maintenance

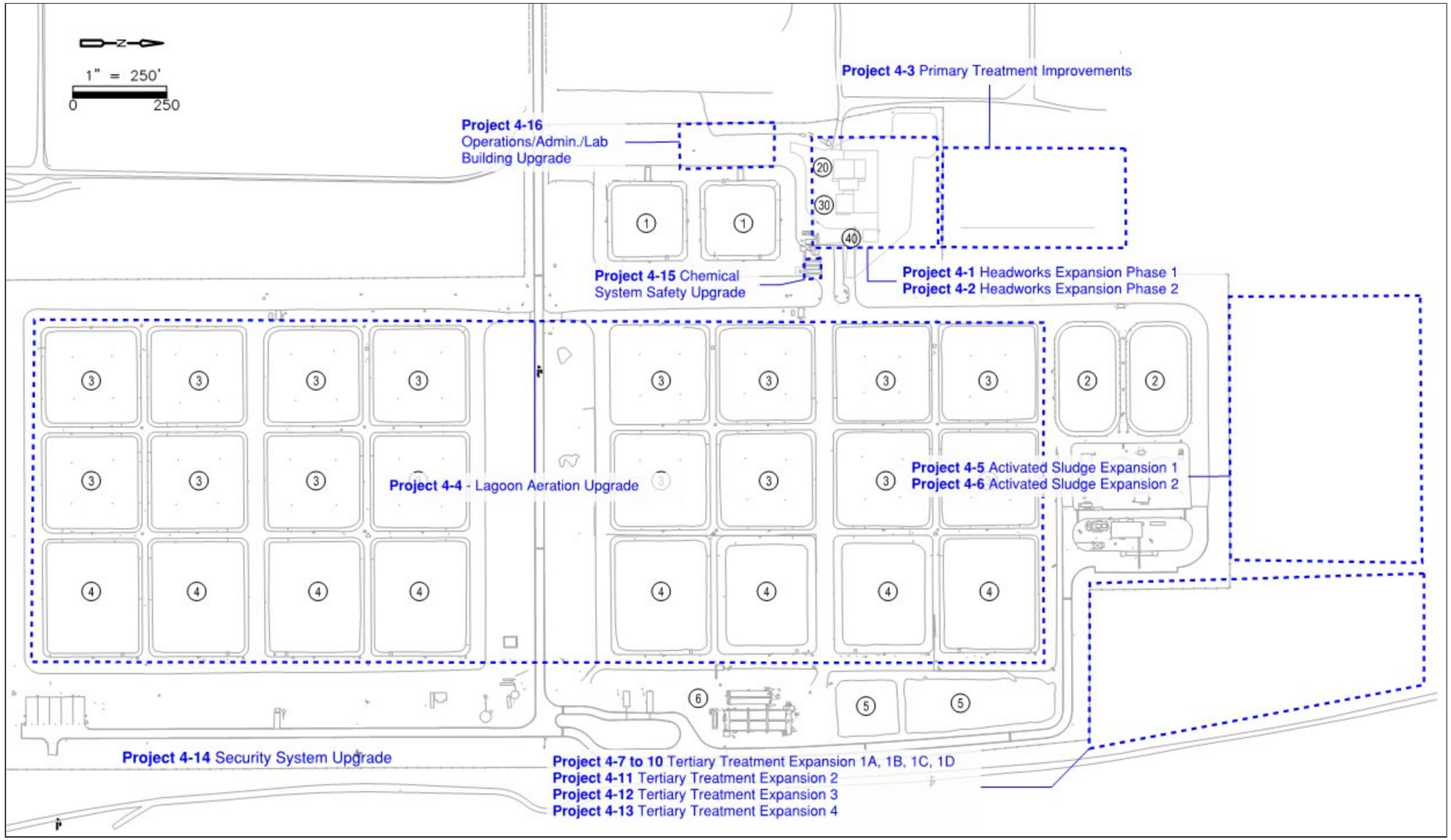

Figure 3-7. WRP 4 Existing Site Plan and Proposed Improvements

3.1.4 WRP 2 Capital Improvement Project

One project has been identified for the WRP 4 CIP. This project is shown in Figure 3-8 and listed in Table 3-4. The primary purpose of the project is shown with a **red X** in the table. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project and whether it is included in the 2019/2020 CIP.

Table 3-4. WRP 2 Proposed CIP Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
2-1	WRP 2 Plant Improvements	This project includes repair/replacement of pond liner and replacement of aerators	X					X		X

Notes:
X = Primary Reason for the Project
X = Meets Project Driver(s) and/or Goal(s); included in 2019/2020 CIP
WQ = Water Quality
O&M = Operations and Maintenance

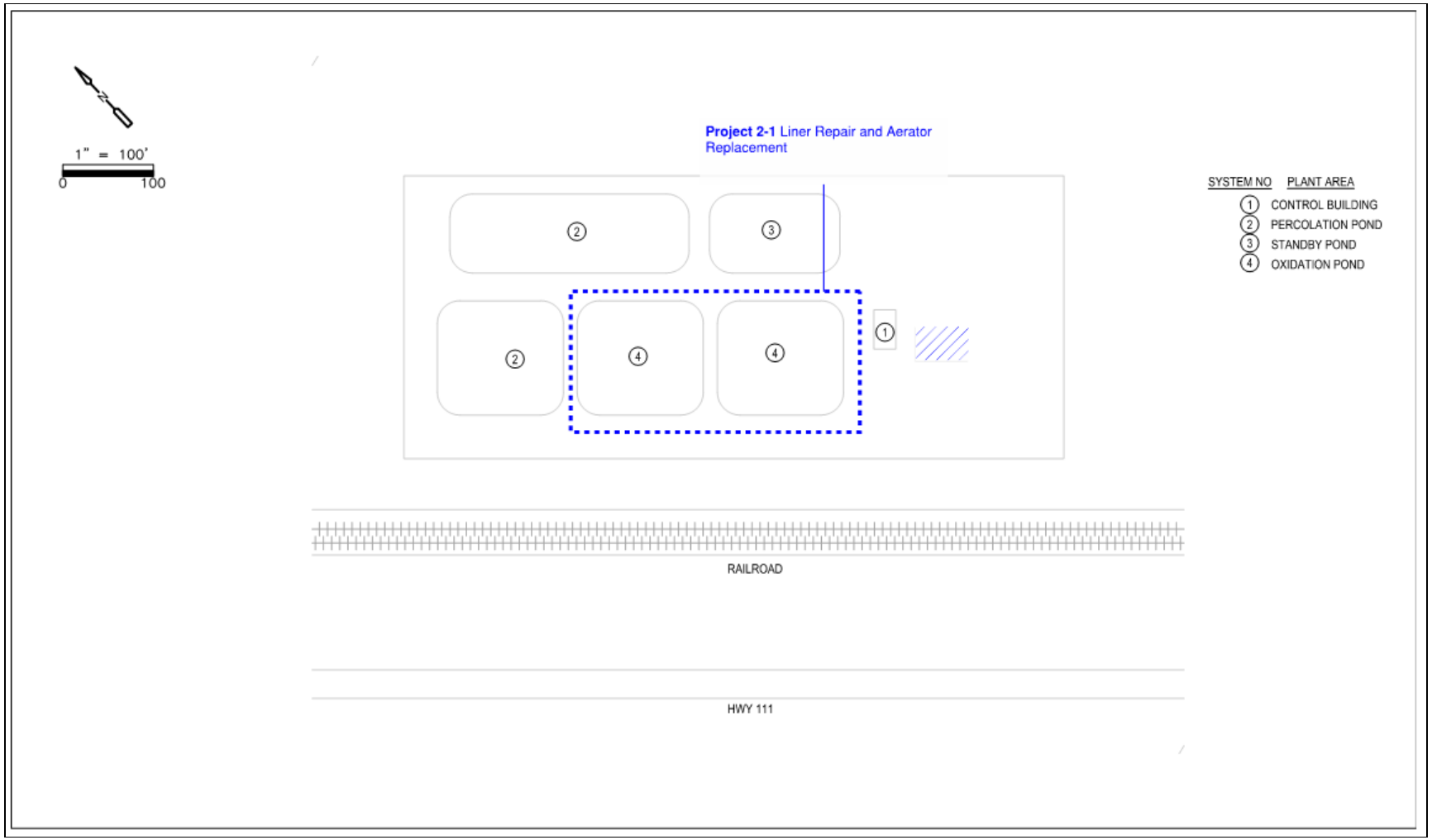

Figure 3-8. WRP 2 Existing Site Plan and Proposed Improvements

3.1.5 WRP 1 Capital Improvement Projects

Two projects have been identified for the WRP 1 CIP. Each of these projects is shown in Figure 3-9 and listed in Table 3-5. The primary purpose of the project is shown with a **red X** in the table. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project and whether it is included in the 2019/2020 CIP.

Table 3-5. WRP 1 Proposed CIP Projects

Project ID	Project Title	Project Descriptions	In 2019/ 2020 CIP	Driver			Level of Service			
				Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
1-1	WRP 1 Aeration Improvements	Project includes replacing the aerators with units better suited for the reduced flow.			**X**		**X**			
1-2	WRP 1 Liner Replacement	This project includes repair of the embankment and replacement of the sand cement liner in oxidation basins.			**X**					

Notes:
X = Primary Reason for the Project
X = Meets Project Driver(s) and Goal(s) met; included in 2019/2020 CIP
WQ = Water Quality
O&M = Operations and Maintenance

