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MARTHA MCLEAN ANZA NARROWS PARK AND JURUPA AVENUE TRAILHEAD MASTER PLANS, RIVERSIDE GATEWAY PARKS
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

PREPARED FOR:

City of Riverside Parks, Recreation, and Community Services Department, Planning and Design Division
6927 Magnolia Avenue
Riverside, CA 92506
Contact: Alisa Sramala
(951) 826-2021, ASramala@riversideca.gov

Studio-MLA
251 South Mission Road
Los Angeles, CA 90033-3235
Contact: Matt Romero, ASLA

PREPARED BY:

ICF
Contact: Lance Unverzagt

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Acronyms and Abbreviations

°C	degree Celsius
AB	Assembly Bill
AMSL	above mean sea level
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH_4	methane
CHRIS	California Historical Resources Information System
City	City of Riverside
CNEL	Community Noise Equivalent Level
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranking
dB	decibel
dBA	A-weighted decibels
DPR	Department of Recreation
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EMFAC2021	California Air Resources Board's Emission Factor model
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
g	gravitational acceleration

GHG	greenhouse gas
GP 2025	Riverside General Plan 2025
HCP	habitat conservation plan
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
L_{50}	noise level exceeded for 50 percent of the time
L_{eq}	equivalent continuous sound level
LID	low-impact development
L_{max}	maximum noise level
LST	localized significance threshold
mg/L	milligrams per liter
MRZ	mineral resource zone
MSHCP	Multiple Species Habitat Conservation Plan
$MTCO_2e$	metric tons of carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PPV	peak particle velocity
PQP	Public/Quasi-Public
PRC	Public Resources Code
PRCSD	City of Riverside Parks, Recreation, and Community Services Department
proposed project	Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead Master Plans
RFD	Riverside Fire Department
RPD	Riverside Police Department
RPU	Riverside Public Utilities
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SARCP	Santa Ana River Conservancy Program
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area

State CEQA Guidelines	Guidelines for Implementation of the California Environmental Quality Act
SWPPP	Stormwater Pollution Prevention Plan
TCR	tribal cultural resource
VMT	vehicle miles traveled

Chapter 1
Introduction

1.1 Introduction

Document Purpose and Scope

The City of Riverside (City) Parks, Recreation, and Community Services Department (PRCSD), Planning and Design Division is preparing several Park Master Plans for sites along the Santa Ana River Trail in Riverside, California under the Riverside Gateway Parks Program. This suite of projects includes the Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead Master Plans (proposed project), which are the subjects of this environmental document. The City, in its capacity as the lead agency for the proposed project, has determined the need for preparation of an Initial Study (IS) pursuant to provisions of the California Environmental Quality Act (CEQA) of 1970 and the Guidelines for Implementation of CEQA (State CEQA Guidelines), as amended. CEQA formally calls this document an Initial Study, and it is a critical component of the environmental review process. The IS provides decision-makers, other public agencies, private groups, and/or individuals with an objective assessment of whether significant environmental impacts may result from implementing the proposed project.

The proposed project's scope includes the analysis of both the Jurupa Avenue Trailhead and Martha McLean Anza Narrows Park due to their close proximity to one another, their relationship under the Riverside Gateway Parks and Tributaries Restoration Project and Mitigation Reserve Program, and construction for both occurring at approximately the same time.

1.1 Statutory Authority and Relationship to Other Documents

This IS has been prepared in accordance with the requirements of CEQA and the State CEQA Guidelines, codified in the California Code of Regulations (CCR), Title 14, Chapter 3, §15000 et seq., for the purpose of analyzing the direct, indirect, and cumulative environmental effects associated with the proposed project.

The State CEQA Guidelines in §15063(a) require that, "Following preliminary review, the Lead Agency shall conduct an Initial Study to determine if the project may have a significant effect on the environment." If, as a result of the IS, the lead agency finds that there is evidence that any aspect of the proposed project may cause a significant environmental effect, the lead agency shall further find that an Environmental Impact Report (EIR) is warranted to analyze environmental impacts. However, if, on the basis of the IS, the lead agency finds that the proposed project will not cause a significant effect on the environment, either as proposed or as modified to include the mitigation measures identified in the IS, a Negative Declaration or Mitigated Negative Declaration shall be prepared for that pending action.

Presented in this document are the results of the environmental analysis required under §15063 of the State CEQA Guidelines.

Statutory Requirements

Section 15063(d) of the State CEQA Guidelines identifies specific disclosure requirements for inclusion in an IS. Pursuant to those requirements, an IS includes the following:

- A description of the proposed project, including the location of the proposed project;
- An identification of the environmental setting;
- An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries. The brief explanation may be either through a narrative or a reference to another information source such as an attached map, photographs, or an earlier EIR or negative declaration. A reference to another document should include, where appropriate, a citation to the page or pages where the information is found;
- A discussion of ways to mitigate any significant effects identified, if any;
- An examination of whether the proposed project is compatible with existing zoning, plans, and other applicable land use controls; and
- The name of the person or persons who prepared or participated in the preparation of the IS.

Relationship to Other Documents

Pursuant to State CEQA Guidelines §15150, this IS incorporates by reference all or portions of other technical documents that are a matter of public record. Those documents either relate to the proposed project or provide additional information concerning the environmental setting in which the project is proposed. Where all or a portion of another document is incorporated by reference, the incorporated language shall be considered to be set forth in full as part of the text of this IS. A list of technical documents used in preparation of this IS is provided in Chapter 4, *References Cited*.

Tributaries Restoration Project and Mitigation Reserve Program

The San Bernardino Valley Municipal Water District, as the lead agency, adopted an EIR on November 19, 2019, for the Tributaries Restoration Project and Mitigation Reserve Program (ICF 2019; SCH# 2018071024). This project proposed to construct and maintain four tributary restoration sites and create a Mitigation Reserve Program along the Upper Santa Ana River in the cities of Riverside and Jurupa Valley and in Riverside County. The four project sites are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. The proposed project would re-establish, enhance, rehabilitate, and/or preserve jurisdictional aquatic resource habitat and/or improve conditions for Santa Ana sucker. This would be accomplished by improving conditions in existing channels, excavating new channels, restoring associated floodplain surfaces and habitats, controlling nonnative invasive species, supporting the existing local community environmental education and recreational opportunities at each of the sites, and establishing a Mitigation Reserve Program that would provide opportunities for additional restoration activities on each of the sites. The EIR did not identify significant and unavoidable impacts.

The Tributaries Restoration Project and Mitigation Reserve Program would promote responsible access to and use of public recreation in designated locations along the Upper Santa Ana River. The Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead sites were included at least partially in the analysis as Anza Creek and Lower Hole Creek, respectively. As such, this IS incorporates the Tributaries Restoration Project and Mitigation Reserve Program EIR by reference.

1.2 Riverside Gateway Program

As discussed under *Document Purpose and Scope*, above, the Jurupa Avenue Trailhead and Martha McLean Anza Narrows Park constitute two of the eight park sites proposed as part of the Riverside Gateway Parks Program. Master plans for other park sites in the City are being prepared for Loring Park, Camp Evans, Carlson Park/St. Francis Falls, Tequesquite North, Tequesquite South, and Santa Ana River Greenway. The Riverside Gateway Parks Program is a forward-looking proposal to recover, re-conceive, and re-engage with the Santa Ana River to deliver ecological, recreational, cultural, social, and economic value to the City's inhabitants. The Riverside Gateway Parks Program is primarily funded by a grant provided by the State Coastal Conservancy. The Riverside Gateway Parks Program proposed by PRCSD involves a multidisciplinary effort for the planning, design, engineering, and associated community outreach and environmental compliance for CEQA review for eight identified park sites in the City.

The Santa Ana River Trail adjacent to the Santa Ana River is completed throughout its length in the City. After completing the 2018 update to the Citywide Parks System Master Plan, PRCSD proposed to complete planning and design for improvements and enhancement to existing and proposed park areas along the Santa Ana River. The master planned park and open space improvements support the goals and objectives of the Santa Ana River Parkway and Open Space Plan that was completed in 2018. Development of these park sites would comply with the City's overarching goal to "put the river back into Riverside" by providing diverse recreational and educational opportunities, access to open space, and restoration of natural habitat for people and wildlife. Additionally, the work contributes to several of the City's Strategic Plan Priorities and Goals (Coastal Conservancy 2018).

- Priority 1 – Arts, Culture and Recreation:
    - Goal 1.3: improve parks, recreational amenities, open space, and trail development, and fulfill critical lifecycle and facility maintenance needs
    - Goal 1.4: to prioritize safety at parks, trails, arts, cultural and recreational facilities
- Priority 2 – Community Wellbeing:
    - Goal 2.3: strengthen neighborhood identities and improve community health and the physical environment through amenities and programs that foster an increased sense of community and enhanced feelings of pride and belonging citywide, and
- Priority 4 – Environmental Stewardship:
    - Goal 4.5: Maintain and conserve 30% of Riverside's natural lands in green space including, but not limited to, agricultural lands and urban forests in order to protect and restore Riverside's rich biodiversity and accelerate the natural removal of carbon, furthering our community's climate resilience.
- Priority 5 – High Performing Government:

- Goal 5.3: enhance communication and collaboration with community members to improve transparency, build public trust, and encourage shared decision-making.

Chapter 2
Project Description

2.1 Project Location

The proposed project includes approximately 47 acres featuring active and passive recreation opportunities on existing, undeveloped public land in the City of Riverside within Riverside County, California (City of Riverside 2022a) (see Appendix B1, *Martha McLean Anza Narrows Park Master Plan,* and Appendix B2, *Jurupa Avenue Trailhead Master Plan*). Specific project location details regarding Martha McLean Anza Narrows Park and the Jurupa Avenue Trailhead are described below.

Martha McLean Anza Narrows Park

The approximately 39.5-acre Martha McLean Anza Narrows Park project site consists of the existing Martha McLean Anza Narrows Park, which is City-owned and managed parkland at 5759 Jurupa Avenue in the City of Riverside within Riverside County, California (see Appendix B1, *Martha McLean Anza Narrows Park Master Plan*). The regional location is shown on Figure 1, *Regional Vicinity Map*. The project site is bounded by the Santa Ana River Trail to the north and east, Jurupa Avenue to the south, and Union Pacific Railroad to the west. The local vicinity of the proposed project site is shown on Figure 2, *Local Vicinity Map*. The Assessor's Parcel Number (APN) for the site is 187-210-0008. The project site is in Ward 1 of the Grand neighborhood area.

Jurupa Avenue Trailhead

The approximately 7.7-acre Jurupa Avenue Trailhead project site consists of undeveloped City-owned and managed parkland immediately adjacent to the Santa Ana River Trail in the City of Riverside within Riverside County, California (see Appendix B2, *Jurupa Avenue Trailhead Master Plan*). The regional location is shown on Figure 1. The project site is bounded by the Santa Ana River to the north, Van Buren Boulevard to the east, Jurupa Avenue to the south, and Bradford Street to the west. The Santa Ana River Trail surrounds the project site to the east, south, and west. The local vicinity of the proposed project site is shown on Figure 2. The APN for the site is 155-060-027. The project site is in Ward 7 in the Airport neighborhood area.

2.2 Existing Conditions

Martha McLean Anza Narrows Park

The Martha McLean Anza Narrows Park project site is an existing park built in 1990 that consists of turf, trees, irrigated plants, walking paths, picnic tables, a disc golf course, and restrooms. There is adjacent land owned by Riverside County on which there is direct Santa Ana River access through a chain-link fence, where there is a mix of native and nonnative plants and trees. The path to the river is an informal and uneven mix of stones, sand and river debris. Future improvements to provide

better access to the river, including Americans with Disabilities Act–compliant access, are not analyzed in this MND and will be subject to a separate, future project-level analysis. The project site acts as a vista with views to the north of the Jurupa Valley basin, Jurupa Mountain, and Santa Ana River.

The project site is surrounded by the Santa Ana River Trail to the north, the Santa Ana River Trail and single-family homes to the east, Union Pacific Railroad and a vacant lot across Jurupa Avenue to the south, and Union Pacific Railroad to the west.

As an existing park in the City, the project site has a Riverside General Plan 2025 (GP 2025) land use designation of Public Park (P) and a zoning designation of Public Facilities (PF). The surrounding parcels have a Public Park (P) land use to the north, Public Park (P) and Low Density Residential (LDR) land uses to the east, Right-of-Way (ROW) and High Density Residential (HDR) land uses to the south, and Right-of-Way (ROW) to the west (City of Riverside 2023). The project site is in Ward 1 in the Grand neighborhood area.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site is along Jurupa Avenue. It is bordered by a residential neighborhood to the west, and the north and east sides of the project run along the Hole Lake recreation area. The site is near what will soon be a car wash on the northwest corner of Van Buren Boulevard and Jurupa Avenue, and a gas station with a convenience store on the southwest corner of Van Buren Boulevard and Jurupa Avenue. It is currently undeveloped and does not provide recreational opportunities. Project site elevations range from approximately 690 to 750 feet, and, while much of the site is flat, it has steeped terraced edges along Hole Lake with slopes as steep as 60 percent within the southern portion.