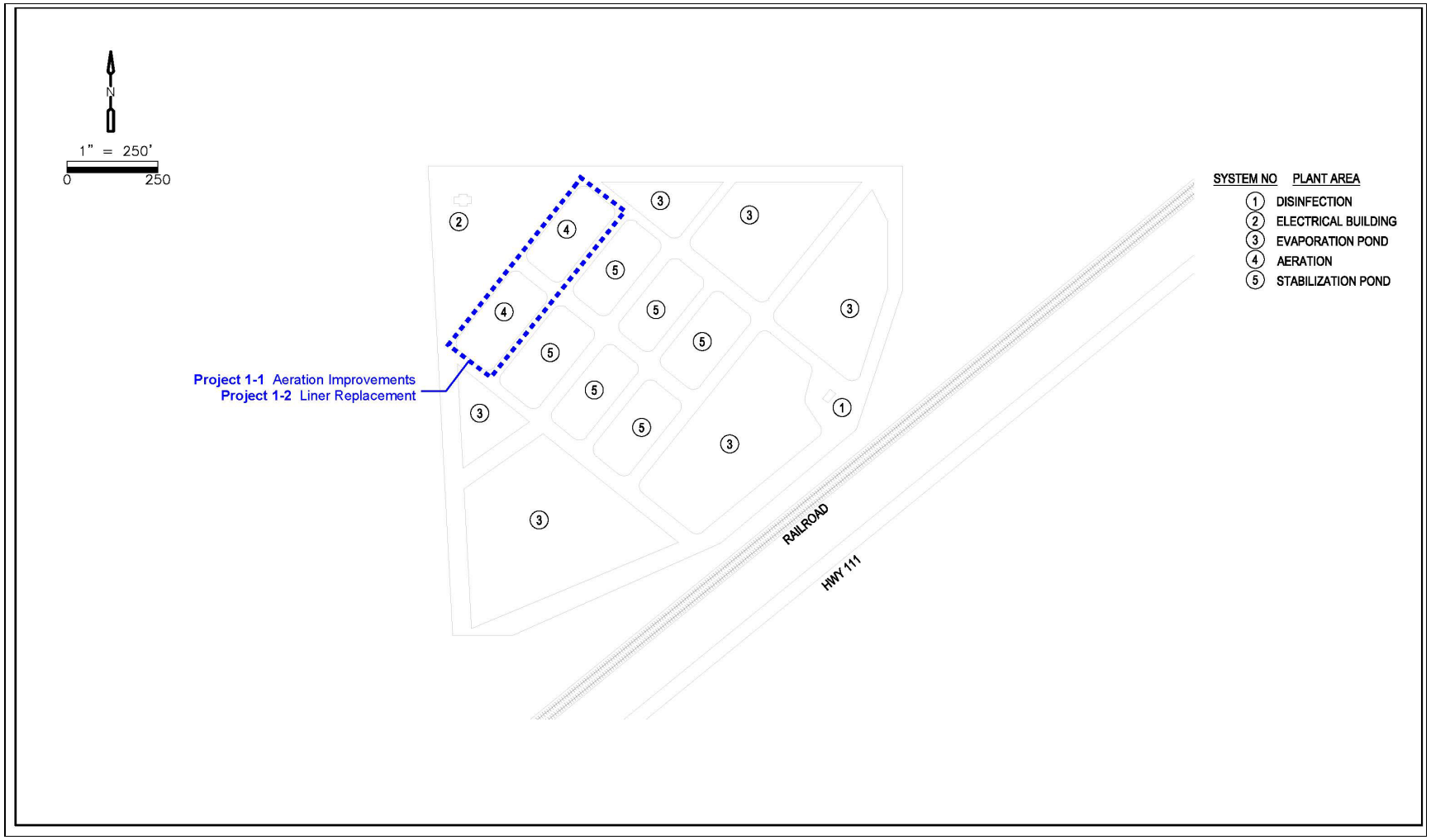

Figure 3-9. WRP 1 Existing Site Plan and Proposed Improvements

3.1.6 Biosolids Capital Improvement Projects

CVWD is not proposing to implement any biosolids CIPs during the planning period. However, if regulatory changes, biosolids markets development, treatment capacity needs, or other events should occur, CVWD may wish to consider implementing one or more of the following projects (Table 3-6 and Figure 3-10). The primary purpose of the project is shown with a **red X** in the table.

Table 3-6. Biosolids Management Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
BIO10-1	Piloting of SHINCCI Heat Pump Dryer at WRP 10 (Options 3 & 4)	This project includes onsite pilot testing of the SHINCCI Heat Pump Dryer at WRP 10 through the use of SHINCCI USA's mobile demonstration unit.					X		
BIO10-2	Sludge Force Main Between WRP 10 and 4	This project consists of the planning, design and construction of new 22.5-mile ductile iron force mains and pump stations to transfer raw primary sludge and WAS from WRP 10 to WRP 4.					X		
BIO4-1	Regional Biosolids Facility at WRP 4	This project includes the planning, design and construction of a regional biosolids treatment facility at WRP 4.					X		
BIO4-2	Digester Project	This project consists of the planning, design and construction of primary clarifiers (Project 4-4 and 4-5) and anaerobic digesters at WRP 4.						X	
BIO4-3	Digester Side-stream Treatment	This project includes planning, design and construction of the most cost-effective alternative for treating the ammonia-nitrogen load that would be associated with anaerobic digestion.				X			

Notes:
X = Primary Reason for the Project
WQ = Water Quality
O&M = Operations and Maintenance

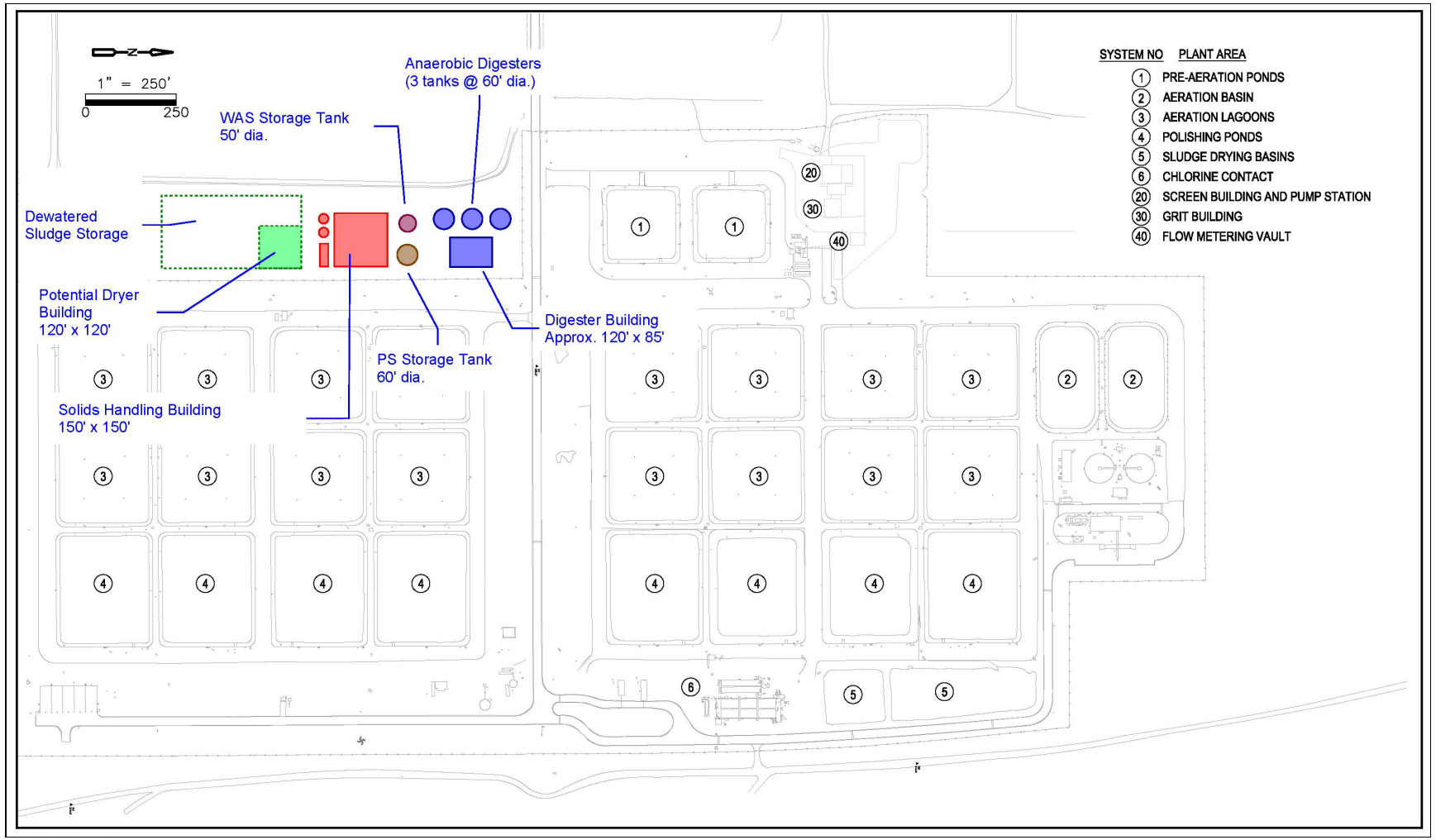

Figure 3-10. Biosolids Management Options

3.1.7 WRP Asset Management CIP

As part of development of a CVWD-wide asset management program reviewing condition, age, expected life, and risk, CVWD identified CIPs for assets at the WRPs that have greater than a $250,000 replacement cost. Those CIPs are summarized in Table 3-7. The primary purpose of the project is shown with a **red X** in the table.

Table 3-7. Asset Management Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver		
				Regulatory	Capacity	Asset Mgt.
AM1-1A,B	WRP 1 Access Roads	Road Replacement/Repair				X
AM1-2	WRP 1 Building	Control Building				X
AM1-3	WRP 1 Communication Equipment	Cactus City pull radio, devices, and tower				X
AM1-4	WRP 1 Generator	Generator				X
AM1-5	WRP 1 Process Structure (Ponds 1, 3, 5)	Rehab Ponds and Lagoons				X
AM2-1A,B,C	WRP 2 Access Roads	Road Replacement/Repair				X
AM2-2	WRP 2 Building					X
AM2-3	WRP 2 Motor Control Center (MCC)	MCC and Transfer Switches				X
AM4-1	WRP 4 Secondary Equipment	Blowers				X
AM4-2	WRP 4 Building	Blower, Chlorine, SO2, Screening, and Solids Handling Buildings				X
AM4-3A,B	WRP 4 Power	Generators				X
AM4-4A,B	WRP 4 Power	MCC Equipment				X

Table 3-7. Asset Management Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver		
				Regulatory	Capacity	Asset Mgt.
AM4-5	WRP 4 Process Structures (Biolac)	North Aeration Basin, South Aeration Basin				X
AM4-6	WRP 4 Screen	Screens				X
AM4-7A,B	WRP 4 Sludge Collector	Belt Filter Press, gravity belt thickener				X
AM7-1A,B,C	WRP 7 Access Roads	Road Replacement/Repair and Slab Concrete				X
AM7-2	WRP 7 Secondary Equipment	Blower				X
AM7-3	WRP 7 Building	Chlorine Building				X
AM7-4	WRP 7 Communication Equipment	Radio Tower				X
AM7-5	WRP 7 Power	Generators				X
AM7-6	WRP 7 Mixer Equipment	Belt Thickener Polymer Blender 3				X
AM7-7	WRP 7 Power	MCC Equipment				X
AM7-8	WRP 7 Process Structures	Percolation ponds				X
AM7-9	WRP 7 Reservoirs	Rehab and Liners (Advanced Water Treatment Bladder, Reclaimed Bladder)				X
AM7-10	WRP 7 Screen	Bar screens				X
AM10-1A,B,C	WRP 10 Access Roads	Road Maintenance and Slab Concrete				X
AM10-2	WRP 10 Secondary Equipment	Blowers				X
AM10-3A,B	WRP 10 Buildings	Tertiary Buildings				X

Table 3-7. Asset Management Projects

Project ID	Project Title	Project Description	In 2019/ 2020 CIP	Driver		
				Regulatory	Capacity	Asset Mgt.
AM10-4	WRP 10 Power	Generator				X
AM10-5A,B,C	WRP 10 Power	MCC Equipment				X
AM10-6	WRP 10 Process Structure	Clarifiers, secondary effluent ponds, five-acre pond, aeration basins, tertiary filtration structure				X
AM10-7A,B	WRP 10 Reservoirs	Rehab and Liners (North and South Secondary Bladders, Recycled Water Bladder)				X
AM10-8	WRP 10 Screen	Traveling Screen				X

Notes:
X = Primary Reason for the Project
WQ = Water Quality
O&M = Operations and Maintenance

3.1.8 General Capital Improvement Projects

Seven projects have been identified for the systemwide General CIP list. Each of these projects is shown in Table 3-8. These projects contain varying drivers and level of service goals. The primary purpose of the project is shown with a **red X** in the table. The **black X** in the table signifies the project driver(s) and/or goal(s)(Level of Service) met by each project.

Table 3-8. Standardization Operation & Maintenance CIP

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
0-1	Sampling and Data Collection Plan for each WRP	This project evaluates and makes recommendations to standardize and ensure accurate water quality measurements of various flow streams within each WRP. It also includes grab sampling plans for each WRP at select locations to monitor the influent water quality and critical points within the plant. Each WRP will standardize sampling locations, frequency of sampling, type of instrument, units used, data reports, etc.					X		X
0-3	Facility Operating Manuals and SOPs	Create an Operations Manual for each WRP that could include current process descriptions, control narratives, as-built drawings, health & safety plan, emergency plan, list of equipment, equipment and system supplier O&M manuals, SOPs, etc.	X						X
0-4	Standardization of Equipment	This project will develop procedures to establish approved sole-source equipment.			X				X
0-5	Blower and Influent Pump Submetering	This project adds electrical meters on the blower system and influent pump system at each WRP.					X		X
0-6	Instrumentation Improvements on Motors and Pumps	This project adds heat sensors on outdoor motors and adds de-ragging sensors on pumps.			X		X		X
0-7	Building Energy Efficiency Study	This project evaluated adding heat pumps for heading, ventilation, and air conditioning (HVAC) optimization at all facilities.					X		X
0-8	Instrumentation, PLC, and SCADA Upgrades at all WRPs								X

Table 3-8. Standardization Operation & Maintenance CIP

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
0-9	Control Room Upgrades (Consoles, Hardware, and Software								X
0-10	Wireless Communication Backbone Development at all WRPs								X
0-11	Cybersecurity Threats Assessment								X

Notes:
X = Primary Reason for the Project
X = Meets Project Driver(s) and/or Goal(s)
WQ = Water Quality
O&M = Operations and Maintenance

3.1.9 Collection System Capacity Capital Improvement Projects

Eighteen projects have been identified for the Capacity CIP: seven for WRP 4, ten for WRP 7, and one for WRP 10 service areas. Each of these projects is shown in Figures 3-11 and 3-12 and listed in Tables 3-9 through 3-11. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project.

Table 3-9. WRP 4 Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
CS-WRP4-1	Mid-Valley Gravity Trunk	Construct new pipelines to convey by gravity flows currently pumped through the Mid-Valley Force Main. (WRP4-P2 to WRP4-P7)		X					
CS-WRP4-2	62nd Avenue Collection Pipelines	Construct new pipelines to convey future flows to the 62nd Avenue Trunk. (WRP4-P8 to WRP4-P12)		X					
CS-WRP4-3	Polk Street Development	Construct new pipelines to serve future development west of Polk Street between 64th Avenue and 68th Avenue. Increase the capacity of LS 55-21. (WRP4-LS2, WRP4-P13 to WRP4-P25, WRP4-FM1)		X					
CS-WRP4-4	Oasis North Collection System	Construct new sanitation infrastructure to serve future development south of 66th Avenue between Pierce Street and Johnson Street. (WRP4-LS4, WRP4-LS5, WRP4-P26, WRP4-P27, WRP4-FM2, WRP4-FM3)		X					
CS-WRP4-5	Oasis South Collection System	Construct new sanitation infrastructure to serve future development south of 74th Avenue between Pierce Street and the Salton Sea. (WRP4-P28 to WRP4-P30, WRP-FM4 to WRP4-FM7, WRP4-LS6 to WRP4-LS8)		X					
CS-WRP4-6	Lift Station Capacity Improvements	Increase the capacity of LS 55-19 and LS 55-11 (WRP4-LS1, WRP4-LS3)		X					
CS-WRP4-7	Jefferson Street Gravity Trunk	Construct a new pipeline to redirect existing flows from 55-10 to a gravity pipeline on Jefferson Street. (WRP4-P1)		X					

Table 3-9. WRP 4 Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
CS-WRP7-1	Sky Valley West Collection System	Construct new sanitation infrastructure to serve the western region of Sky Valley. (WRP7-1 to WRP7-P5, WRP7-FM1, WRP-LS1)		X					

Table 3-10. WRP 7 Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
CS-WRP7-2	Varner Road New Gravity Trunk	Construct a new gravity trunk along Varner Road north of Ramon Road. (WRP7-P6 to WRP7-P10)		X					
CS-WRP7-3	Varner Road Parallel Gravity Trunk	Construct a parallel gravity trunk along Varner Road from Ramon Road to WRP7. (WRP7-P14, WRP-P18, WRP-P19)		X					
CS-WRP7-4	Varner Road Collection Pipelines	Construct new pipelines to convey future flows to the new Varner Road Trunk. (WRP7-P11 to WRP7-P13, WRP4-P16, WRP4-P17)		X					
CS-WRP7-5	Frank Sinatra Drive Pipeline Upsize	Construct a parallel pipeline in Frank Sinatra Drive. (WRP-P27)		X					
CS-WRP7-6	Sky Valley East Gravity Trunk	Construct a new gravity trunk along Thousand Palms Canyon Road south of Dillon Road. (WRP7-P25 to WRP-P26)		X					

Table 3-10. WRP 7 Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
CS-WRP7-7	Sky Valley East, Western Collection System	Construct new sanitation infrastructure to serve the eastern region of Sky Valley, west of Thousand Palms Canyon Road. (WRP7-P23, WRP7-P24, WRP7-FM3, WRP7-FM4, WRP7-LS3, WRP7-LS4)		X					
CS-WRP7-8	Sky Valley East, Eastern Collection System	Construct new sanitation infrastructure to serve the eastern region of Sky Valley, east of Thousand Palms Canyon Road. (WRP7-P20 to WRP7-P22, WRP7-FM2, WRP7-LS2)		X					
CS-WRP7-9	Lift Station 81-01 Capacity Replacement	Construct new firm capacity for Lift Station 81-01. (WRP7-LS5)		X					
CS-WRP7-10	Lift Station 81-04 Gravity Conversion	Construct gravity pipeline to convey flows from Lift Station 81-04 location to existing gravity system. (WRP-P28 to WRP-P32).		X					
CS-WRP10-1	Crystal Lagoon Sewer Trunk	Construct new pipelines through the Crystal Lagoon Development and Vista Del Sol. (WRP10-P1 to WRP10-P7)		X					

Notes:
X = Meets Project Driver(s) and/or Goal(s)
WQ = Water Quality
O&M = Operations and Maintenance