The proposed project site is primarily undeveloped City-owned and -maintained park land with groundcover of dry grasses and dirt paths. Much of the site is disturbed land that is mowed annually for weed abatement. The proposed project site is sparsely vegetated, primarily with nonnative plants and ornamental trees. A vegetated drainage with a mix of native and invasive plants runs through the eastern edge of the site. The proposed project site acts as a vista with views to the north of the Jurupa Valley basin, Jurupa Mountain, and Santa Ana River.

The Jurupa Avenue Trailhead is zoned as Residential Estate (RE) and has a GP 2025 land use designation of Open Space (OS). Surrounding parcels have Open Space (OS) land uses to the north, Commercial and Public Facilities/Institutional to the east, Private Recreation and Open Space to the south, and Medium Density Residential to the west (City of Riverside 2023). The project site is in Ward 7 in the La Sierra Acres neighborhood area.

2.3 Project Objectives

The objectives for the proposed project are:

- Develop park areas to increase and improve free or low-cost, easily accessible recreational opportunities so that the community has convenient access to play, exercise, connect with nature, and gather as a community, increasing the community's physical, emotional, and social health and wellness.

- Provide a formal connection between the project sites, the Santa Ana River, and the Santa Ana River Trail.
- Plant native and other low-water-use vegetation and trees in barren and underutilized public lands to beautify them and to increase the quantity and quality of habitat.
- Create support amenities for the Santa Ana River Parkway and Trail such as drinking water, bike racks and parking, bicycle repair station, parking for cars and trailers, seating, and shaded resting areas for the community to connect with the Santa Ana River.
- Provide diverse recreational and educational opportunities, access to open space, and restoration of natural habitat for people and wildlife.

2.4 Project Characteristics

The proposed project provides master plans for two of eight sites, Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead, identified to receive funds as part of the City of Riverside Santa Ana Parkway Improvements Projects (also referred to as the Riverside Gateway Parks Project) under the Santa Ana River Conservancy Program (SARCP). The proposed project would create parks and trails with passive and active recreational features. A detailed description of the proposed changes at both project sites is detailed below.

Martha McLean Anza Narrows Park

After collaboration between PRCSD and the residents of the City, it was determined that education, river-related elements, and views were of the highest interest to the public in regard to Martha McLean Anza Narrows Park (PRCSD 2022). To fulfill these goals, the proposed project would develop additional passive and active recreational amenities on 10.63 acres of undeveloped parkland at the existing Martha McLean Anza Narrows Park such as a direct connection to the Santa Ana River with terraced steps, a decomposed granite pedestrian trail, play areas, outlooks, seating, gardens, restrooms, parking, bike racks/stops, and landscaping. Vehicular access to the project site would be along the driveway on Jurupa Avenue. Figure 3, *Martha McLean Anza Narrows Site Plan*, and the Martha McLean Anza Narrows Park Master Plan provided in Appendix B1 depict the proposed development of the site. The proposed project is designed to provide a low-use, high-security development that capitalizes on the views, existing trail, geologic features, and native landscaping options on the project site.

The anticipated buildout for the proposed project includes the following recreational features provided in the master plan (PRCSD 2022):

- An outpost overlook
- Terraced river steps
- Community meadow and gathering space
- Water play arroyo
- Nature play area
- Restrooms, outdoor showers, and storage
- Re-aligned parking (48 parking spots [currently 43 spots])

- Stormwater management bioswale
- Road rehabilitation-vehicle barrier (curb, fencing, boulders, etc.)
- Proposed parking (27 spots) with bollards or gates from entering the bike path
- Exercise stations
- Native pollinator gardens
- Band shell and community meadow
- Bike rest stop
- Vehicular barrier along pedestrian walk
- Vehicular access gate/Santa Ana River Trail safety check points
- River outlook swings
- Shaded seating area and crosswalk to river access
- Terraced hillside steps
- Overlook seating area
- Ridge trail
- Native pollinator planting: seasonally seeded
- Outdoor classroom

The construction schedule is not known as of July 2023, as this project is still in the Master Plan phase. Once project design is completed and construction funding is identified, the construction schedule will be finalized. For the purposes of this document, conservative estimates were utilized for air quality analysis as provided by the California Emissions Estimator Model (CalEEMod) and the preparers of the analysis assumed that the construction period starts on January 1, 2024, and ends on March 29, 2025. Construction would comply with the City of Riverside Municipal Code and construction activities are not anticipated to take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday. Construction of the proposed project would result in approximately 135 cubic yards of soil export during the grading phase. The removal of this debris is estimated to require a maximum of one haul truck trip per day during the grading phase, with other phases experiencing four daily haul truck trips. Aside from haul truck trips, daily work/vendor/delivery truck trips would also occur during construction of the proposed project. Maintenance activities during project operations may involve vehicles traveling to the site and use of small equipment that may be needed to remove weeds and trash from the site, similar to current operations at the existing park.

An existing storm drain pipe outlets and drains into the Camp Evans area. The proposed recreational development will not impact the storm drain, but the outlet area and channel downstream will need to be cleaned of sediment build-up periodically to ensure positive drainage. The impacts of this on-going maintenance work is included in this document

Jurupa Avenue Trailhead

The proposed project would develop a public park and trailhead to provide a variety of passive recreational opportunities including paths and trails, native planting and pollinator gardens, seating,

shade structures, educational signage, and overlooks. Active park elements include bike paths and music and nature play areas.

Figure 4, *Jurupa Avenue Trailhead Site Plan*, and the Jurupa Avenue Trailhead Master Plan provided in Appendix B2 depict the proposed development of the site. The proposed project is designed to provide a low-use, high-security development that capitalizes on the views, existing trail, geologic features, and native landscaping options on the project site. Pedestrian and vehicular access would both be available on Jurupa Avenue. The portion of the Santa Ana River Trail that runs through the project site would be overlaid with decomposed granite in order to function as a pedestrian path, and a new bike path would connect to Jurupa Avenue and run adjacent to the trail. The eastern portion of the site, which includes ornamental trees and native and nonnative vegetation, comprises the biological avoidance zone and would not be developed as part of the project. Vehicular parking would be provided on site along Jurupa Avenue.

To enhance the natural site characteristics and restore habitat at the proposed project site, the project design would utilize natural materials, including decomposed granite for paths and landing, as well as gravel, cobblestones, and landscaping boulders along walkways. Shade trees, such as elderberry, desert willow, and oak trees, would be incorporated into the landscape design along with native shrubs, flowers, and succulents. Reused concrete would be used for walls, and concrete would be used for walls, benches, and stairs. Additional shade features and wildlife screens would be constructed from steel.

The anticipated buildout for the proposed project includes the following recreational features provided in the master plan (PRCSD 2022):

- Vehicular access gate/safety check point
- Entry monument sign
- Park gateway monument
- Pedestrian connection to crosswalk to Rutland Park
- Sidewalk with planted buffer
- New bike path alignment
- Decomposed granite pedestrian path
- New vegetation buffer
- Bike hub with restrooms
- Demonstration garden
- Nature play area
- Large shade structures
- Arroyo Plaza play area
- Music play area with trees
- Great lawn
- Native plant seeded area
- Boulders as vehicular barrier

- Native planting seeded area
- Outlook with benches

The construction schedule is not known as of July 2023, as this project is still in the Master Plan phase. Once project design is completed and construction funding is identified, the construction schedule will be finalized. For the purposes of this document, conservative estimates were utilized for air quality analysis as provided by CalEEMod and the preparers of the analysis assumed that the construction period started on January 1, 2024, and ended on March 29, 2025 but is contingent upon when construction funding is obtained. Construction would comply with the City of Riverside Municipal Code and construction activities are not anticipated to take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday. Construction of the proposed project would result in approximately 985 cubic yards of soil export during the grading phase. The removal of this debris is estimated to require a maximum of seven haul truck trips per day during the grading phase, with other phases experiencing zero daily haul truck trips. Aside from haul truck trips, daily work/vendor/delivery truck trips would also occur during construction of the proposed project. Maintenance activities during project operations may involve vehicles traveling to the site and use of small equipment that may be needed to remove weeds and trash from the site.

2.5 Discretionary Actions Requested and Permits Required

The proposed project would require the following regulatory approvals from the City as the lead agency:

- Certificate of Appropriateness
- Building Permit

Chapter 3
Environmental Checklist

1.	**Project Title:**	Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead Master Plans, Riverside Gateway Parks Project
2.	**Lead Agency Name and Address:**	City of Riverside, 6927 Magnolia Avenue, Riverside, CA 92506
3.	**Contact Person and Phone Number:**	Alisa Sramala, (951) 826-2021
4.	**Project Location:**	Martha McLean Anza Narrows Park (5759 Jurupa Avenue and APN 187-210-0008) and Jurupa Avenue Trailhead (APN 155-060-027), Riverside, CA
5.	**Project Sponsor's Name and Address:**	City of Riverside, 6927 Magnolia Avenue, Riverside, CA 92506
6.	**General Plan Designation:**	Martha McLean Anza Narrows Park: Public Park (P) Jurupa Avenue Trailhead: Open Space (OS)
7.	**Zoning:**	Martha McLean Anza Narrows Park: Public Facilities (PF) Jurupa Avenue Trailhead: Residential Estate (RE)

8. Description of Project:

The proposed project would develop a new park with recreational amenities at the Jurupa Avenue Trailhead site and install additional active and passive recreational amenities at the existing Martha McLean Anza Narrows Park site. A detailed list of project components can be found in Section 2.4, *Project Characteristics*.

An existing storm drain pipe outlets and drains into the Camp Evans area. The proposed recreational development will not impact the storm drain, but the outlet area and channel downstream will need to be cleaned of sediment build-up periodically to ensure positive drainage. The impacts of this on-going maintenance work is included in this document

9. Surrounding Land Uses and Setting:

Martha McLean Anza Narrows Park

The project site is surrounded by the Santa Ana River Trail to the north, the Santa Ana River Trail and single-family homes to the east, Union Pacific Railroad and a vacant lot across Jurupa Avenue to the south, and Union Pacific Railroad to the west.

As an existing park in the City, the project site has a General Plan land use designation of Public Park (P) and a zoning designation of Public Facilities (PF). The surrounding parcels have a Public Park (P) land use to the north, Public Park (P) and Low Density Residential (LDR) land uses to the east, Right-of-Way (ROW) and High Density Residential (HDR) land uses to the south, and Right-of-Way (ROW) to the west (City of Riverside 2023).

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site is surrounded by a residential neighborhood to the west, and the north and east sides of the project run along the Hole Lake recreation area.

The Jurupa Avenue Trailhead is zoned as Residential Estate (RE) and has a GP 2025 land use designation of Open Space (OS). Surrounding parcels have Open Space (OS) land uses to the north, Commercial and Public Facilities/Institutional to the east, Private Recreation and Open Space to the south, and Medium Density Residential to the west (City of Riverside 2023).

10. Other Public Agencies Whose Approval is Required:

None

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts on tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code Section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

The City sent out Assembly Bill 52 consultation notices to tribes to initiate consultation on September 22, 2022. The following California Native American tribes were notified pursuant to Public Resources Code Section 21080.3.1:

- Gabrieleño Band of Mission Indians–Kizh Nation
- Soboba Band of Luiseño Indians (responded with request for project consultation)
- Cahuilla Band of Indians
- Pechanga Cultural Resources Department
- Rincon Band of Luiseño Indians
- San Manuel Band of Mission Indians (Yuhaaviatam of San Manuel Nation responded with request for more information and possible project consultation)
- Morongo Band of Mission Indians (responded with request for project consultation)
- Agua Caliente Band of Cahuilla Indians
- San Gabriel Band of Mission Indians

Coordination with the tribes is ongoing.

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils/ Paleontological Resources	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

3.2 Determination

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature	Date
Printed Name	For

3.3 Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less than Significant with Mitigation Incorporated" applies when the incorporation of mitigation measures has reduced an effect from a "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level. (Mitigation measures from *Earlier Analyses*, as described in #5 below, may be cross-referenced.)
5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

3.4 Specific Evaluation of Environmental Impacts for the Proposed Project

As mentioned in Section 1.1, *Introduction*, the proposed project consists of the evaluation of environmental impacts for both the Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead sites due to their close proximity to one another, their relationship under the Riverside Gateway Parks Program, and that construction of both occurring at approximately at the same time. Therefore, the analysis in the following sections determine the individual impacts of each site as well as an overall impact analysis that accounts for the cumulative impacts of both sites. If both sites can be covered under the same analysis, it is covered under one analysis.

I Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☒	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Affected Environment

Although the majority of Riverside is urbanized, the hills and ridgelines that surround the City provide scenic vistas to residents of Riverside where they can experience long-distance views of natural terrain. Vista points can be found throughout the City, both as viewed from urban areas toward the hills and from wilderness areas toward Riverside. The most notable scenic vistas in the City include the La Sierra/Norco Hills, Sycamore Canyon Wilderness Park, and Box Springs Mountain Regional Park. The peaks of Box Springs Mountain, Mount Rubidoux, Arlington Mountain, Alessandro Heights, and the La Sierra/Norco Hills provide scenic views of the City and the region (City of Riverside 2007).

The Santa Ana River watercourse and riverbed is another prominent scenic resource that extends from the City's northern edge. The Santa Ana River is a place of natural beauty and of important natural habitat for many species of birds and other animals as well as being a prominent visual landmark for visitors and residents. Both project sites act as vistas with views to the north of the Jurupa Valley basin, Jurupa Mountain, and the Santa Ana River.

Martha McLean Anza Narrows Park

The Martha McLean Anza Narrows Park project site currently consists of turf, trees, irrigated plants, walking paths, picnic tables, a disc golf course, and restrooms. The area of the park site to be improved includes undeveloped City-owned and -managed parkland. The site has direct Santa Ana

River access through a chain-link fence, where there is a mix of native and nonnative plants and trees. The path to the river is an informal and uneven mix of stones, sand, and river debris. The project site is surrounded by the Santa Ana River Trail to the north, the Santa Ana River Trail and single-family homes to the east, Union Pacific Railroad and a vacant lot across Jurupa Avenue to the south, and Union Pacific Railroad to the west.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site is primarily undeveloped City-owned and -managed park land. The surrounding land uses include a residential neighborhood to the west, recreation areas to the east, and the Santa Ana River to the north. Project site elevations range from approximately 690 to 750 feet, and, while much of the site is flat, it has steeped terraced edges along Hole Lake with slopes as steep as 60 percent within the southern portion. The project site is sparsely vegetated, primarily with nonnative plants and ornamental trees.

Discussion

a. Have a substantial adverse effect on a scenic vista?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The Martha McLean Anza Narrows Park project site currently consists of undeveloped parkland and recreational facilities including turf, trees, irrigated plants, walking paths, picnic tables, a disc golf course, and restrooms. The proposed project site acts as a vista with views to the north of the Jurupa Valley basin, Jurupa Mountain, and Santa Ana River. Implementation of the proposed project would include new scenic overlooks and terraced river steps that provide improved public access to scenic vistas at the project site. The proposed project would also include a new decomposed granite trail, planting of native vegetation and trees, and other recreational components that would beautify the project site compared to existing conditions. Additionally, the project would not develop any large-scale buildings that would block views of scenic vistas. Therefore, the proposed project would not be expected to have a substantial adverse effect on a scenic vista, and the impact from construction and operation of the proposed project would be less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The Jurupa Avenue Trailhead project site is primarily undeveloped City-owned and -maintained park land with groundcover of dry grasses and dirt paths. The proposed project site is sparsely vegetated, primarily with nonnative plants and ornamental trees. The proposed project site acts as a vista with views to the north of the Jurupa Valley basin, Jurupa Mountain, and Santa Ana River. Implementation of the proposed project would include new scenic overlooks with benches and provide improved public access to scenic vistas at the proposed project site. The proposed project would also include planting native vegetation and trees to beautify the currently barren and underutilized public land. Therefore, the proposed project would not be expected to have a substantial adverse effect on a scenic vista, and the impact from construction and operation of the proposed project would be less than significant.

Overall Impact

Less-than-Significant Impact. The proposed project would beautify both project sites with new recreational amenities and landscaping, would provide seating and outlooks to improve access/ views to scenic vistas, and would not develop any structures that would block views of scenic vistas surrounding the project sites. Therefore, the project would have a less-than-significant impact regarding scenic vistas.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?

Martha McLean Anza Narrows Park

No Impact. The Martha McLean Anza Narrows Park project site is not along or adjacent to an officially designated scenic highway under the California State Scenic Highway Mapping System. The closest officially designated scenic highway to the project site, a portion of State Route 91, is approximately 20 miles southwest of the project site (Caltrans 2023). Due to the large distance between the project site and the closest officially designated scenic highway, the proposed project would have no impact.

The City has designated several scenic and special boulevards within the City that meet local criteria for designation as scenic routes as shown on Figure 5.1-1, Scenic and Special Boulevards and Parkways, of the GP 2025 Programmatic EIR. The project site is not along or adjacent to any designated scenic and special boulevards. The closest scenic and special boulevard, Arlington Avenue, is approximately 1.1 miles south of the project site (City of Riverside 2007). Due to the large distance between the project site and the closest designated scenic and special boulevard, the proposed project would have no impact.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The Jurupa Avenue Trailhead project site is sparsely vegetated with trees. The eastern portion of the site, which includes ornamental trees and native and nonnative vegetation, comprises the biological avoidance zone and would not be developed as part of the project. There are no rock outcroppings in the portion of the project site that would be developed. The proposed project site is not within a California State Scenic Highway as designated on the California Scenic Highway Mapping System (Caltrans 2023). According to Figure 5.1-1, Scenic and Special Boulevards, of the GP 2025 Programmatic EIR, Van Buren Boulevard, which runs along the eastern border of the proposed project site, is a locally designated scenic boulevard (City of Riverside 2007). Implementation of the proposed project would not result in the construction of any structures or features that would extend into the right-of-way or obstruct the view. Therefore, the proposed project would not substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway, and the impact would be less than significant.

Overall Impact

Less-than-Significant Impact. Only the Jurupa Avenue Trailhead project site lies along a scenic boulevard. However, the proposed project would not extend and develop into the right-of-way. Therefore, the proposed project would not substantially damage scenic resources, including but not

limited to trees, rock outcroppings, and historic buildings within a state scenic highway, and project impacts would be less than significant.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The Martha McLean Anza Narrows Park project site is within an urbanized portion of the City. Therefore, the analysis discusses if the project would conflict with applicable zoning and other regulations governing scenic quality.

The project site has a General Plan land use designation of Public Park (P) and a zoning designation of Public Facilities (PF). The proposed project would incorporate park improvements such as formal access to the river, a new trail, an outdoor classroom, playgrounds, scenic overlooks, a community meadow, landscaping, seating, restrooms, and parking lots that are allowed under the zoning designation and are considered beneficial for the community. Additionally, the proposed project would further the Riverside Gateway Program's goals of providing diverse recreational and educational opportunities, access to open space, and restoration of natural habitat for people and wildlife. Therefore, the proposed project would not degrade the existing visual character or quality of the site or its surroundings, but instead would enhance these features of the site. Therefore, the proposed project impact would be considered less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The Jurupa Avenue Trailhead project site is adjacent to land zoned as Open Space, Private Recreation, Medium Density Residential, and Commercial and Public Facilities/Institutional. The proposed project includes the development of a public park and trailhead; additional park space is generally considered a beneficial impact on a community. The proposed project includes publicly accessible pathways and trails, pollinator gardens, trees and other shade structures, seating, scenic overlooks, and music and nature play areas. These amenities would improve the currently undeveloped space to create a park capitalizing on the area's views and natural features. A vegetation buffer would be planted along the western border of the project site, which would create visual separation from the residential neighborhood. Therefore, the proposed project would not degrade the existing visual character or quality of the site or its surroundings but instead would enhance these features of the site. Therefore, the proposed project impact would be considered less than significant.

Overall Impact

Less-than-Significant Impact. The project sites would not conflict with applicable zoning regulations or degrade the existing visual character of the site or surrounding areas. Therefore, the proposed project would have a less-than-significant impact.

d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project would include safety lighting along accessible trail routes and potentially other lighting at recreational features, Americans with Disabilities Act–compliant parking, and walkways. The new lighting would be required to comply with Lighting Zone One guidelines as outlined in Section 19.556.080, Design and Development Standards, in the City of Riverside Municipal Code. The new lighting would be required to be hooded and directed downward and designed to avoid offsite spillage. In addition, the proposed project's lighting plans, to be prepared along with building plans, would undergo an internal review by the Building Division of the Community Development Department. Therefore, the proposed project would not be expected to create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area, and the proposed project impact would be considered less than significant.

II Agricultural and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Affected Environment

Agriculture has historically been an important part of Riverside's economy. According to the 2021 Agricultural Production Report issued by the Riverside County Agricultural Commissioner's Office, in 2021 the county's total gross agricultural valuation was roughly $1.5 billion ($1,405,910,000). This was a decrease of $12 million (1 percent) from the 2020 total (County of Riverside 2021).

Martha McLean Anza Narrows Park

The Martha McLean Anza Narrows Park project site consists of approximately 39.5 acres of City-owned and -maintained parkland with improvements proposed on 10.63 acres of the existing park site. According to the California Department of Conservation's Farmland Mapping and Monitoring Program, the proposed project site is classified as Urban and Built-Up Land (CDOC 2022). Surrounding areas are classified as Urban and Built-Up Land and Other Land. Particularly within City limits, areas identified as important farmland are in fact largely developed or planned for other uses. The proposed project is not within areas designated as forestland.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site consists of approximately 7.7 acres of primarily undeveloped City-owned and -maintained parkland. The site is sparsely vegetated, generally by nonnative plants and ornamental trees. According to the California Department of Conservation's Farmland Mapping and Monitoring Program, the proposed project site is classified as Other Land (CDOC 2022). Surrounding areas are classified as Urban and Built-Up Land and Farmland of Local Importance. According to GP 2025, areas classified as Farmland of Local Importance are non-irrigated properties that are either currently producing crops or had the capacity of production (City of Riverside 2012). Particularly within City limits, areas identified as important farmland are in fact largely developed or planned for other uses. The proposed project is not within areas designated as forestland.

Discussion

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. Both project sites are not on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and are classified as Urban and Built-Up Land and/or Other Land (CDOC 2022). As such, construction and operation of the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, no impact would occur.

b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act.

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. According to Figure OS-3, Williamson Act Preserves, of the GP 2025 Open Space and Conservation Element, both project sites are not within an area that is affected by a Williamson Act Preserve or under a Williamson Act Contract (City of Riverside 2012). Furthermore, both project sites are not zoned for agricultural use; therefore, no impact would occur.

c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. According to Figure OS-5, Habitat Areas and Vegetation Communities, of the GP 2025 Open Space and Conservation Element, the project sites do not contain any forestland or timberland. The Martha McLean Anza Narrows Park site is zoned Public Facilities (PF) and consists of an existing park. The Jurupa Avenue Trailhead project site is zoned as Residential Estate (RE) and is sparsely vegetated, generally by nonnative plants and ornamental trees. Therefore, construction and operation of the proposed project would not conflict with existing zoning for forestland or timberland, and no impact would occur.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. As discussed in Threshold II.c., no forestland is within either project site. Construction and operation of the proposed project would not result in the loss of forestland or conversion of forestland to non-forest use. No impact would occur.

e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project sites do not include existing agricultural or forestland. Construction and operation of the proposed project would not result in the conversion of farmland to non-agricultural use or the conversion of forestland to non-forest use. No impact would occur.

III Air Quality

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Affected Environment

This section discusses National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) and existing air quality conditions, identifies sensitive receptors, and describes the regulatory framework for air quality management. Air quality modeling inputs, assumptions, and results are contained in Appendices C1 and C2. The study area for this resource is generally defined as the proposed project construction and operational footprint, as well as the City of Riverside and Riverside County.

Air quality management agencies of direct importance in Riverside County are the U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), and South Coast Air Quality Management District (SCAQMD). EPA has established federal air quality standards for which CARB and SCAQMD have primary implementation responsibility. CARB and SCAQMD are also responsible for ensuring that state air quality standards are met.

Both project sites are within the South Coast Air Basin (Basin), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is bounded to west by the Pacific Ocean and to the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains. Within the Basin, ozone (O_3), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and particulate matter less than 10 microns in diameter (PM_{10}) are the pollutants of primary concern. Both federal and state standards for ozone and $PM_{2.5}$ are not met in the Basin and EPA has designated the Basin as a nonattainment area for these pollutants. In addition, state standards for PM_{10} are not met in the Basin (SCAQMD 2022).

Discussion

a. Conflict with or obstruct implementation of the applicable air quality plan?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The 2022 Air Quality Management Plan (AQMP) was adopted by SCAQMD as a program to lead the Basin into compliance with criteria pollutant standards and other federal requirements for which the Basin is not in compliance. The 2022 AQMP relies on emission forecasts based on the demographic and economic growth projections provided by the Southern California Association of Governments' 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2020). The Southern California Association of Governments is required to develop demographic projections and regional transportation strategy and control measures for the AQMP, including the socioeconomic forecast (e.g., population and growth forecasts) upon which the AQMP is based (SCAQMD 2022). A project is considered to be consistent with the AQMP and to not obstruct its implementation if, in part, it is consistent with the demographic and economic growth projections used in the formulation of the AQMP. SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, a lead agency must assess both:

a) Whether the project would directly obstruct implementation of the plan through an increase in the frequency or severity of existing air quality violations, or cause or contribute to, new violations, or delay timely attainment of air quality standards (Criterion No. 1)

b) Whether it is consistent with the demographic and economic assumptions (typically land use related, such as resultant employment or residential units) upon which the plan is based (Criterion No. 2) (SCAQMD 1993)

Criterion No. 1

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

As discussed below under Thresholds III.b and III.c, the proposed project would not obstruct implementation of the 2022 AQMP because emissions resulting from its construction and operation would not exceed SCAQMD's regional mass emissions thresholds and localized significance thresholds (LSTs); refer to Table III-1 through Table III-7. The proposed project's emissions would therefore not increase concentrations of criteria pollutants or their precursors in a manner that could obstruct SCAQMD's efforts to achieve timely attainment of ambient air quality standards for any criteria pollutant for which the Basin is currently not in attainment or jeopardize the current attainment status of the Basin for other criteria pollutants.

Criterion No. 2

The following sections provide a discussion of the proposed project's incorporation of emission-control measures and its consistency with demographic and economic assumptions used in development of the AQMP.