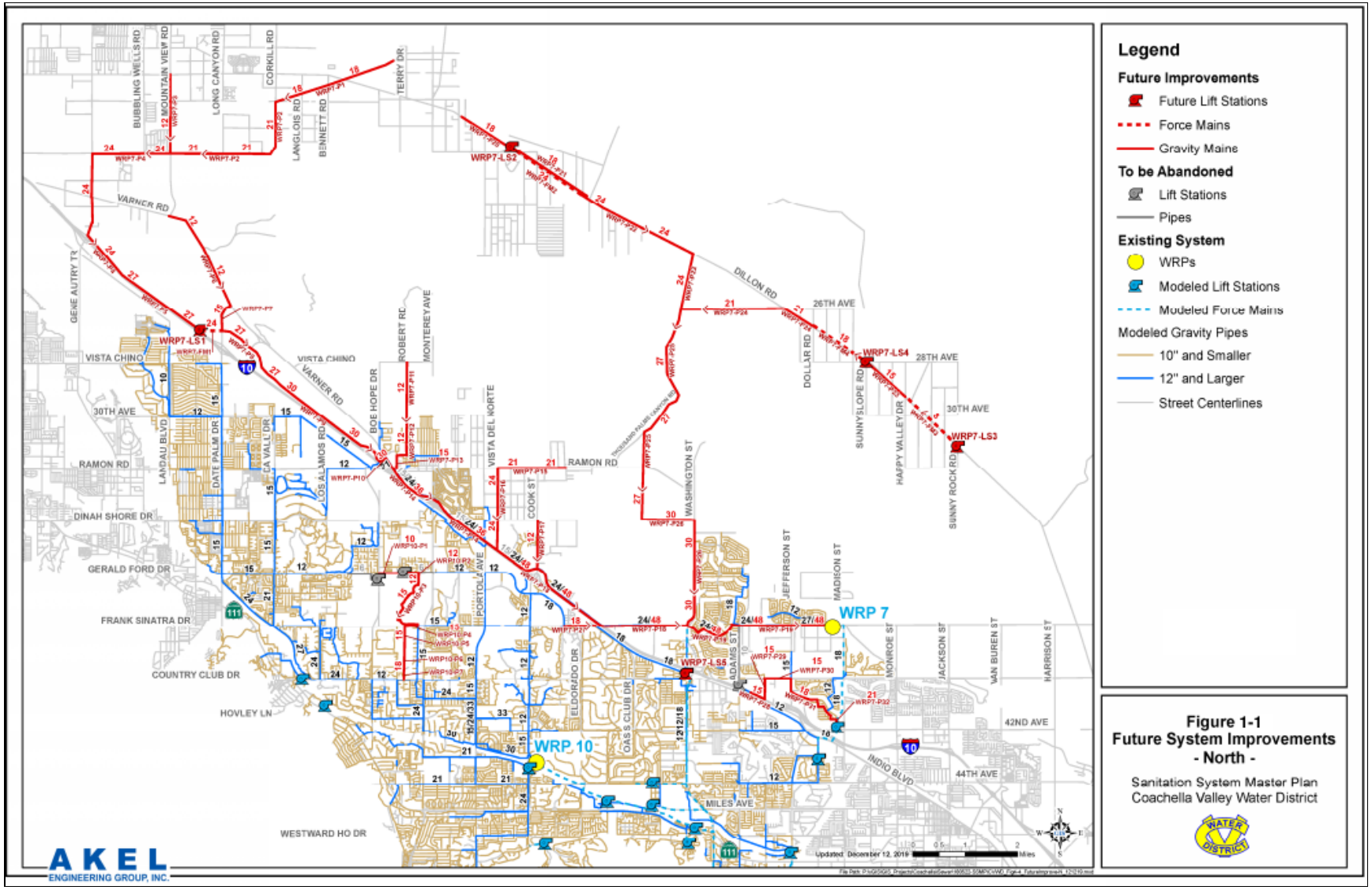

Figure 3-11. Future System Improvements - North

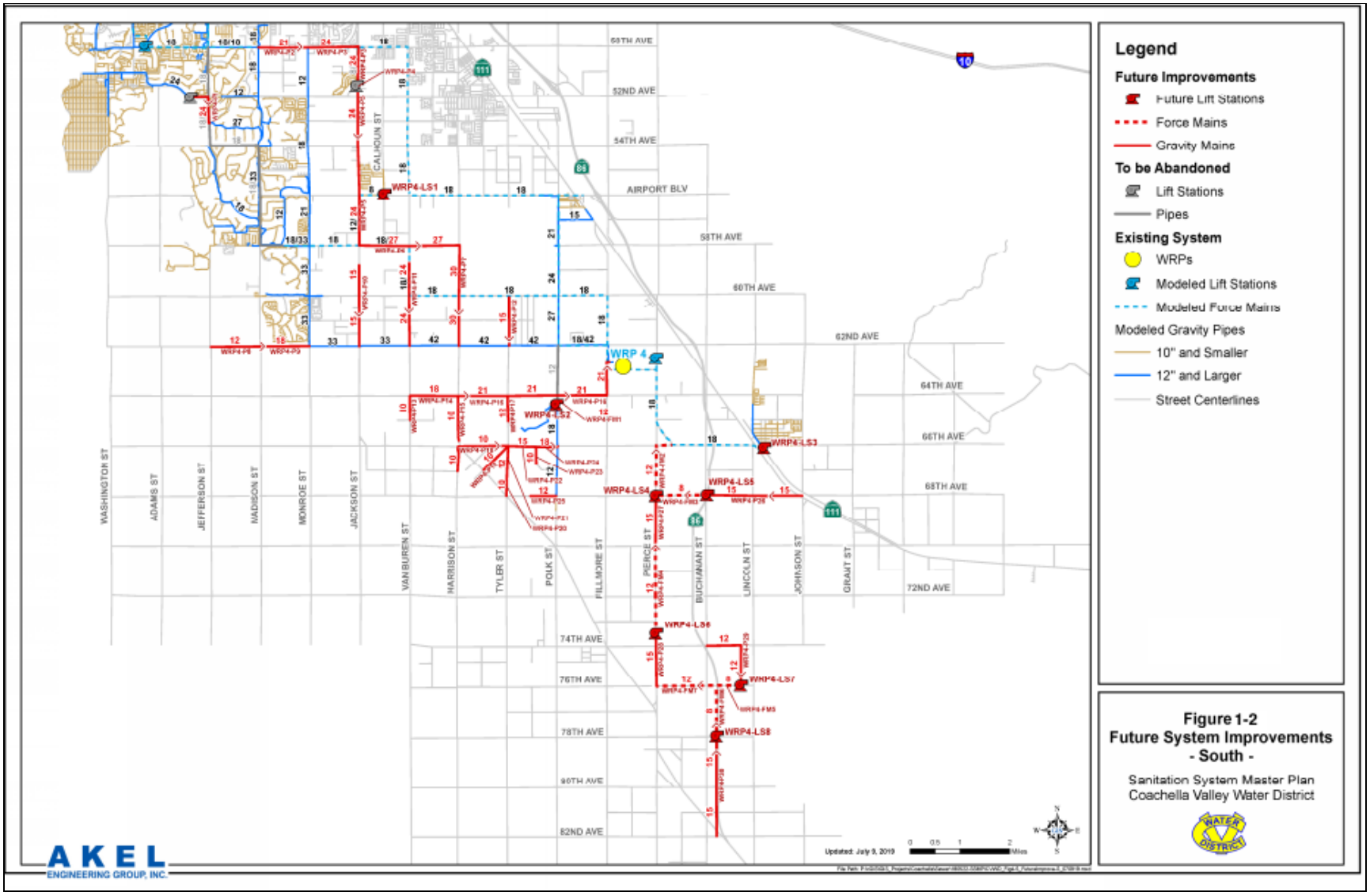

Figure 3-12. Future System Improvements - South

3.1.10 Collection System Condition and Risk Assessment Capital Improvement Projects

Six projects have been identified for the Condition and Risk Assessment CIP. Each of the projects is shown in Figures 3-13 through 3-19 and listed in Table 3-11. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project.

Table 3-11. Condition and Risk Assessment Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
WCCA-1	Renewal Group 1	Various renewal and O&M improvements (P1-RH1 to P1-RH3, P1-RP6, P1-RH7, P1-RP10, P1-M9, P1-CC4, P1-CC5, P1-CC8)		X					X
WCCA-2	Renewal Group 2	Various renewal and O&M improvements (P2-RH9 to P2-RH11, P2-RH13 to P2RH16, P2-M2, P2-M8, P2-M17, P2-M18, P2-CC1, P2-CC3 to P2-CC7, P2-CC12, P2-CC19 to P2-CC22)		X					X
WCCA-3	Renewal Group 3	Various renewal and O&M improvements (P3-M4, P3-M5, P3-M12, P3-M13, P3-CC1 to P3-CC3, P3-CC6 to P3-CC11, P3-CC14 to P3-CC16)							X
WCCA-4	Renewal Group 4	Various renewal and O&M improvements (P4-CC1)							X
WCCA-5	Renewal Group 5	Various renewal and O&M improvements (P5-CC1 to P5-CC6)							X
WCCA-6	Renewal Group 6	Various renewal and O&M improvements (P6-CC1, P6-CC2)							X

Notes:
X = Meets Project Driver(s) and/or Goal(s)
WQ = Water Quality
O&M = Operations and Maintenance