Emission-Control Measures

During the construction period, the proposed project would require contractors to adhere to the CARB on-road vehicle and off-road equipment requirements, which would limit the level of construction emissions caused by the proposed project. In addition, the proposed project would be required pursuant to state law to use contractors that are in compliance with the CARB Air Toxic Control Measure that limits heavy-duty diesel motor vehicle idling to no more than 5 minutes at any given location.[1] The project contractor(s) would also be required by state regulations to comply with the fleet on-road heavy-duty vehicle emissions standards consistent with Measure MOB-06[2] from the 2022 AQMP (SCAQMD 2022).

These control strategies are intended to reduce emissions from on-road and off-road heavy-duty vehicles and equipment and are implemented by accelerating the replacement of older engines that produce higher pollutant emissions with newer engines that produce lower pollutant emissions. The proposed project would comply with regulatory requirements to minimize short-term emissions from on-road and off-road diesel vehicles and equipment and SCAQMD's rules for controlling fugitive dust, as identified in SCAQMD Rule 403.

Land Use and Demographic and Economic Projections

Martha McLean Anza Narrows Park

The proposed project would be consistent with the existing GP 2025 and zoning designations. Currently, the proposed project site consists of unimproved City-owned and -maintained parkland with turf, trees, irrigated plants, walking paths, picnic tables, a disc golf course, and restrooms on the larger park site. The proposed project site has a General Plan land use designation of Public Park (P) and a zoning designation of Public Facilities (PF). The surrounding parcels have a Public Park (P) land use to the north, Public Park (P) and Low Density Residential (LDR) land uses to the east, Right-of-Way (ROW) and High Density Residential (HDR) land uses to the south, and Right-of-Way (ROW) to the west (City of Riverside 2023). The proposed project is defined as a *community park*, which the City describes as a park intended to meet the recreational and open space needs of the larger community, as well as those of the adjacent neighborhoods (City of Riverside 2007). Furthermore, as a community park, the proposed project would not include any land uses that would promote growth within the project area. Therefore, the proposed project would be consistent with the land use assumptions used in development of the AQMP and the growth forecast from the 2022 AQMP and the active RTP/SCS at the time, the 2020–2045 RTP/SCS.

Jurupa Avenue Trailhead

The proposed project would be consistent with the existing GP 2025 land use designations and inconsistent with zoning designations. However, as discussed further below and in Section XI, *Land Use and Planning*, the proposed project would support the current use of the site. Currently, the proposed project site consists of primarily undeveloped City-owned and -maintained parkland with groundcover of dry grasses and dirt paths. The proposed project site is zoned as Residential Estate

[1] The Air Toxic Control Measure (13 CCR Section 2485) specifies measures to reduce public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines and alternative idle-reduction technologies to limit the idling of diesel-fueled commercial motor vehicles.

[2] MOB-06: Accelerated Retirement of Older On-Road Heavy-Duty Vehicles [NO_X, PM]

(RE) and has a GP 2025 land use designation of Open Space (OS). The City's zoning code states that parks are not permitted on land zoned Residential Estate (RE) but does not explicitly prohibit landscaping intended to preserve natural resources or protect public health and safety. However, the Santa Ana River Trail is an existing feature of the proposed project site, so the site already serves a recreational purpose. Surrounding parcels have Open Space land uses to the north, Commercial and Public Facilities/Institutional to the east, Private Recreation and Open Space to the south, and Medium Density Residential to the west. The proposed Jurupa Ave Trailhead is defined as a *neighborhood park*, which the City describes as a park that satisfies non-programmed recreation and open space needs at a location within convenient walking distance (0.5 mile) of the population it serves (City of Riverside 2007). Furthermore, as a neighborhood park, the proposed project would not include any land uses that would promote growth within the project area. Therefore, the proposed project would be consistent with the land use assumptions used in development of the AQMP and the growth forecast from the 2022 AQMP and the active RTP/SCS at the time, the 2020–2045 RTP/SCS.

Overall Impact

Less-than-Significant Impact. As discussed above, the proposed project would be consistent with Criterion No. 1 and Criterion No. 2 of the 2022 AQMP. Therefore, the proposed project would not conflict with or obstruct implementation of the 2022 AQMP and the proposed project would result in a less-than-significant impact.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. SCAQMD has established air quality significance thresholds that are applicable to both construction and operational emissions generated by projects within its jurisdiction. These significance thresholds were derived using regional emissions modeling to determine maximum allowable mass quantities of pollutant emissions that could be generated by individual projects without adversely affecting air quality and creating public health concerns based on existing pollution levels. These regional pollutant emission thresholds are shown in Table III-1.

Table III-1. SCAQMD Regional Air Quality Significance Thresholds

	Mass Daily Thresholds (pounds per day)	
Pollutant	**Construction**	**Operation**
Nitrogen Oxides (NO_X)	100	55
Volatile Organic Compounds (VOC)[a]	75	55
Suspended Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Sulfur Oxides (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead (Pb)[b]	3	3

Source: SCAQMD 2019.

[a] The terms VOC and reactive organic gases (ROG) are used interchangeably. SCAQMD uses VOC, and CalEEMod uses ROG.
[b] The proposed project would result in no lead emission sources during the construction period or operations. As such, lead emissions are not evaluated herein.

Short-term Construction Emissions

Construction associated with the project site would generate criteria pollutant emissions from the following activities: demolition, site preparation, grading, building construction, paving, architectural coating, and construction worker, vendor, and haul trips. These construction activities have the potential to temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary depending on the intensity and types of construction activities occurring simultaneously. The project proposes to develop approximately 3.3 acres of programmable park amenities within the existing park (Appendix J1).

Construction of the proposed project would result in approximately 135 cubic yards of soil import during the grading phase and an estimated 300 tons of debris removal during the demolition phase. Respectively, such activities are estimated to require a maximum of one hauling truck trip per day during the grading phase and a maximum of four haul truck trips per day during the demolition phase. Other construction phases would experience zero daily haul truck trips. Aside from haul truck trips, daily work/vendor/delivery truck trips would also occur during construction of the proposed project.

The proposed project's short-term construction emissions were estimated using CalEEMod, version 2022.1 (CAPCOA 2022). The modeling was conducted based on project-specific construction data (e.g., material export) provided by the project applicant. Where project-specific information was not available, reasonable assumptions based on similar projects and default model settings were used to estimate criteria air pollutant and O_3 precursor emissions. This analysis assumed a worst-case scenario with construction starting on January 1, 2024, and ending on March 29, 2025.

The proposed project would implement the required SCAQMD Rule 403 during construction to minimize construction-related fugitive PM_{10} and $PM_{2.5}$ dust emissions. SCAQMD Rule 403 requires watering exposed ground three times a day, cleaning trucks and track-outs, and covering/watering haul truck loads (SCAQMD 2005).

The modeled peak daily emissions of criteria air pollutants and O_3 precursors associated with construction of the proposed project with SCAQMD Rule 403 incorporated are presented in Table III-2. Because SCAQMD Rule 403 is a regulatory requirement that every project within the SCAQMD must follow, it is not considered mitigation.

Table III-2. Martha McLean Anza Narrows Park Regional Criteria Pollutant Construction Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Construction Year	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
2024	3.73	36.05	34.03	0.05	6.94	4.15
2025	3.22	10.53	13.80	0.02	0.61	0.44
Maximum Daily Regional Emissions during Project Construction	3.73	36.05	34.03	0.05	6.94	4.15

	Total Regional Pollutant Emissions (pounds per day)					
Construction Year	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Regional Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod methodology (Appendix C1).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_X = sulfur oxides

As shown in Table III-2, the maximum level of daily unmitigated construction emissions generated by the proposed project would not exceed SCAQMD's daily significance thresholds for any criteria pollutants during any of the construction phases. CalEEMod modeling inputs and results can be found in Appendix C1. Construction impacts would be less than significant.

Long-term Operational Emissions

Implementation of the proposed project would result in long-term regional emissions of criteria air pollutants and O_3 precursors associated with mobile and area sources. The proposed project does not propose any land uses that would have long-term operational air emissions besides area and mobile sources.[3]

Based on the Traffic Assessment for the project (Appendix J1), the proposed project is anticipated to generate a net increase of 70 trips per day on a typical weekday and a net increase of 63 trips per day on a typical Saturday compared to existing conditions. In addition, the proposed project is anticipated to generate 161 maintenance trips per year, including two weekly landscaping trips, one weekly trash services trip, one quarterly inspection, and one annual tree trimming. Maintenance trip rates were provided by the project applicant for park projects of similar size. These traffic volumes are very small and, as such, would generate minimal mobile source emissions.

Table III-3 presents the daily operational emissions from the proposed project. As shown, the proposed project would result in long-term regional emissions of criteria air pollutants and O_3 precursors that would be below SCAQMD's applicable thresholds and operational impacts would be less than significant.

Table III-3. Martha McLean Anza Narrows Park Regional Criteria Pollutant Operational Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Proposed Project	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Mobile Sources	0.33	0.37	3.12	0.01	0.25	0.05
Area Sources	0.17	0.00	0.00	0.00	0.00	0.00
Total Emissions	0.50	0.37	3.12	0.01	0.25	0.05
Regional Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C1).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_X = sulfur oxides

[3] The proposed project's electrical demand would not result in direct onsite operational air emissions.

Jurupa Avenue Trailhead

Short-term Construction Emissions

Construction associated with the project site would generate criteria pollutant emissions from the following activities: site preparation, grading, building construction, paving, and construction worker, vendor, and haul trips. These construction activities have the potential to temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary depending on the intensity and types of construction activities occurring simultaneously. The total construction footprint is approximately 7.7 acres.

Construction of the proposed project would result in approximately 985 cubic yards of soil export during the grading phase. The removal of this debris is estimated to require a maximum of seven haul truck trips per day during the grading phase, with other phases experiencing zero daily haul truck trips. Aside from haul truck trips, daily work/vendor/delivery truck trips would also occur during construction of the proposed project.

The proposed project's short-term construction emissions were estimated using CalEEMod, version 2022.1 (CAPCOA 2022). The modeling was conducted based on project-specific construction data (e.g., schedule, equipment, material export) provided by the project applicant. Where project-specific information was not available, reasonable assumptions based on similar projects and default model settings were used to estimate criteria air pollutant and O_3 precursor emissions. This analysis assumed a worst-case scenario with construction starting on June 3, 2024, and ending on December 14, 2024.

The proposed project would implement the required SCAQMD Rule 403 during construction to minimize construction-related fugitive PM_{10} and $PM_{2.5}$ dust emissions. SCAQMD Rule 403 requires watering exposed ground three times a day, cleaning trucks and track-outs, and covering/watering haul truck loads (SCAQMD 2005).

The modeled peak daily emissions of criteria air pollutants and O_3 precursors associated with construction of the proposed project with SCAQMD Rule 403 incorporated are presented in Table III-4. Because SCAQMD Rule 403 is a regulatory requirement that every project within the SCAQMD must follow, it is not considered mitigation.

Table III-4. Jurupa Avenue Trailhead Regional Criteria Pollutant Construction Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Construction Year	ROG	NO_X	CO	SO_X	Total PM_{10}	Total $PM_{2.5}$
2024	1.85	17.6	18.1	0.03	2.91	1.69
Maximum Daily Regional Emissions during Project Construction	1.85	17.6	18.1	0.03	2.91	1.69
Regional Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod methodology (Appendix C2).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_X = sulfur oxides

As shown in Table III-4, the maximum level of daily unmitigated construction emissions generated by the proposed project would not exceed SCAQMD's daily significance thresholds for any criteria pollutants during any of the construction phases. CalEEMod modeling inputs and results can be found in Appendix C2. Construction impacts would be less than significant.

Long-term Operational Emissions

Implementation of the proposed project would result in long-term regional emissions of criteria air pollutants and O_3 precursors associated with mobile and area sources. The proposed project does not propose any land uses that would have long-term operational air emissions besides area and mobile sources.[4]

Based on the traffic assessment for the project (Appendix J2), the proposed project is anticipated to generate a net increase of 93 trips per day on a typical weekday and a net increase of 90 trips per day on a typical Saturday compared to existing conditions. In addition, the proposed project is anticipated to generate 161 maintenance trips per year, including two weekly landscaping trips, one weekly trash services trip, one quarterly inspection, and one annual tree trimming. These traffic volumes are very small and, as such, would generate minimal mobile source emissions.

Table III-5 presents the daily operational emissions from the proposed project. As shown, the proposed project would result in long-term regional emissions of criteria air pollutants and O_3 precursors that would be below SCAQMD's applicable thresholds and operational impacts would be less than significant.

Table III-5. Jurupa Avenue Trailhead Regional Criteria Pollutant Operational Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Proposed Project	ROG	NO_X	CO	SO_X	Total PM_{10}	Total $PM_{2.5}$
Mobile Sources	0.45	0.49	4.56	0.01	0.39	0.08
Area Sources	0.08	0.00	0.00	0.00	0.00	0.00
Total Emissions	0.53	0.49	4.56	0.01	0.39	0.08
Regional Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C2).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_X = sulfur oxides

Overall and Cumulative Impacts

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable NAAQS or CAAQS. Individually, each project site's construction and operational pollutant emissions would not exceed the applicable SCAQMD regional significance threshold. Additionally, as shown in Table III-6 and Table III-7, when adding both project sites' construction and operational emissions, the proposed project would still not exceed the applicable SCAQMD regional significance thresholds.

[4] The proposed project's electrical demand would not result in direct onsite operational air emissions.

Therefore, the proposed project's emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the proposed project's contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale. Therefore, impacts would be less than significant.

Table III-6. Cumulative Regional Criteria Pollutant Construction Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Construction Year	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
2024	5.58	53.65	52.13	0.08	9.85	5.84
2025	3.22	10.53	13.80	0.02	0.61	0.44
Maximum Daily Regional Emissions during Project Construction	8.8	64.18	65.93	0.10	10.46	6.28
Regional Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod methodology (Appendices C1 and C2).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_X = sulfur oxides

Table III-7. Cumulative Regional Criteria Pollutant Operational Emissions

	Total Regional Pollutant Emissions (pounds per day)					
Proposed Project	**ROG**	**NO_X**	**CO**	**SO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Mobile Sources	0.78	0.86	7.68	0.02	0.64	0.13
Area Sources	0.25	0.00	0.00	0.00	0.00	0.00
Total Emissions	1.03	0.86	7.68	0.02	0.64	0.13
Regional Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendices C1 and C2).
Note: Totals may not add exactly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic gases; SO_X = sulfur oxides

c. Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. The term sensitive receptors refers to uses associated with people considered to be more sensitive than others to air pollutants. The reasons for greater-than-average sensitivity include pre-existing health problems, proximity to emission sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human

respiratory system. The nearest sensitive receptors to the proposed project site are adjacent to and east of the site.

Martha McLean Anza Narrows Park

Localized Pollutant Emissions

In addition to regional air quality impacts, projects in the Basin are required to analyze local air quality impacts. SCAQMD has developed LSTs that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS, and thus would not cause or contribute to localized air quality impacts. LSTs were developed based on the ambient concentrations of that pollutant for each of the 38 Source Receptor Areas (SRAs) in the Basin. The proposed project is in SRA 23, Metropolitan Riverside County.

The localized thresholds, which are found in the mass rate lookup tables in SCAQMD's Final Localized Significance Threshold Methodology document, were developed for the analysis of projects that are less than or equal to 5 acres in size and applicable only to the following criteria pollutants: nitrogen oxides, carbon monoxide, PM_{10}, and $PM_{2.5}$ (SCAQMD 2008). The analysis of localized air quality impacts focuses only on the onsite activities of a project. The mass rate lookup tables developed by SCAQMD present LST values in the form of allowable emissions (in pounds per day) as a function of receptor distance from a project's site boundary. These LST values were developed by SCAQMD for 1-acre, 2-acre, and 5-acre sites. The LSTs established for each of the aforementioned site acreages represent the level of pollutant emissions that would not exceed the most stringent applicable NAAQS or CAAQS.

Construction

To assess the potential localized air quality impacts resulting from the proposed project on nearby sensitive receptors during construction, the daily onsite construction emissions generated at the proposed project site were evaluated against SCAQMD's applicable construction LSTs. As modeled in CalEEMod, the proposed project would have a total of 15 acres graded during the 10-day-long site preparation phase and 20 acres graded during the 20-day-long grading phase.[5] As such, the maximum amount of grading per day would be 1.5 acres during the site preparation phase. SCAQMD provides construction LSTs for projects that grade a maximum of 1, 2, and 5 acres, and the grading area is directly related to the stringency of the LSTs. Therefore, to be most conservative, the 1-acre LST values were applied.

Because the mass rate lookup tables provided by SCAQMD provide LSTs only at receptor distances of 25, 50, 100, 200, and 500 meters (82, 164, 328, 656, and 1,640 feet), the LSTs for a receptor distance of 328 feet were used to evaluate the potential localized air quality impacts associated with the proposed project's peak-day construction emissions. As stated previously, sensitive receptors are adjacent to the project site to the east; however, with the exception of the project amenities proposed to be constructed near the southeastern boundary of the site (proposed 26-space parking lot, river overlook swings, new restroom, and landscaping), the remaining project construction activities would be at least 328 feet from nearby sensitive receptors. Therefore, the SCAQMD LSTs for 328 feet were used to evaluate the localized air quality impacts from the project's total peak-day

[5] The 3.3-acre proposed project site would be graded numerous times for a total of 15 acres graded during the site preparation phase and 20 acres graded during the grading phase, based on CalEEMod methodology.

construction emissions. The proposed construction activities near the southeastern boundary of the project site were included in the emissions modeling for the project's total peak-day construction emissions; however, these construction activities were also modeled separately in CalEEMod, and the peak-day construction emissions were compared against the SCAQMD LSTs for 82 feet. As stated previously, sensitive receptors are adjacent to and east of the project site; however, SCAQMD guidance recommends that projects with boundaries closer than 25 meters (82 feet) to the nearest receptor should use the LSTs for receptors at 25 meters (SCAQMD 2008). These distances most closely correspond to the distances from the proposed project construction areas to nearby sensitive receptors in the SCAQMD LST lookup tables (SCAQMD 2009).

As discussed previously, the proposed project would implement the required SCAQMD Rule 403 during construction to minimize construction-related fugitive dust emissions ($PM_{2.5}$ and PM_{10}). The localized onsite emissions estimated to occur during peak construction days for each year of the proposed project's construction schedule with SCAQMD Rule 403 implemented are presented in Table III-8. As shown in Table III-8, daily emissions generated on site by construction of the proposed project would not exceed any of the applicable SCAQMD LSTs for a 1-acre site in SRA 23 over the course of the entire construction schedule.

Table III-8. Martha McLean Anza Narrows Park Localized Criteria Pollutant Construction Emissions

	Estimated Maximum Daily Onsite Emissions (pounds per day)[b]			
Construction Year	NO_X	CO	PM_{10}	$PM_{2.5}$
2024	35.95	32.93	6.71	4.10
2025	10.44	13.04	0.43	0.40
Maximum Daily Localized Emissions during Project Construction	35.95	32.93	6.71	4.10
Applicable LSTs[a]	*212*	*1,746*	*30*	*8*
Threshold Exceeded?	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C1).
[a] The LSTs for a 1-acre site in SRA 23 were taken from the corresponding LSTs for a 1-, 2-, and 5-acre site in SRA 23 (obtained from Appendix C [Localized Significance Threshold Screening Tables] of SCAQMD's *Final Localized Significance Threshold Methodology* document). The nearest sensitive receptor is more than 328 feet from the selected construction activities, so the LSTs for the closest receptor of 328 feet (100 meters) were selected.
CO = carbon monoxide; NO_X = nitrogen oxides

As discussed previously, the proposed construction activities near the southeastern boundary of the project site were evaluated separately in CalEEMod, using the SCAQMD LSTs for 82 feet compared against the peak-day construction emissions.[6] The construction activities proposed near the southeastern boundary of the site include the construction of a 26-space parking lot, restroom, river overlook swings, and landscaping areas. As modeled in CalEEMod, the proposed project construction activities near the southeastern boundary of the site would have a total of 0.5 acre graded during the 1-day-long site preparation phase and 1.5 acres graded during the 2-day-long grading phase. As such, the maximum amount of grading per day would be 0.75 acre during the grading phase. Therefore, 1-acre SCAQMD LST values were applied. As shown in Table III-9, daily emissions generated on site by construction of the proposed project features near the southeastern

[6] According to SCAQMD's LST methodology, it is recommended that projects with boundaries closer than 82 feet (25 meters) from the nearest receptor use the LSTs for receptors at 82 feet.

boundary of the site would not exceed any of the applicable SCAQMD LSTs for a 1-acre site in SRA 23 over the course of the construction schedule.

Table III-9. Martha McLean Anza Narrows Park Localized Criteria Pollutant Construction Emissions of Southeastern Area

	Estimated Maximum Daily Onsite Emissions (pounds per day)[b]			
Construction Year	NO_X	CO	PM_{10}	$PM_{2.5}$
2024	11.39	10.72	1.92	1.16
Maximum Daily Localized Emissions during Project Construction	11.39	10.72	1.92	1.16
Applicable LSTs[a]	*118*	*602*	*4*	*3*
Threshold Exceeded?	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C1).
[a] The LSTs for a 1-acre site in SRA 23 were taken from the corresponding LSTs for a 1-, 2-, and 5-acre site in SRA 23 (obtained from Appendix C [Localized Significance Threshold Screening Tables] of SCAQMD's *Final Localized Significance Threshold Methodology* document). The nearest sensitive receptor is adjacent, so the LSTs for the closest receptor of 82 feet (25 meters) were selected.
CO = carbon monoxide; NO_X = nitrogen oxides

Operations

Maintenance activities would not introduce any new substantial stationary or mobile sources of onsite emissions. During short-term maintenance activities, there may be some onsite emissions from vehicles traveling to the site and use of small equipment that may be needed to remove weeds and trash from the site. According to the Traffic Assessment for the proposed project (Appendix J1) the proposed project is anticipated to generate a net increase of 70 trips per day on a typical weekday and a net increase of 63 trips per day on a typical Saturday compared to existing conditions. Therefore, minimal onsite mobile source emissions would be generated from recreational vehicle trips to the project site during operations. The minor amount of onsite emissions generated during maintenance activities and recreational visitor trips would not be substantial.

According to the LST methodology, operational LSTs would apply to the proposed project's stationary sources and onsite mobile trips. Projects that attract mobile sources that spend long periods queuing and idling at the site, for example transfer facilities or warehouse buildings, would possibly exceed the operational LSTs. The proposed project, zoned Public Facilities (PF) by the City of Riverside with a GP 2025 land use designation of Public Park (P), would not attract these types of mobile sources. Therefore, as the proposed project would not have any stationary sources and would generate minimal onsite emissions from vehicle trips, the proposed project would not be a source of operational air emissions that has the likelihood of causing an LST impact at the nearest sensitive receptors. Operational and maintenance impacts would be less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The nearest sensitive receptors to the proposed project site are adjacent to and west of the site.

Localized Pollutant Emissions

The proposed project is in SRA 23, Metropolitan Riverside County.

Construction

To assess the potential localized air quality impacts resulting from the proposed project on nearby sensitive receptors during construction, the daily onsite construction emissions generated at the proposed project site were evaluated against SCAQMD's applicable construction LSTs. As modeled in CalEEMod, the proposed project would have a total of 15 acres graded during the 10-day-long site preparation phase and 20 acres graded during the 20-day-long grading phase.[7] As such, the maximum amount of grading per day would be 1.5 acres during the site preparation phase. SCAQMD provides construction LSTs for projects that grade a maximum of 1, 2, and 5 acres, and the grading area is directly related to the stringency of the LSTs. Therefore, to be most conservative, the 1-acre LST values were applied.

Because the mass rate lookup tables provided by SCAQMD provide LSTs only at receptor distances of 25, 50, 100, 200, and 500 meters (82, 164, 328, 656, and 1,640 feet), the LSTs for a receptor distance of 82 feet were used to evaluate the potential localized air quality impacts associated with the proposed project's peak-day construction emissions.[8] This distance most closely corresponds to the distance from the proposed project site to nearby sensitive receptors in the SCAQMD LST lookup tables (SCAQMD 2009).

As discussed previously, the proposed project would implement the required SCAQMD Rule 403 during construction to minimize construction-related fugitive dust emissions ($PM_{2.5}$ and PM_{10}). The localized onsite emissions estimated to occur during peak construction days for each year of the proposed project's construction schedule with SCAQMD Rule 403 implemented are presented in Table III-10. As shown in Table III-10, daily emissions generated on site by construction of the proposed project would not exceed any of the applicable SCAQMD LSTs for a 1-acre site in SRA 23 over the course of the entire construction schedule.

Table III-10. Localized Criteria Pollutant Construction Emissions

	Estimated Maximum Daily Onsite Emissions (pounds per day)[b]			
Construction Year	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2024	17.6	18.1	2.91	1.69
Applicable LSTs[a]	*118*	*602*	*4*	*3*
Threshold Exceeded?	No	No	No	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C2).
[a] The LSTs for a 1-acre site in SRA 23 were taken from the corresponding LSTs for a 1-, 2-, and 5-acre site in SRA 23 (obtained from Appendix C [Localized Significance Threshold Screening Tables] of SCAQMD's *Final Localized Significance Threshold Methodology* document). The nearest sensitive receptor is adjacent, so the LSTs for the closest receptor of 82 feet (25 meters) were selected.
CO = carbon monoxide; NO_X = nitrogen oxides

[7] The 7.7-acre proposed project site would be graded numerous times for a total of 15 acres graded during the site preparation phase and 20 acres graded during the grading phase, based on CalEEMod methodology.
[8] According to SCAQMD's LST methodology, it is recommended that projects with boundaries closer than 82 feet (25 meters) from the nearest receptor use the LSTs for receptors at 82 feet.

Operations

Maintenance activities would not introduce any new substantial stationary or mobile sources of onsite emissions. During short-term maintenance activities, there may be some onsite emissions from vehicles traveling to the site and use of small equipment that may be needed to remove weeds and trash from the site. According to the Traffic Assessment for the proposed project (Appendix J2), the proposed project is anticipated to generate a net increase of 93 trips per day on a typical weekday and a net increase of 90 trips per day on a typical Saturday compared to existing conditions. Therefore, minimal onsite mobile source emissions would be generated from recreational vehicle trips to the project site during operations. The minor amount of onsite emissions generated during maintenance activities and recreational visitor trips would not be substantial.