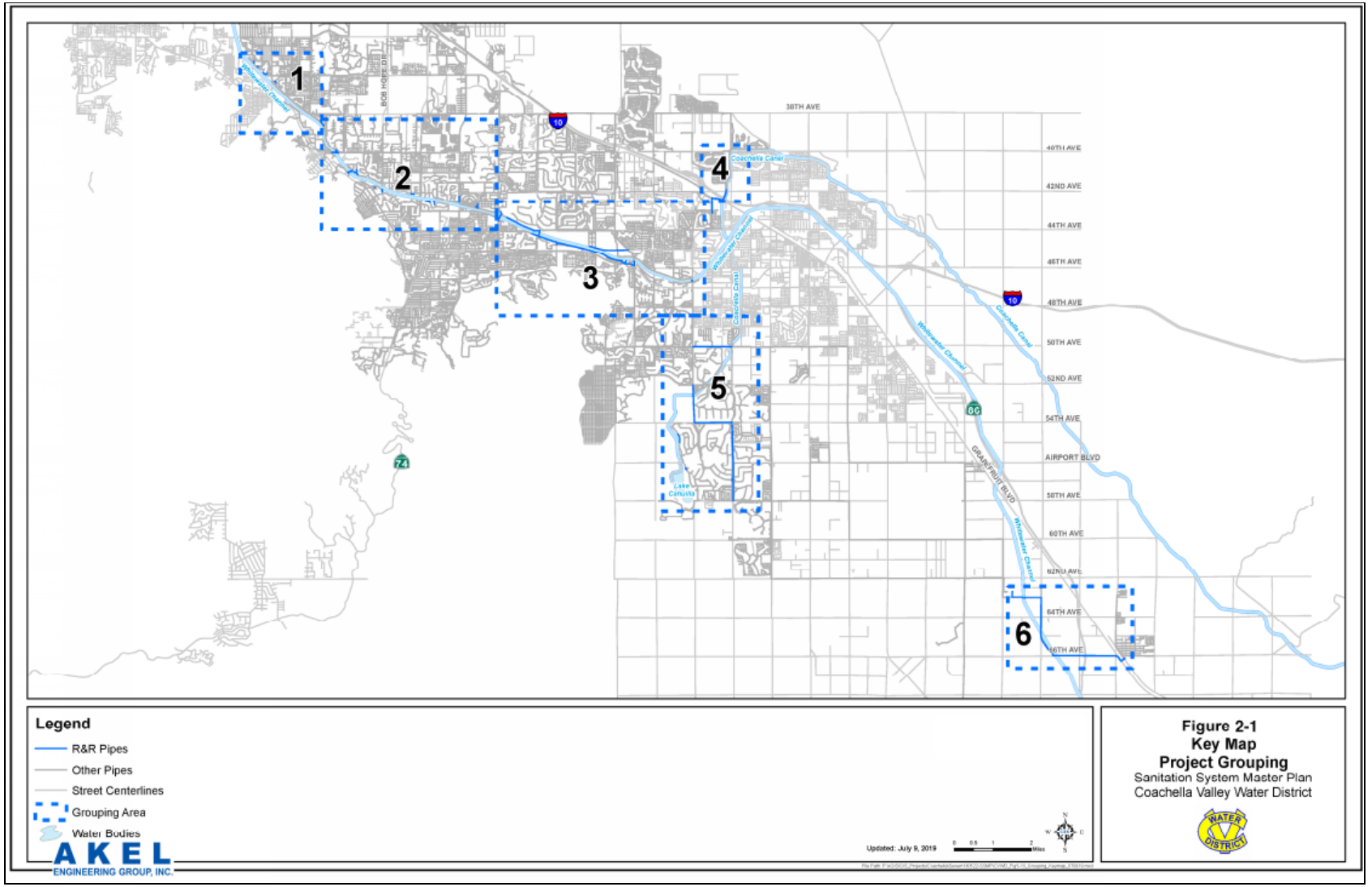

Figure 3-13. R&R Project Grouping

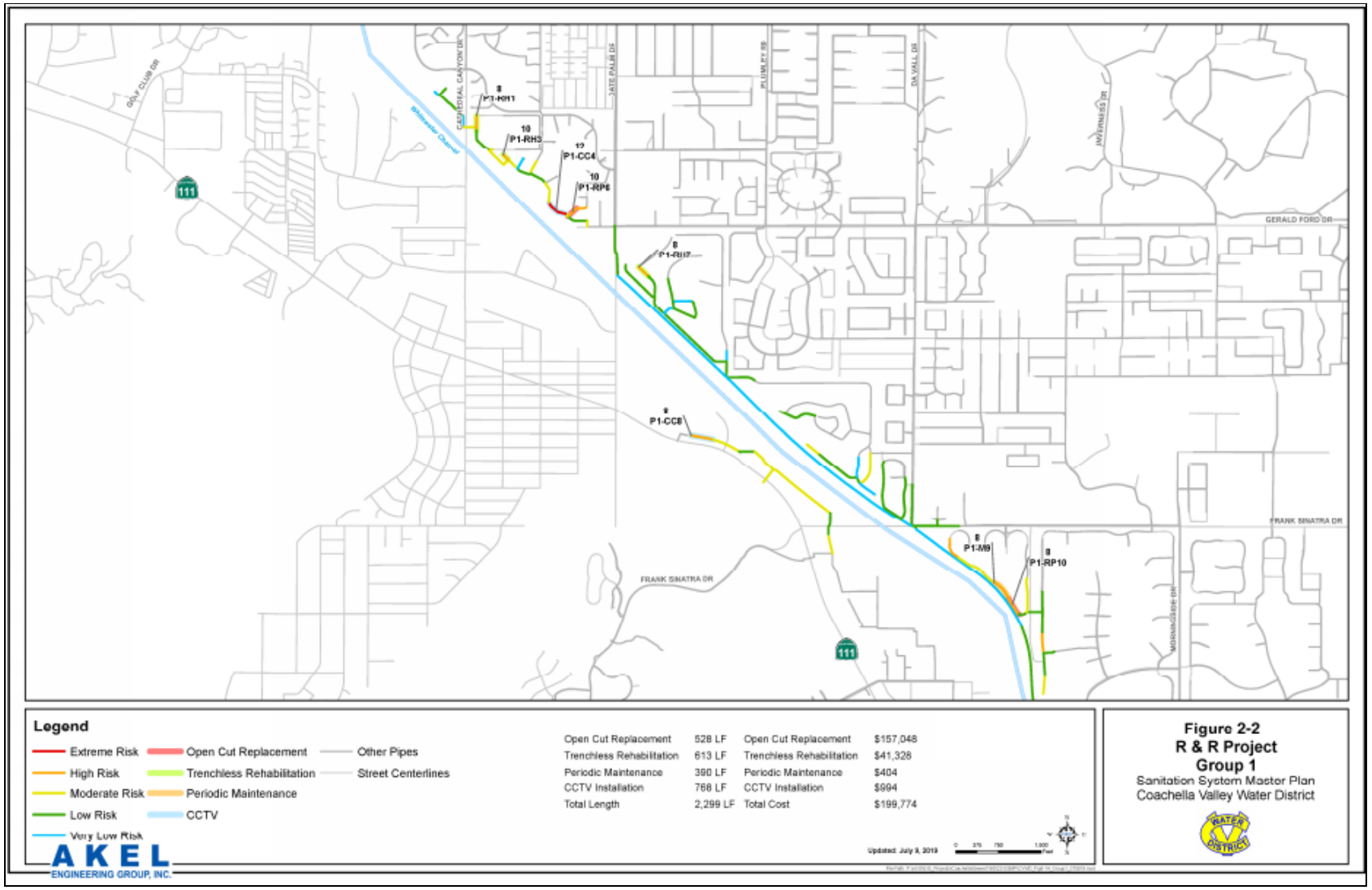

Figure 3-14. R&R Project Group1

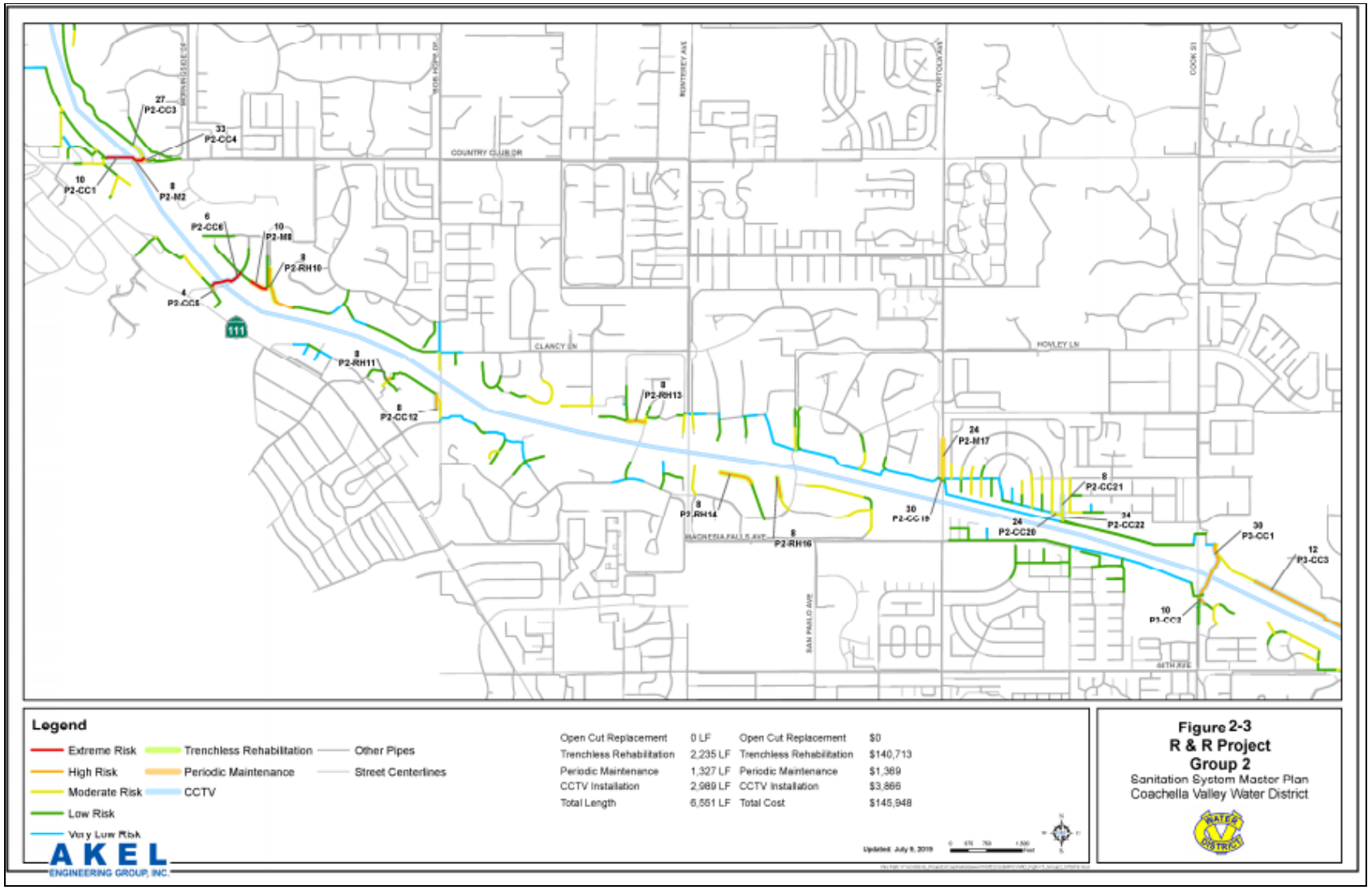

Figure 3-15. R&R Project Group 2

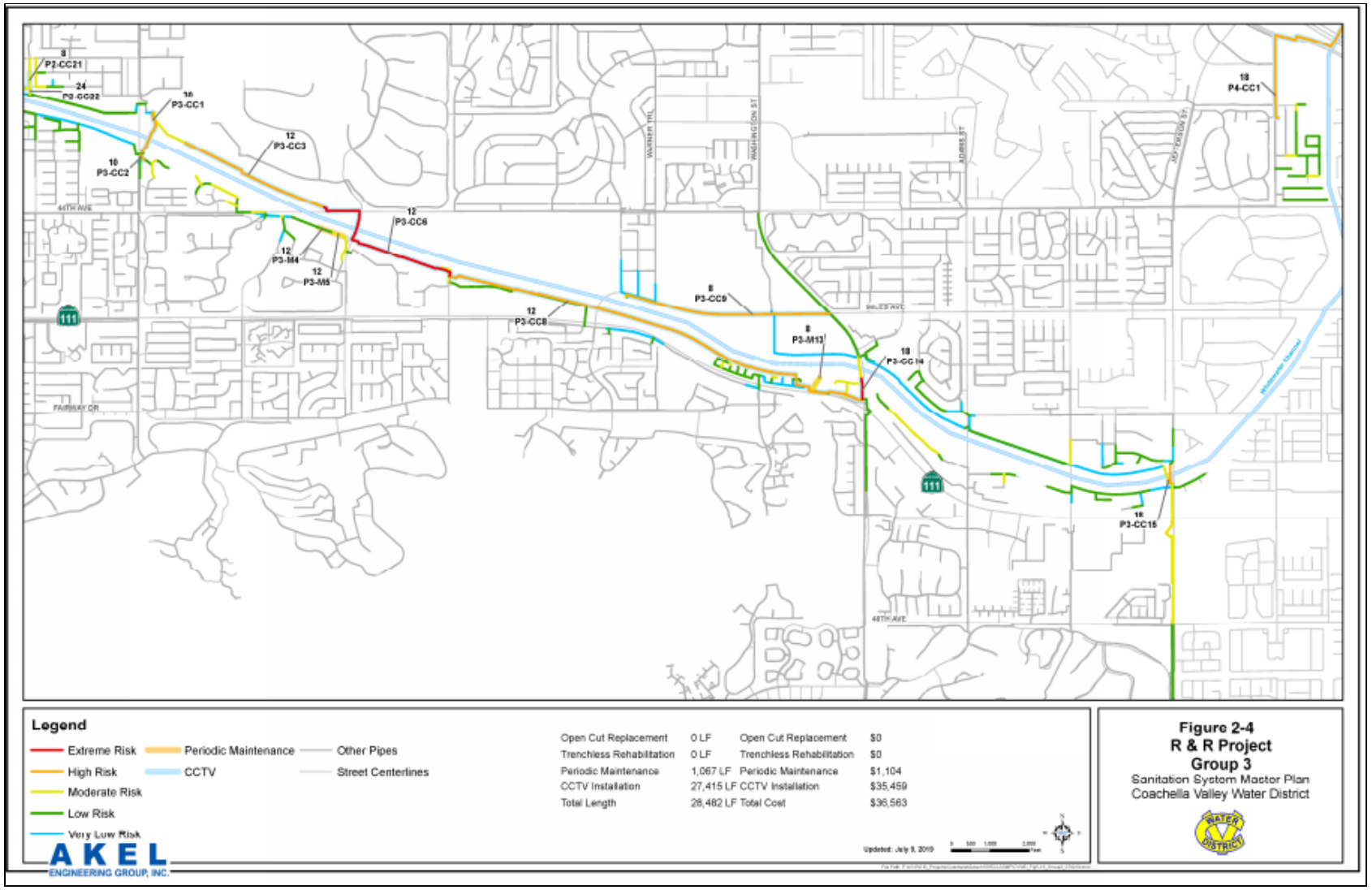

Figure 3-16. R&R Project Group 3

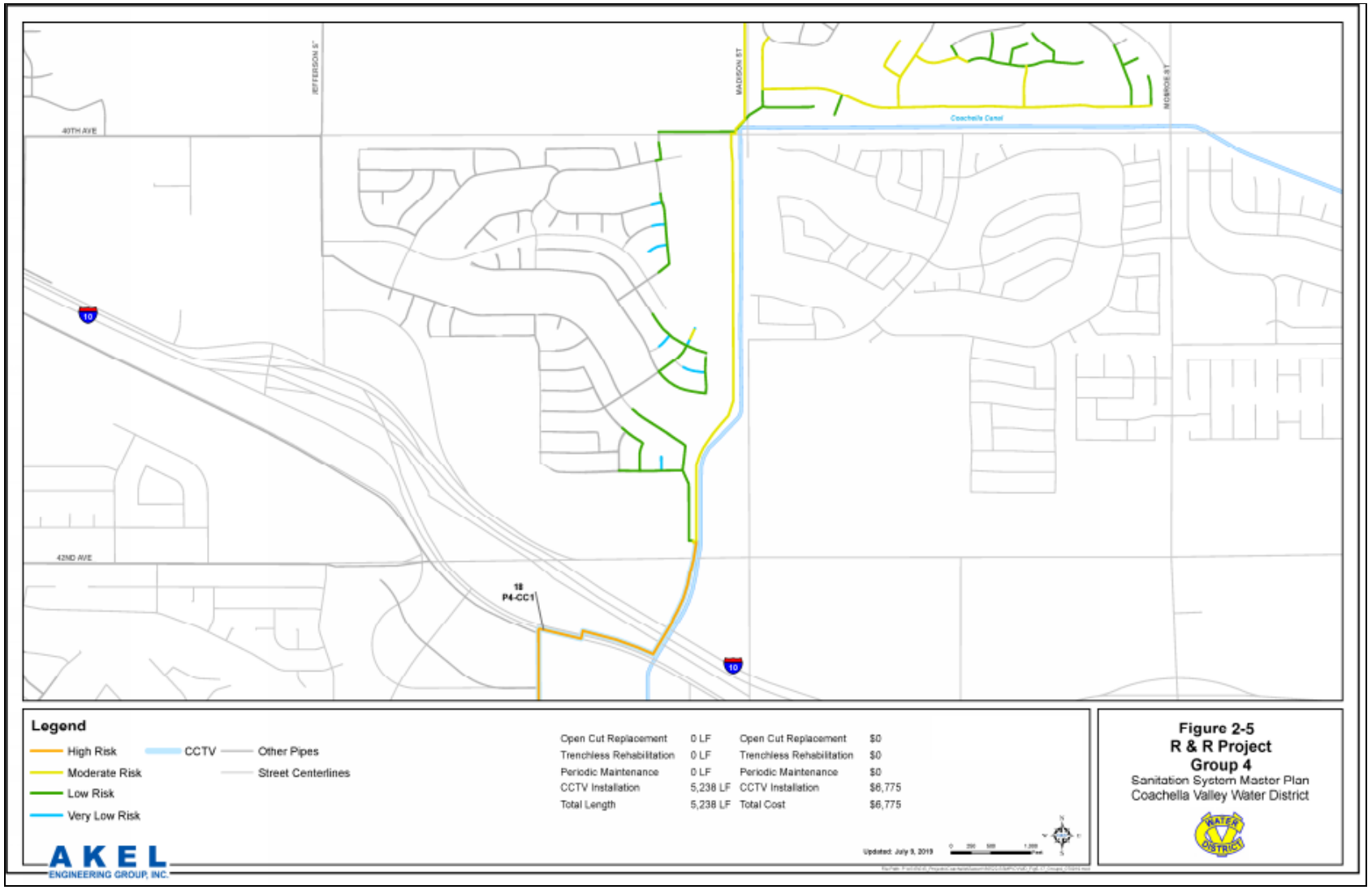

Figure 3-17. R&R Project Group 4

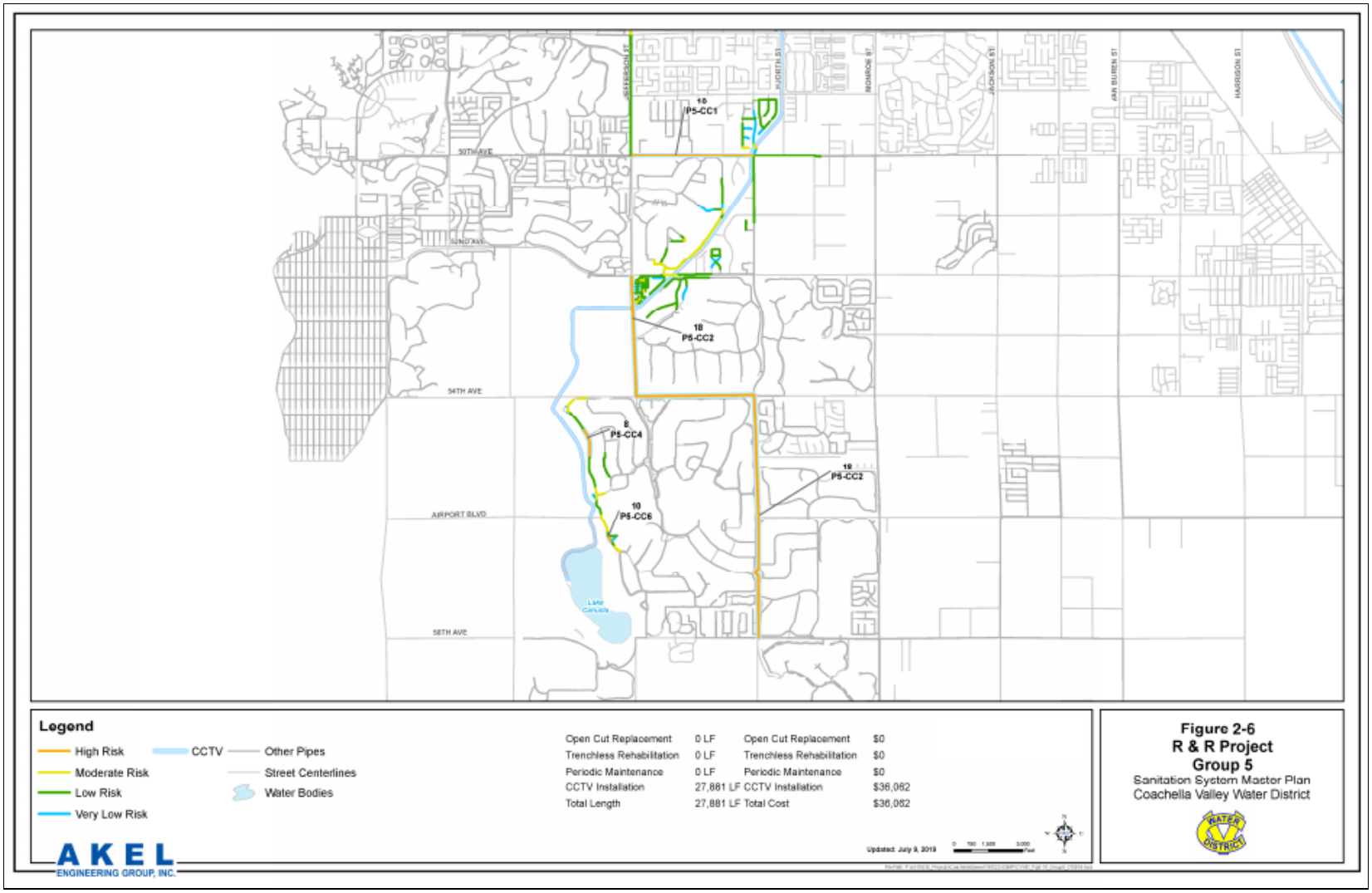

Figure 3-18. R&R Project Group 5

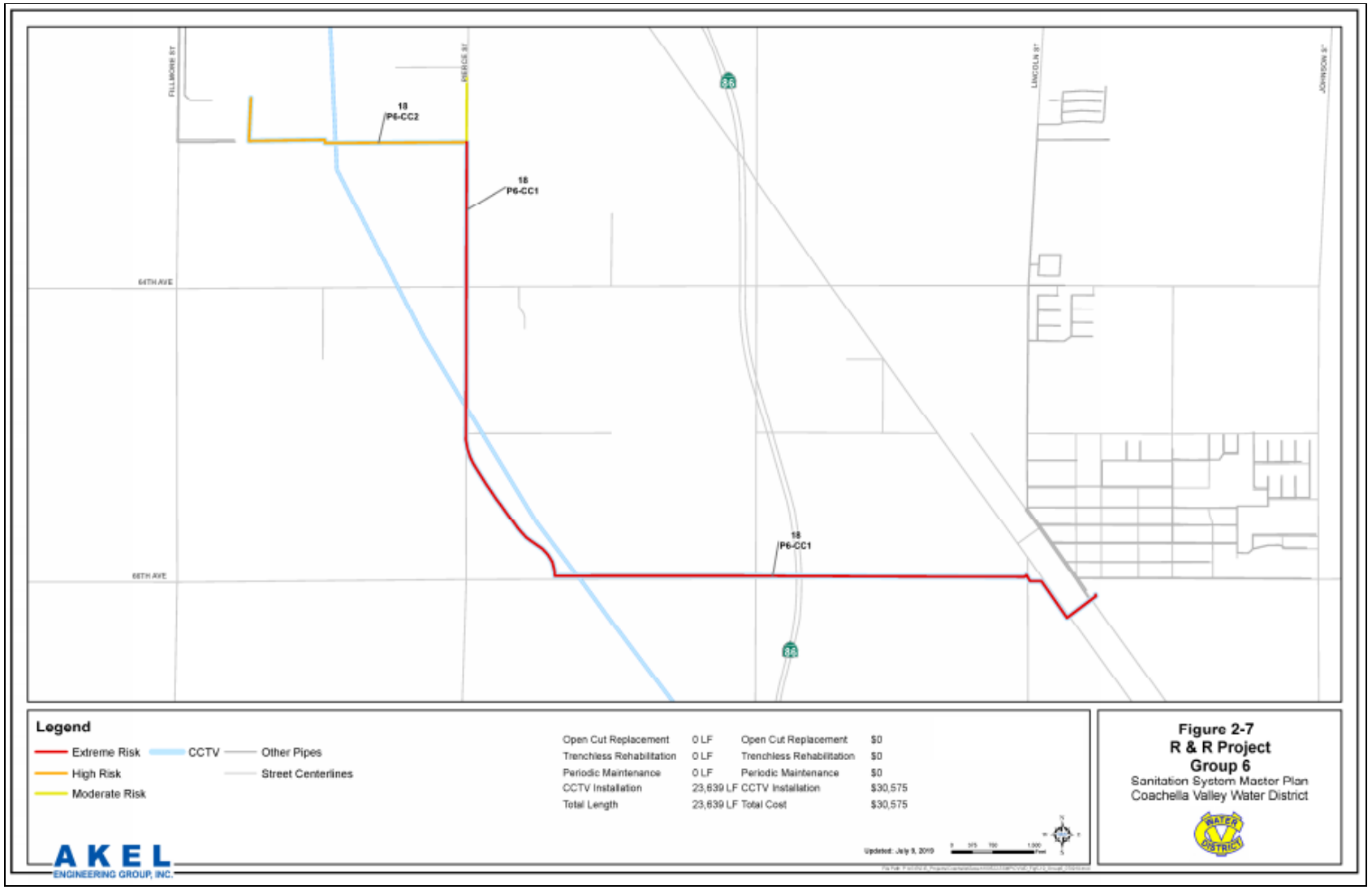

Figure 3-19. R&R Project Group 6

3.1.11 Septic-to-Sewer Conversion Capital Improvement Projects

Six projects have been identified for the Septic-to-Sewer CIP. Each of the projects is shown in Figure 3-20 and listed in Table 3-12. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project.

Table 3-12. Septic-to-Sewer Conversion Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
SWS-1	Priority Area 1 Collection System	Construct new sanitation infrastructure to serve multiple small water systems along Highway 86 between Airport Boulevard and 58th Avenue. Install 10,351 linear feet (LF) of 8-inch and 1,288 LF of 10-inch gravity pipe, 980 LF of 4-inch force main, and construct a 150 gpm capacity lift station. Install 1,165 LF of 8-inch and 6,735 LF of 10-inch gravity pipe. (SWS-P6 to SWS-P10, SWS-LS01)		X					