According to the LST methodology, operational LSTs would apply to the proposed project's stationary sources and onsite mobile trips. Projects that attract mobile sources that spend long periods queuing and idling at the site, for example transfer facilities or warehouse buildings, would possibly exceed the operational LSTs. The proposed project, zoned Residential Estate (RE) by the City of Riverside with a GP 2025 land use designation of Open Space (OS), would not attract these types of mobile sources. Therefore, as the proposed project would not have any stationary sources and would generate minimal onsite emissions from vehicle trips, the proposed project would not be a source of operational air emissions that has the likelihood of causing an LST impact at the nearest sensitive receptors. Operational and maintenance impacts would be less than significant.

Overall Impact

The SCAQMD LSTs apply to localized emissions for receptor distances up to and beyond 500 meters from the site boundary. Therefore, as the sensitive receptors nearest to each project are greater than 3,000 meters from the other project, the localized emissions from one project would not substantially affect sensitive receptors near the other project. Consequently, the potential impacts of localized emissions from each project are evaluated separately, and impacts would be less than significant.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Martha McLean Anza Arrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. According to the SCAQMD 1993 CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. The proposed project, which includes city park recreational uses, would not include any of the typical uses with odor complaints.

As discussed in Chapters 1, *Introduction*, and 2, *Project Description*, the proposed project would develop public parks that would provide a variety of passive and active recreational opportunities for community use. For the Martha McLean Anza Narrows Park site, the proposed project would provide a variety of passive recreational opportunities including paths and trails, native planting and pollinator gardens, seating, shade structures, educational signage, music areas, and overlooks. Active park elements include bike paths, playgrounds, river overlook swings, exercise stations, and

water and nature play areas. For the Jurupa Avenue Trailhead site, the proposed project would provide a variety of passive recreational opportunities including paths and trails, native planting and pollinator gardens, seating, shade structures, educational signage, and overlooks. Active park elements include bike paths and music and nature play areas. The proposed project's uses are not anticipated to be a source of odors that would cause odor complaints.

During construction of the proposed project, exhaust from equipment, activities associated with the application of architectural coatings, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to the nearest sensitive receptors, if at all, and would not affect a substantial number of people. The proposed project would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Odors associated with concrete paving would only occur for a limited time and the locations of paving activities would be distributed at the proposed project site. Additionally, material deliveries and heavy-duty haul truck trips could occasionally produce odors from diesel exhaust. These odors would not affect a substantial number of people because construction would be temporary and construction-generated emissions dissipate rapidly with increasing distance from the source. Operational and maintenance activities may result in minor, equipment-based odors, but these would occur infrequently throughout the year and would dissipate rapidly. Overall, odors associated with project construction and operation would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

IV Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☒
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☒

Affected Environment

Martha McLean Anza Narrows Park

The Martha McLean Anza Narrows Park project site consists of approximately 39.5 acres of City-owned and -maintained parkland adjacent to the Santa Ana River to the north. The proposed project occurs within the Jurupa Area Plan of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The Martha McLean Anza Narrows Park project site is within Criteria Cell 621. The project site is adjacent to MSHCP Public/Quasi-Public (PQP) Conserved Lands, which

comprise a subset of the MSHCP Conservation Area identified for open space value and contribute to the conservation of Covered Species. PQP conserved lands border the park to the north and east. The proposed project does include PQP Conserved Lands and would not affect PQP Conserved Lands within Criteria Cell 621. Criteria Cell 621 does not include survey area requirements for any criteria area species, invertebrates, amphibians, burrowing owl, or mammals.

Vegetation Communities/Habitats

A field-based vegetation mapping survey was conducted at the proposed project site following the categorizations using the plant community definitions provided by *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) as revised by Oberbauer et al. (2008). The vegetation communities and land cover types identified within the proposed project limits were nonnative grassland, nonnative riparian (Mexican fan palm dominated), prickly pear (*Opuntia*) stand, Riversidean sage scrub (planted), southern riparian forest (disturbed), disturbed habitat, and developed (Table IV-1 and Figure 5).

Table IV-1. Vegetation Communities in the Martha McLean Anza Narrows Park Limits

Vegetation Community	Area (acres)
Nonnative grassland	3.13
Nonnative riparian (Mexican fan palm dominated)	0.40
Prickly pear (*Opuntia*) stand	0.04
Riversidean sage scrub (planted)	0.15
Southern riparian forest (disturbed)	2.40
Disturbed habitat	2.94
Developed	29.47
Total[a]	39.76

[a] Sum of rows may not equal total because of rounding.

Development of the proposed project site would result in alteration of up to 3.73 acres, including 0.16 acres of nonnative grassland, 0.16 acre of nonnative woodland, 0.14 acre of Riversidean sage scrub native garden, 1.26 acres of disturbed habitat, and 1.22 acres of developed (Table IV-2). The proposed project area is entirely within Criteria Cell 621 and would not affect any PQP Conserved Lands.

Table IV-2. Vegetation Community Impacts at Martha McLean Anza Narrows Park Site

	Proposed Project Area
Vegetation Community	Permanent
Nonnative grassland	0.94
Nonnative woodland	0.16
Riversidean sage scrub (planted)[a]	0.14
Disturbed habitat	1.26
Developed	1.22
Total[b]	3.73

[a] Riversidean sage scrub is within project area but will not be affected.
[b] Sum of rows may not equal total because of rounding.

Riversidean sage scrub is an open, xeric expression of sage scrub typically dominated by California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), and brittlebush (*Encelia farinosa*). Within the proposed project site, the patch of Riversidean sage scrub has been planted on a slope adjacent to the existing Santa Ana River Trail. It is dominated by species such as California buckwheat and white sage (*Salvia apiana*).

Nonnative woodland consists of exotic trees, usually intentionally planted, which are not maintained or artificially planted. Within the project area, it includes exotic trees on the northeast side of the Santa Ana River Trail.

Nonnative grassland is an annual community dominated or co-dominated by any of several nonnative wild oat (*Avena* spp.) and/or annual brome (*Bromus* spp.) grass species and typically forms a continuous herbaceous cover that may reach heights of 1 meter. Within the project area, this community is present in the shoulder areas adjacent to the existing Santa Ana River Trail.

Areas mapped as disturbed habitat are mostly devoid of vegetation and have evidence of frequent human disturbance, such as waste areas, as well as dirt roads and areas of ground disturbance. These areas may have very sparse vegetation, typically composed of exotic ruderal forbs or grassland species, but the cover is much reduced compared to areas mapped as nonnative grassland. Within the project area, this community is present on the non-landscaped northwestern edge of the park, adjacent to the Union Pacific Railroad.

Developed areas have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Within the project area, the developed areas are characterized by lawns, ornamental vegetation, parking lots, and recreational features associated with the existing park.

Wetlands

The proposed project is adjacent to the Santa Ana River, which contains resources jurisdictional to the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife (CDFW). No potentially jurisdictional drainage or wetland features are present within the proposed project site, so no jurisdictional delineation was conducted for this project component. The proposed project would have no effect on state or federal wetlands.

Riparian forest communities within the Martha McLean Anza Narrows property limits are potentially CDFW jurisdictional riparian habitat. The limits of the riparian vegetation community were mapped during vegetation mapping and are presented on Figure 5. The proposed project would have no direct impacts on CDFW riparian habitat.

Special-status Species

The proposed project is within MSHCP Criteria Cell 621, which does not include survey area requirements for any criteria area species, rare plants, invertebrates, amphibians, burrowing owl, or mammals.

The Martha McLean Anza Narrows Park project site consists primarily of ornamental landscape and development and was determined to have no suitable habitat to support rare plant species known from the region. In addition, the site is not within an MSHCP rare plant survey area. Therefore, focus surveys were not conducted.

Milkweed (*Asclepias* spp.) is the obligate host plant for reproduction of the federally proposed threatened (89 FR 100662) monarch butterfly (*Danaus plexippus*; USFWS 2024). No milkweed were detected on the proposed project site; therefore the site does not support suitable habitat for monarch breeding. Migratory monarchs in the western population primarily overwinter in protected groves along the coast of California and Baja California, typically close to the coast (USFWS 2024). The proposed project site is over 30 miles from the coast and is subject to winter frosts. Therefore, the site does not support frost-free areas that could support overwintering monarchs. No proposed critical habitat for this species is present in Riverside County; therefore, no critical habitat is located in the proposed project area. The proposed project site consists primarily of ornamental landscape and development, and any redevelopment of the landscaping would not significantly alter the availability of nectar forage resources for any monarchs migrating through the area.

Crotch's bumble bee (*Bombus crotchii*) was reinstated as a candidate species under the California Environmental Species Act on September 30, 2022; it receives protection of a state threatened species. Crotch's bumble bee is nearly endemic to California, including historically occupied grasslands and shrublands in southern to central California and occasional occurrences in the northern portion of the state (CDFW 2019). This species is often found in scrub or open grassland habitats that support a variety of pollen and nectar sources. The Crotch's bumble bee has a short tongue and is best suited for foraging on open flowers with short corollas (CDFW 2019). While the project site consists primarily of ornamental landscape and development, with low suitability for foraging for Crotch's bumble bee, this species can nest in a variety of mammal burrows within these landcover types.

Potentially suitable habitat for southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*) is present in the adjacent Santa Ana River. No suitable habitat is present in the proposed project area. A substantial area in the vicinity of the proposed project is annually surveyed by the Santa Ana Watershed Association (SAWA 2021) for southwestern willow flycatcher and least Bell's vireo. Based on a review of the Santa Ana Watershed Association data and existing conditions within the project limits, the riparian habitat within and adjacent to the Martha McLean Anza Narrows Park proposed project site was determined to be adequately surveyed for least Bell's vireo and least Bell's vireo is determined to be a summer breeder within suitable riparian habitat within the adjacent Santa Ana River.

No suitable habitat for southwestern willow flycatcher is present within the proposed project area, so no surveys were conducted for this species.

Suitable Riversidean sage scrub habitat for coastal California gnatcatcher (*Polioptila californica californica*) occurs within the proposed project site. The MSHCP does not require surveys for California gnatcatcher, as it is an adequately conserved Covered Species.

No critical habitat for any federally listed species has been designated over the proposed project site.

The proposed project contains naturalized, native, and nonnative vegetation that could serve as nesting habitat for avian species protected under California Fish and Game Code Section 3503 et seq. and the federal Migratory Bird Treaty Act.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site consists of approximately 8.33 acres of primarily undeveloped City-owned and -maintained parkland. The project site is sparsely vegetated, generally by nonnative plants and ornamental trees. The proposed project occurs within the Jurupa Area Plan of the Western Riverside County MSHCP. Approximately 0.03 acre of the northern side of the project area is within Criteria Cell 617 (Figure 6). The northern boundary of the proposed project site is adjacent to MSHCP PQP Conserved Lands, which comprise a subset of the MSHCP Conservation Area identified for open space value and contribute to the conservation of Covered Species. The proposed project does not occur within PQP Conserved Lands and would not affect PQP Conserved Lands within Criteria Cell 617. The proposed project area overlaps with MSHCP Narrow Endemic Plant Species Survey Area for rare plants, and rare plant surveys were conducted as described below. Criteria Cell 617 also includes survey requirements for burrowing owl. Criteria Cell 617 does not include survey area requirements for any criteria area species, invertebrates, amphibians, or mammals.

No critical habitat for any federally listed species has been designated over the proposed project site.

Vegetation Communities/Habitats

A field-based vegetation mapping survey was conducted at the proposed project site following the categorizations using the plant community definitions provided by *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) as revised by Oberbauer et al. (2008). The vegetation communities and land cover types identified within the proposed project limits were mule fat scrub, nonnative riparian (Arundo dominated), open water, southern riparian forest (disturbed), tamarisk scrub, nonnative grassland, Riversidean sage scrub, disturbed habitat (ruderal upland mustard and forbs), disturbed habitat (bare ground), and developed (Table IV-3 and Figure 7). The riparian communities are only found within the biological avoidance area and would not be directly affected.

Table IV-3. Vegetation Communities in the Jurupa Avenue Trailhead Project Limits (Including Biological Avoidance Area)

Vegetation Community	Area (acres)
Mule Fat Scrub	0.20
Nonnative Riparian	0.01
Open Water	0.16
Southern Riparian Forest (Disturbed)	1.25
Tamarisk Scrub	0.04
Riversidean Sage Scrub	0.33
Nonnative grassland	2.75
Disturbed habitat (Ruderal Upland Mustard and Forbs)	2.09
Disturbed habitat (Bare Ground)	1.24
Developed	0.25
Total[a]	8.33

[a] sum of rows may not equal total because of rounding.

Development of the proposed project site would result in alteration of up to 3.74 acres, including 1.62 acres of nonnative grassland, 0.12 acre of Riversidean sage scrub, 0.23 acre of disturbed habitat (bare ground), 1.64 acres of disturbed habitat (ruderal upland mustard and forbs), and 0.12 acre of developed (Table IV-4). No sensitive vegetation communities would be affected within Criteria Cell 617 (Figure 7 and Table IV-4).

Table IV-4. Vegetation Community Impacts in the Jurupa Avenue Trailhead Project Site (including subset within MSHCP Criteria Cell 617)

Vegetation Community	Proposed Project Site (acres)	Within Criteria Cell 617 (acres)
Riversidean Sage Scrub	0.12	0.00
Nonnative grassland	1.63	<0.00
Disturbed habitat (Ruderal Upland Mustard and Forbs)	1.64	0.02
Disturbed habitat (Bare Ground)	0.23	<0.00
Developed	0.12	0.00
Total	3.74	0.03

Within the proposed project site, Riversidean Sage Scrub was dominated by California buckwheat with a closed to intermittent canopy that reached heights of up to 1.25 meters.

Nonnative grassland is an annual community dominated or co-dominated by any of several exotic wild oat and/or annual brome grass species and typically forms a continuous herbaceous cover that may reach heights of 1 meter. Within the project area, shrubs, such as California buckwheat and broom baccharis (*Baccharis sarothroides*), and native forbs, such as fiddleneck (*Amsinckia* spp.) and common phacelia (*Phacelia cicutaria*), are present at very low cover.

Areas mapped as disturbed habitat (bare ground) are mostly devoid of vegetation and have evidence of frequent human disturbance, such as waste areas, as well as dirt roads and areas of ground disturbance. These areas may have very sparse vegetation, typically composed of exotic ruderal forbs or grassland species, but the cover is much reduced compared to areas mapped as ruderal or nonnative grassland.

Disturbed habitat (ruderal upland mustards and forbs) was typically dominated by small-podded mustard (*Hirschfeldia incana*), which forms a continuous herbaceous cover that reaches heights of 1 meter. Native forbs, such as fiddleneck and *Phacelia* spp., and shrubs, such as broom baccharis, mulefat, and California buckwheat, are present within this community, but at very low cover.

Wetlands

December 2 and 3, 2021, ICF conducted a routine-level delineation of jurisdictional waters and wetlands of the proposed project. The Aquatic Resources Delineation Report is included as Appendix D. Non-wetland waters of the U.S. and CDFW state streambed occur within the canyon within the biological avoidance area. Jurisdictional delineation results are depicted on Figure 8. No federally protected wetlands are present within the project limits. State wetlands (CDFW riparian) are present outside of the proposed project area. No state or federally protected wetlands are present within the proposed project site.

Special-status Species

The proposed project site had potentially suitable habitat for rare plant species, primarily in areas now designated as biological avoidance areas. Plant species considered special-status include federally and state-listed endangered, California Rare Plant Ranking (CRPR) list 1 and 2, and MSHCP Narrow Endemic plants. Focused surveys for rare plants were conducted for the proposed project in April 2022. The full methods and results are documented in Appendix E. No rare plants were detected during focused surveys. Surveys were conducted during appropriate conditions and, after surveys were conducted, no other rare plants were determined to have a moderate or higher potential to occur in the proposed project site.

No milkweed plants were detected in the proposed project site during rare plant surveys. Without larval host plants, the proposed project site does not support suitable habitat for monarch breeding. The proposed project site does not contain either suitable overwintering habitat or proposed critical habitat.

While the areas of the proposed project site outside of avoidance areas consist primarily of ornamental landscape and development, with low suitability for foraging for Crotch's bumble bee, this species can nest in a variety of mammal burrows within these landcover types.

The proposed project site was assessed to be potentially suitable habitat for western burrowing owl (*Athene cunicularia hypugaea*), a California Species of Special Concern, because of the presence of open areas, bare ground, or low-growing vegetation and numerous potentially suitable burrowing features such as California ground squirrel (*Otospermophilus beecheyi*) burrows, debris piles, and piles of boulders associated with erosion-control riprap. The proposed project site is within an MSHCP Burrowing Owl Survey Area. Focused surveys for western burrowing owl were conducted for the proposed project in 2022 and the full methods and results are documented in Appendix F. The burrowing owl survey area included all portions of the proposed project limits that fall within the MSHCP burrowing owl survey area, plus an additional 500 feet where the MSHCP burrowing owl survey area extends beyond the proposed project area, for a total survey area of 492 acres. Surveys for burrowing owl followed the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside Environmental Programs Department 2006). Under the MSHCP, the focused survey protocol was split into two parts: (a) Focused Burrow Survey; and (b) Focused Burrowing Owl Survey. The work was conducted during the breeding season as defined under the MSHCP (March 1 to August 31). The findings of the Part A focused burrow survey revealed the proposed project's burrowing owl survey areas provide suitable conditions for burrowing owl (Appendix E). The results of the Part B focused burrowing owl survey yielded no burrowing owls or potential burrowing owl sign (e.g., white-wash, feathers, pellets, or tracks) within the proposed project's burrowing owl survey areas (Appendix F).

Potentially suitable habitat for southwestern willow flycatcher and least Bell's vireo is present in the biological avoidance area within the project limits. No suitable habitat is present in the proposed project area. A substantial area within and adjacent to the project limits is annually surveyed by the Santa Ana Watershed Association (SAWA 2021) for southwestern willow flycatcher and least Bell's vireo. Based on a review of the based on a review of the Santa Ana Watershed Association data and existing conditions within the project limits, the riparian habitat within and adjacent to the Jurupa Avenue Trailhead proposed project site was determined to be adequately surveyed for least Bell's vireo, but not for southwestern willow flycatcher. Surveys for southwestern willow flycatcher were conducted in spring 2022; full methods and results are presented in the survey report included as

Appendix G. No southwestern willow flycatchers were observed during focused surveys in 2022; therefore, the species is determined to be absent from potentially suitable habitat in the biological avoidance area.

Least Bell's vireos are known from the project limits (SAWA 2021) and were incidentally observed during focused surveys for southwestern willow flycatcher. Locations of least Bell's vireo are depicted on Figure 9. Least Bell's vireos were observed within mule fat scrub and southwestern riparian forest in the biological avoidance area, outside of the proposed project site. No occupied least Bell's vireo habitat would be affected by the proposed project. Least Bell's vireo is an MSHCP Covered Species. The MSHCP requires a Determination of Biologically Equivalent or Superior Preservation for impacts on least Bell's vireo unless the portions of a property with positive survey results have at least 90 percent conservation of the property that provides for the Long-Term Conservation Value. The project would have no impacts on least Bell's vireo; therefore, a Determination of Biologically Equivalent or Superior Preservation is not required for impacts on least Bell's vireo. The proposed project sites are approximately 40 feet higher than the riparian habitat in the canyon and the majority of the proposed development (the parking lot) is set back from the rim of the canyon, providing sound attenuation. The proposed project is not expected to increase the levels of noise on occupied habitat above the high baseline that exists from nearby Van Buren Avenue.

Suitable Riversidean sage scrub habitat for coastal California gnatcatcher (*Polioptila californica californica*) occurs within the proposed project site. The MSHCP does not require surveys for California gnatcatcher, as it is an adequately conserved Covered Species.

The proposed project contains naturalized, native, and nonnative vegetation that could serve as nesting habitat for avian species protected under California Fish and Game Code Section 3503 et seq. and the federal Migratory Bird Treaty Act.

Discussion

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Martha McLean Anza Narrows Park

Less than Significant with Mitigation Incorporated. If development of the proposed project sites occurs during the bird breeding season, the proposed project could directly affect nesting birds within the proposed project sites. Impacts that could affect active nests, eggs, or nestlings would be a violation of state and federal nesting bird and Endangered Species Act protections. The proposed project includes mitigation measure MM-BIO-1 to ensure project compliance with the MSHCP and these state and federal laws to prevent a significant impact on nesting avian species.

Least Bell's vireos are known to breed in the Santa Ana River during the summer. The proposed project would have no direct effects on potential riparian nesting habitat. The elevation differential between the proposed project and the occupied habitat in the Santa Ana River would reduce the potential for indirect noise effects on least Bell's vireo, if construction occurs during the breeding season. The proposed project would have no impact on least Bell's vireo.

Inventory surveys conducted annually by Santa Ana Watershed Association (SAWA 2021) for the last two decades have not found nesting southwestern willow flycatcher within the Santa Ana River outside of Prado basin. Because this species does not breed near the project site, the proposed project would not have indirect effects on southwestern willow flycatcher. The proposed project would have no impacts on suitable nesting habitat for southwestern willow flycatcher.

An isolated, 0.14-acre patch of planted Riversidean sage scrub is present on the north side of the project area; this patch is marginally suitable habitat for coastal California gnatcatcher. This patch is within the limits of the project area but will not be removed. California gnatcatcher is an MSHCP Covered Species and is considered adequately conserved by the MSHCP. The MSHCP does not require focused surveys to determine presence/absence of this species in suitable habitat, as habitat is considered adequately conserved. The MSHCP does not allow for take of any nesting birds, so any vegetation removal or work conducted immediately adjacent to potential habitat must be consistent with MM-BIO-1 to avoid take of nesting birds. With implementation of MM-BIO-1, the proposed project would have a less-than-significant impact with mitigation incorporated for California gnatcatcher.

No breeding or overwintering habitat is present in the proposed project area for Monarch butterfly. The proposed project site consists primarily of ornamental landscape and development, and any redevelopment of the landscaping would have an insignificant effect on the availability of nectar forage resources for any monarchs migrating through the area. Any potential effect on the availability of forage for migrating monarchs would be less than significant.

Although the proposed project site does not have high potential to support nesting or foraging Crotch's bumble bee, impacts on a Crotch's bumble bee nest would be potentially significant if the species is present underground during ground disturbance. Direct impacts on Crotch's bumble bee would be avoided through implementation of MM-BIO-2.

The MSHCP does not require surveys for rare plants, invertebrates, amphibians, mammals, or other bird species (such as burrowing owl) within Criteria Cell 621, because of the lack of potential for these species and because the MSHCP has adequately conserved habitat for these species. No other non-MSHCP covered listed plant or animal species have potential to occur within the proposed project area. The proposed project would have no effect on other special-status plant or animal species.

Jurupa Avenue Trailhead

Less than Significant with Mitigation Incorporated. If development of the proposed project site occurs during the bird breeding season, the proposed project could directly affect nesting birds within the proposed project site. Impacts that could affect active nests, eggs, or nestlings would be a violation of state and federal nesting bird, and potentially Endangered Species Act, protections. The proposed project includes mitigation measure MM-BIO-1 to ensure project compliance with the MSHCP and these state and federal laws to prevent a significant impact on sensitive avian species.

Wetlands are present in proposed project limits in the biological avoidance area. No wetlands are present in the proposed area of disturbance for the proposed project; therefore, no state or federal wetlands would be affected by the proposed project. The proposed project would have no effect on state or federal wetlands.

Focused surveys conducted for rare plants, burrowing owl, and southwestern willow flycatcher determined these species to be absent from the project limits. Therefore, the proposed project would have no impact on these species.

Least Bell's vireo is present as a summer nesting species within the riparian area in the canyon in the biological avoidance area. No habitat for least Bell's vireo would be affected by the project. The elevation differential between the proposed project site and the occupied habitat would reduce the potential for indirect noise effects on least Bell's vireo, if construction occurred during the breeding season. The proposed project would have no impact on least Bell's vireo.

The proposed project could affect up to 0.12 acre of isolated Riversidean sage scrub, which is marginally suitable habitat for coastal California gnatcatcher. California gnatcatcher is an MSHCP Covered Species and is considered adequately conserved by the MSHCP. The MSHCP does not require focused surveys to determine presence/absence of this species in suitable habitat, as habitat is considered adequately conserved. Potentially significant impacts on habitat for coastal California gnatcatcher were considered by the FEIR for the MSHCP to be mitigated by the implementation of the MSHCP, and any incidental take from habitat loss was permitted by the biological opinion and Implementing Agreement for the MSHCP. The MSHCP does not allow for take of any nesting birds, so any vegetation removal must be consistent with MM-BIO-1 to avoid take of nesting birds, including coastal California gnatcatcher. With implementation of MM-BIO-1, the proposed project would have a less-than-significant impact with mitigation incorporated for California gnatcatcher.

Although the proposed project site does not have high potential with respect to supporting nesting or foraging Crotch's bumble bee, impacts on a Crotch's bumble bee nest would be potentially significant if the species is present underground during ground disturbance. Direct impacts on Crotch's bumble bee would be avoided through implementation of MM-BIO-2.

No breeding or overwintering habitat is present in the proposed project area for Monarch butterfly. The proposed project site consists primarily of ornamental landscape and development, and any redevelopment of the landscaping would have an insignificant effect on the availability of nectar forage resources for any monarchs migrating through the area. Any potential effect on the availability of forage for migrating monarchs would be less than significant.

Overall Impact

If development of the proposed project site occurs during the bird breeding season, the proposed project could directly affect nesting birds within the proposed project site. With implementation of MM-BIO-1, the proposed project would have a less-than-significant impact with mitigation incorporated for sensitive avian species. The proposed project would have no effect on other species or state or federal wetlands.

Mitigation Measures

MM-BIO-1: Protection of Raptors, Special-Status Bird Species, and Other Nesting Birds

To avoid potential effects on fully protected raptors, special-status bird species, and other nesting birds protected by the Migratory Bird Treaty Act and the California Fish and Game Code, the following measures shall be implemented:

- If feasible, project construction and vegetation removal shall be completed outside of bird breeding season (defined as March 1 to June 30 [MSHCP Volume I, Section 7.5.3]).