SWS-2	Priority Area 2 Collection System	Construct new pipelines to serve multiple small water systems along Highway 86 between Pierce Street and Buchanan Street. Install 1,165 LF of 8-inch and 6,735 LF of 10-inch gravity pipe. (SWS-P11 to SWS-P13)		X					
SWS-3	Priority Area 3 Collection System	Construct new sanitation infrastructure to serve multiple small water systems west of Polk Street between 64th Avenue and 65th Avenue. Install 42,010 LF of 8-inch gravity pipe, replace 1,100 LF of 4-inch force main, and construct a 150 gpm capacity replacement lift station. (SWS-P14, SWS-P15, WRP4-P15,WRP4-P16,WRP4-P18,WRP4-P22 to WRP4-P24, WRP-FM1, WRP-LS2)		X					

Table 3-12. Septic-to-Sewer Conversion Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
SWS-4	Additional Pipelines, 62nd Avenue Trunk	Construct new pipelines to serve multiple small water systems north of 62nd Avenue between Jackson Street and Tyler Street. Install 54,227 LF of 8-inch gravity pipe. (SWS-P1 to SWS-P5, WRP4-P5 to WRP-P7, WRP4-P12)		X					
SWS-5	Oasis North Small Water Users	Construct new sanitation infrastructure to serve multiple water systems south of 66th Avenue between Pierce Street and Johnson Street. Install 15,455 LF of 8-inch and 5,350 LF of 10-inch gravity pipe, 5,425 LF of 8-inch and 6,950 LF of 12-inch force main and construct 100 gpm and 300 gpm capacity lift stations. (SWS-P16, WRP4-P26, WRP4-P27, WRP4-FM2, WRP4-FM3, WRP4-LS4, WRP4-LS5)		X					
SWS-6	Oasis South Small Water Users	Construct new sanitation infrastructure to serve multiple small water systems south of 74th Avenue between Pierce Street and the Salton Sea. Install 54,273 LF of 8-inch gravity pipe,26,525 LF of 4-inch force main, and construct 100 gpm and 150 gpm capacity lift stations. (SWS-P17 to SWS-P20, WRP4-P28, WRP4-30, WRP4-FM4, WRP4-FM6, WRP4-FM7, WRP4-LS6, WRP4-LS8)		X					

Notes:
X = Meets Project Driver(s) and/or Goal(s)
WQ = Water Quality
O&M = Operations and Maintenance

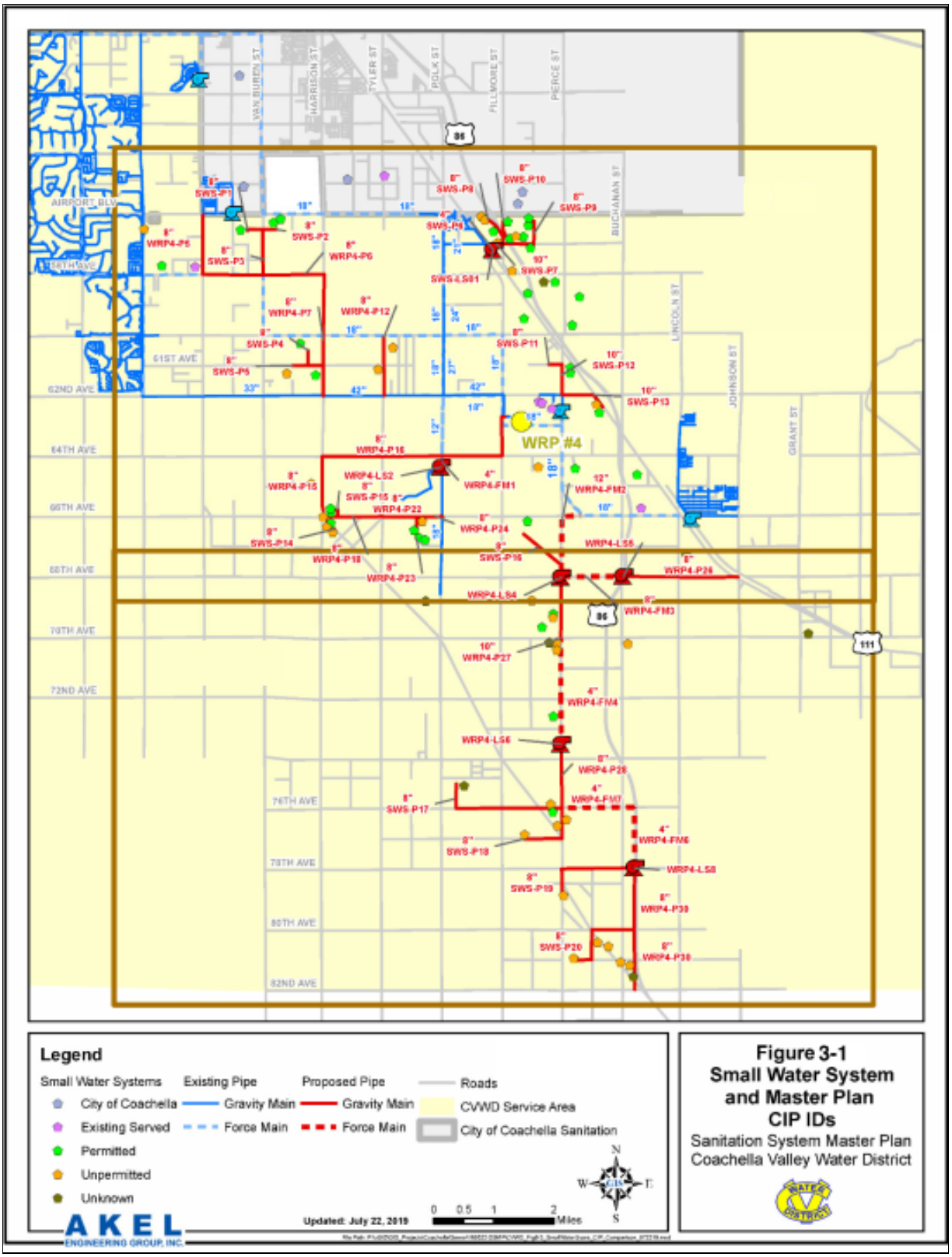

Figure 3-20. Small Water System and Master Plan CIP IDs

3.1.12 Collection System Asset Management Capital Improvement Projects

Sixteen projects have been identified for the Collection System Asset Management CIP which incorporates improvements from the CVWD Five-Year Capital Improvement Program. Each of the projects is shown in Figures 3-21 and 3-22 and listed in Table 3-13. The **black X** in the table signifies the project driver(s) and/or goal(s) met by each project.

Table 3-13. Collection System Asset Management Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
CS-AM-1	Lift Stations – Site Upgrades	Perform site improvements at three existing lift stations (AM-LS1, AM-LS3, AM-LS5)		X	X				
CS-AM-2	Lift Stations – Other Upgrades	Upgrade three lift stations (AM-LS2, AM-LS4, AM-LS6)			X				X
CS-AM-3	Lift Stations – Other Rehabilitation	Perform ongoing and as needed lift station rehabilitation (AM-LS7)			X				X
CS-AM-4	Burr Street Force Main	Improve the existing Burr Street force main (AM-FM1)		X	X				
CS-AM-5	Fred Waring Sewer Rehabilitation	Replace existing 10-inch gravity sewer pipeline (AM-GR1)		X	X				
CS-AM-6	Bob Hope Drive Sewer Relocation	Replace existing 15-inch gravity sewer pipeline (AM-GR2)		X	X				
CS-AM-7	Mecca Sewer and Manhole Replacement and Rehabilitation	Refurbish existing manholes and install cured-in-place pipeline throughout the Community of Mecca (AM-GR3)		X	X				
CS-AM-8	Fairway Drive Sewer Rehabilitation	Replace existing 10-inch gravity sewer pipeline (AM-GR4)		X	X				
CS-AM-9	First Tee Sewer Rehabilitation	Replace existing 10-inch gravity sewer pipeline (AM-GR5)		X	X				

Table 3-13. Collection System Asset Management Capital Improvement Projects

Project ID	Project Title	Project Description	Driver			Level of Service			
			Regulatory	Capacity	Asset Management	WQ Performance	Process Efficiency	Beneficial Reuse	O&M
CS-AM-10	Rancho Mirage, Palm Desert, & La Quinta Manhole Rehabilitation	Replace existing sewer manholes (AM-GR6)		X	X				
CS-AM-11	Avenue 50 Pipeline	Replace existing 18-inch gravity sewer pipeline (AM-GR7)		X	X				
CS-AM-12	Palm Desert & Thousand Palms Sewer Rehabilitation	Refurbish existing manholes and install cured-in-place pipeline throughout the cities of Palm Desert and Thousand Palms (AM-GR8)		X	X				
CS-AM-13	Cedar Crest Sewer Rehabilitation	Replace existing 8-inch gravity sewer pipeline (AM-GR9)		X	X				
CS-AM-14	Avenue 66 Grade Separation Project	Replace existing 8-inch gravity sewer pipeline (AM-GR10)		X	X				
CS-AM-15	Sewer Pipeline Rehabilitation	Perform ongoing and as needed sewer pipeline rehabilitation (AM-GR11)		X	X				
CS-AM-16	Sewer Manhole Rehabilitation	Perform ongoing and as needed manhole rehabilitation (AM-GR12)		X	X				

Notes:
X = Meets Project Driver(s) and/or Goal(s)
WQ = Water Quality
O&M = Operations and Maintenance

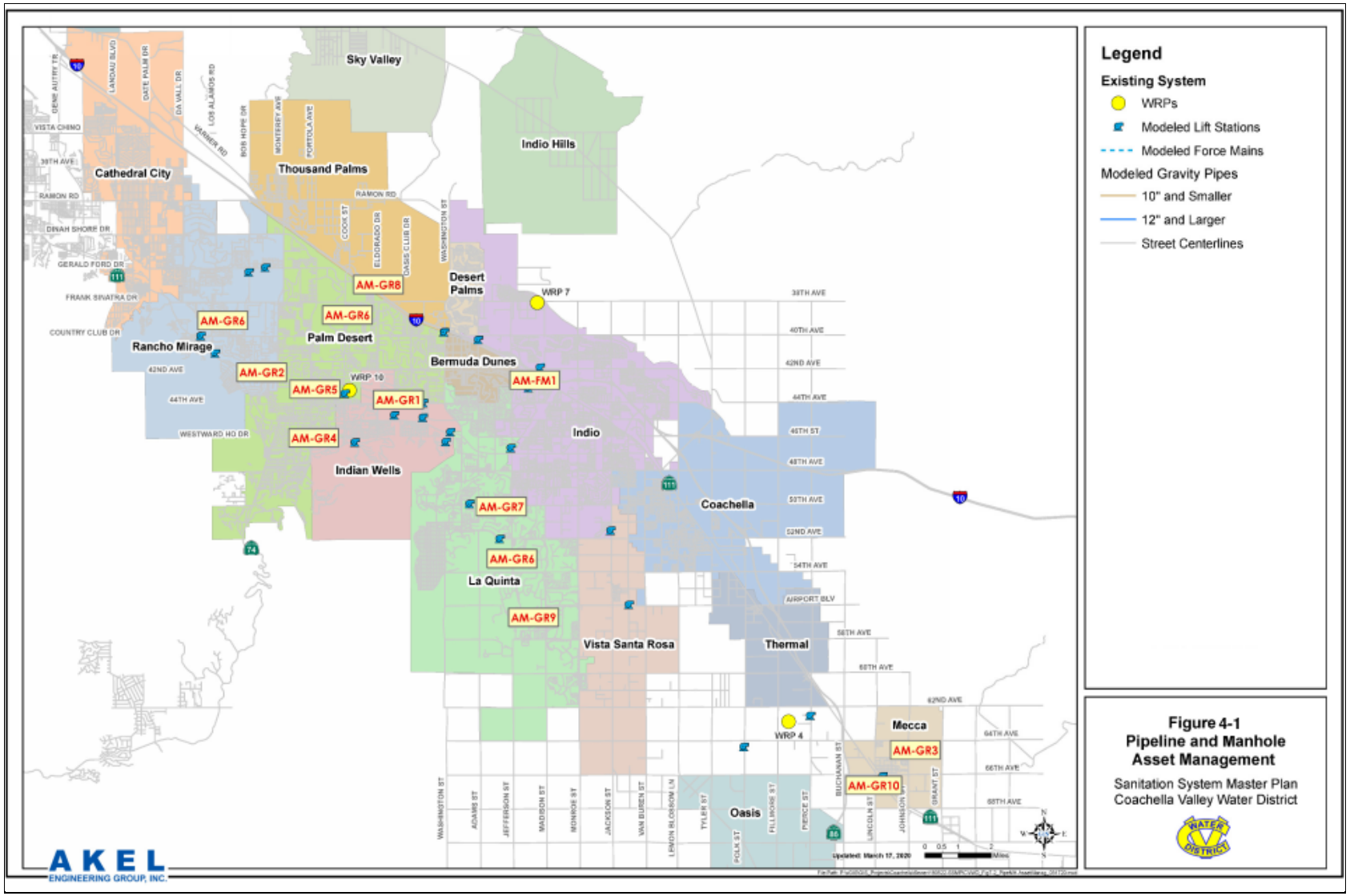

Figure 3-21. Pipeline and Manhole Asset Management

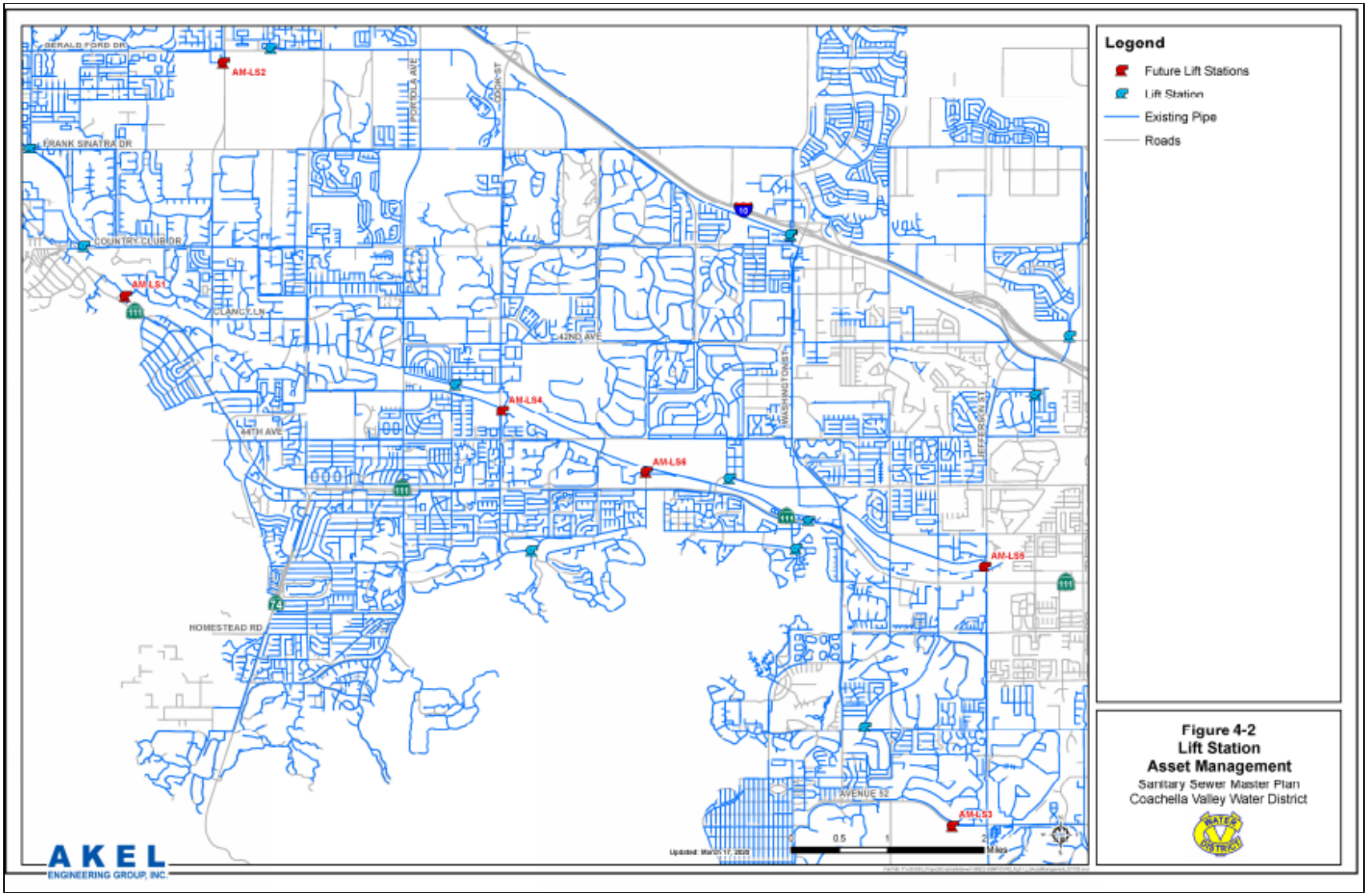

Figure 3-22. Lift Station Asset Management