- In the event that vegetation removal cannot be conducted outside the bird breeding season, focused surveys shall be conducted by a qualified biologist 3 days prior to vegetation-removal activities. Should nesting birds be found, an exclusionary buffer shall be established by a qualified biologist and documented in a Nesting Bird Monitoring Plan. The buffer may be up to 300 feet in diameter depending on the species of nesting bird found and how it is addressed in the Nesting Bird Monitoring Plan. This buffer shall be clearly marked in the field by construction personnel under guidance of the qualified biologist, and construction or clearing shall not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active.
- Nesting bird habitat within the proposed project sites shall be resurveyed during bird breeding season if there is a lapse in construction activities longer than 7 days.

MM-BIO-2. Crotch's Bumble Bee Pre-Construction Surveys

Pre-construction surveys for Crotch's bumble bees should be conducted no more than 30 days prior to any ground disturbance that would occur between March and September (the flight season). If pre-construction surveys identify occupied Crotch's bumble bee habitat within the project area, the project biologist should notify the CDFW and establish, monitor, and maintain no-work buffers around active nest colonies and any associated floral resources identified. The size and configuration of the no-work buffer should be based on best professional judgment of the project biologist in consultation with the CDFW. At a minimum, the buffer should provide at least 50 feet of clearance from construction activities around any nest entrances and maintain disturbance-free airspace between the nest and nearby floral resources. Construction activities should not occur within the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for 3 consecutive days, indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony).

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Martha McLean Anza Narrows Park

Less than Significant with Mitigation Incorporated. The vegetation communities and land cover types identified within the proposed project were Riversidean sage scrub, nonnative grassland, nonnative woodland, disturbed, and developed (Table IV-2). None of these communities are considered riparian habitat. Riversidean sage scrub and nonnative grassland are considered sensitive habitats by the MSHCP. The Riversidean sage scrub and nonnative grassland are outside of PQP Conserved Lands. The Final EIR for the Western Riverside County MSHCP (County of Riverside 2003) determined that because of features incorporated into the MSHCP, impacts on sensitive vegetation communities are reduced to less-than-significant levels, with the exception of impacts on native grasslands, which would remain a significant and unavoidable impact. The proposed project would not affect native grasslands. Because the proposed project is consistent with the MSHCP, impacts on sensitive vegetation communities are considered to be mitigated to below a level of significance.

Jurupa Avenue Trailhead

Less than Significant with Mitigation Incorporated. The vegetation communities and land cover types identified within the proposed project were Riversidean sage scrub, nonnative grassland, disturbed habitat (bare ground), disturbed habitat (ruderal upland mustard and forbs), and developed (Table IV-4). None of these communities are considered riparian habitat. Riversidean sage scrub and nonnative grassland are considered sensitive habitats by the MSHCP. The Riversidean sage scrub and nonnative grassland are outside of MSHCP criteria areas and PQP Conserved Lands and therefore impacts on these communities are considered mitigated through implementation of the MSHCP and its preserve system. The Final EIR for the Western Riverside County MSHCP (County of Riverside 2003) determined that because of features incorporated into the MSHCP, impacts on sensitive vegetation communities are reduced to less-than-significant levels, with the exception of impacts on native grasslands, which would remain a significant and unavoidable impact. The proposed project would not affect native grasslands. Because the project is consistent with the MSHCP, impacts on sensitive vegetation communities are considered to be mitigated to below a level of significance.

Overall Impact

None of the vegetation communities are considered riparian habitat. Riversidean sage scrub and nonnative grassland are considered sensitive habitats by the MSHCP. The Riversidean sage scrub and nonnative grassland are outside of MSHCP criteria areas and PQP Conserved Lands; therefore, impacts on these communities are considered mitigated through implementation of the MSHCP and its preserve system. Because the project is consistent with the MSHCP, impacts on sensitive vegetation communities are considered to be mitigated to below a level of significance.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Martha McLean Anza Narrows Park

No Impact. No potential state- and federally protected wetlands or CDFW riparian habitat are within the proposed project. Because there are no state or federal jurisdictional wetlands within the proposed project site, there would be no adverse effect on wetlands.

Jurupa Avenue Trailhead

No Impact. State- and federally protected wetlands within the project limits are present within the biological avoidance area. No state or federal wetlands would be affected by the proposed project. Because there are no state or federal jurisdictional wetlands within the proposed project site, there would be no impact on wetlands.

Overall Impact

No state or federal jurisdictional wetlands are within the proposed project sites, and there would be no adverse effect on wetlands.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Martha McLean Anza Narrows Park

No Impact. The proposed project would not substantially interfere with wildlife movement or corridors, or impede the use of wildlife nursery sites. The adjacent Santa Ana River is considered a wildlife movement corridor. Development of the proposed project is situated in existing developed park areas and would not directly affect adjacent riparian habitat in the Santa Ana River. The proposed project would not indirectly affect wildlife movement in the adjacent river corridor, as the proposed project would not introduce nighttime lighting or noise. The proposed project would have no impact on wildlife movement.

Jurupa Avenue Trailhead

No Impact. The proposed project would not substantially interfere with wildlife movement or corridors, or impede the use of wildlife nursery sites. The riparian corridor within the biological avoidance area could serve as a conduit for local movement of wildlife but would not be developed by the proposed project and would not be significantly constrained by development within the proposed project site. The proposed project site does not support any wildlife nursery sites or roost trees. The proposed project would have no impact on wildlife movement.

Overall Impact

The proposed project would not substantially interfere with wildlife movement or corridors, or impede the use of wildlife nursery sites. The proposed project would have no impact on wildlife movement.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. GP 2025 includes the following policies to protect biological resources:

- Open Space Element, Policies OS-1.1 through OS-1.5, OS-1.8 through OS-1.15, OS-2.2, OS-2.4, OS-4.2, OS-4.3, OS-5.1 through OS-5.4, OS-6.1 through OS-6.4, and OS-7.3
- Air Quality Element, Policy AQ-1.9
- Land Use Element, Policies LU-2.2, LU-3.1, LU-3.2, LU-4.1 through LU-4.5, LU-5.1 through LU-5.6, LU-7.1 through LU-7.4, and LU-13.2
- Circulation and Community Mobility Element, Policies CCM-4.1 through CCM-4.4

The proposed project would not conflict with these local policies. The City of Riverside does not have tree preservation policies that would be applicable to the proposed project. Therefore, the proposed project would not conflict with any local policies or ordinances protecting biological resources and would have no impact.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project is within the limits of the MSHCP. The MSHCP serves as a habitat conservation plan (HCP) pursuant to Section 10(a)(1)(b) of the Endangered Species Act, as well as a natural community conservation plan under the Natural Community Conservation Planning Act of 2001 (Fish and Game Code Chapter 10 Section 2800 et seq.). The City is a California municipal corporation within western Riverside County and is a signatory party to the MSHCP. The City of Riverside implements this adopted plan. The Jurupa Avenue Trailhead proposed project site is within the Jurupa Area Plan and is subject to the MSHCP. The proposed project includes up to 0.03 acre of development within Criteria Cell 617, but would not affect any sensitive habitat within Criteria Cell 617. The majority of the remainder of Criteria Cell 617 is designated as PQP Conserved Lands associated with the Santa Ana River. The Martha McLean Anza Narrows Park proposed project site is within Criteria Cell 621; the proposed project complies with the MSHCP and the requirements of Criteria Cell 621. The proposed project would not conflict with any provisions of the MSHCP and is consistent with the MSHCP.

The proposed project sites are within the plan area for the Upper Santa Ana River HCP, which is currently in development. The proposed project sites are not within the HCP Preserve System of the Upper Santa Ana River HCP and do not contain any sensitive natural habitats protected by the plan. The proposed project would not conflict with provisions of the Upper Santa Ana River HCP.

The proposed project would not conflict with adopted HCPs/natural community conservation plans and would therefore have no impact.

V Cultural Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c.	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Affected Environment

Environmental Setting

Natural Setting

The proposed project site is in the South Coast subregion of the southwestern California region and within the California Floristic Province (Baldwin et al. 2012). The natural vegetation of the subregion consists primarily of chaparral, sage scrub, annual grasslands, woodland, and riparian scrub and forest. Much of the natural vegetation occurs in preserved open space or fragmented patches in areas that are not developed. The project area is within valley and foothills between the Santa Ana, San Bernardino, and San Jacinto Mountains. Major topographic features in the vicinity of the study area include the Estelle Mountains to the south, Santa Ana Mountains to the west, Box Spring Mountains to the immediate east, San Bernardino Mountains to the northeast, and San Jacinto Mountains to the southeast. Human activities and land use in the City included Native American settlement and land use for thousands of years and have historically involved ranching, farming, and mining.

The Martha McLean Anza Narrows Park site is bounded on the south by Jurupa Avenue, to the north and east by the Santa Ana River, and to the west by the Union Pacific Railroad. The park site ranges in elevation from 750 feet above mean sea level (AMSL) in the central portion to 778 feet AMSL on the southeastern end. The park site sits on an elevated terrace on the south side of the Santa Ana River, and it consists of approximately 39.5 acres of City-owned and maintained parkland. Vegetation on the park site consists mostly of nonnative grassland, nonnative riparian, Prickly pear stand, Riversidean sage scrub, southern riparian forest, and nonnative trees. Soils consist of a combination of the Arlington, Greenfield, Ramona, and Handford types. Soils are generally well drained sandy loams. Martha McLean Anza Narrows is named for activist Martha McLean, and it is a purported location of one of Juan Bautista de Anza's campsites and a crossing point of the Santa Ana River. The park was created in 1990.

The Jurupa Avenue Trailhead site is bounded to the north by Pedley Landfill and the Santa Ana River, to the south by Jurupa Avenue, to the east by Van Buren Boulevard, and to the west by a former canal, steep hillslope, and subdivisions. Elevations at the site range from 671 feet AMSL where Hole Creek empties into the Santa Ana River channel to 740 feet AMSL on the plateau above the upper portion of Hole Creek upstream of Jurupa Avenue. The entire present-day Hole Creek channel upstream of Jurupa Avenue was a part of Hole Lake in 1931. Jurupa Avenue crosses Hole Creek at the same location as the former lake's spillway. The dam that created Hole Lake was constructed in 1915 by Willits J. Hole, with the objective of providing irrigation water for his alfalfa and barley fields in the area now known as La Sierra and Arlanza. The Pedley Landfill—which is currently on a 13.5-acre parcel along the lowermost 1,200 feet of Hole Creek's east bank and extends over to Van Buren Boulevard—did not exist in 1931. The historic floodplain had been eliminated by Pedley Landfill, and the alignment of Van Buren Boulevard now traverses farther south and closer to the creek than it did in 1931. Hole Creek upstream of Jurupa Avenue is a densely vegetated channel with bed elevations inset 25 to 30 feet below the top of the terrace slopes. Hole Creek is located in terrace escarpment soils for nearly its entire length on the site. The terrace escarpment soils are generally shallow, poorly developed, and rocky in nature. The Jurupa Avenue Trailhead site currently supports disturbed Southern Riparian Forest, which comprises a mixture of native and nonnative vegetation. A large population of unhoused people are currently living on the escarpment and in lower portions of this project site.

Archaeological Setting

Two formative regional chronologies are widely cited in the archaeological literature for the pre-contact history of the coastal and inland regions of Southern California (Wallace 1955, 1978; Warren 1968). These chronologies are generalized temporal schemes, based on the presence or absence of certain artifact types. Koerper and Drover (1983) provided a more recent chronological synthesis for coastal Southern California. Moratto (1984) provided a robust synthesis of various local models of cultural development. In this synthesis, Moratto described the work of Wallace as descriptive and classificatory, and Warren's later overview as synthetic and viewing cultural traditions considering cultural ecology. Moratto's synthesis built on Warren's work identifying cultural traditions rather than Wallace's horizons. Sutton (2008) has proposed the most recent cultural sequence for Southern California, in which he provides detailed date ranges and proposes the Del Rey Tradition as a Late Holocene designation. The following discussion is divided into five major temporal intervals, which occurred over the following timespans: Pleistocene (>12600 before present [B.P.]), the Terminal Pleistocene/Early Holocene (12600–8500 B.P.), the Middle Holocene (8500–3500 B.P.), and the Late Holocene (3500 B.P.–A.D. 1769). This sequence is a revision of the chronology Wallace (1955) initially proposed using updated discussions by Byrd and Raab (2007), Erlandson et al. (2007), Sutton (2008), and Sutton and Gardner (2006). Additionally, the sequence is partially derived from Erlandson and Colten's (1991:1–2) division of the Holocene into Early, Middle, and Late subdivisions. Within these time periods, cultural traditions are discussed. These periods are analytical constructs and do not necessarily reflect Native American views.

Pleistocene (> 12600 B.P.)

The discussion of the peopling of the "New World" has had a long history in the study of archaeology. Discussions of Pleistocene occupation of the Americas have revolved around either an "ice-free corridor" model or a "coastal migration theory" model of how the first people arrived in this region of the world (Braje et al. 2019). A few archaeological sites have been purported to be of

great antiquity and offer evidence of human occupation in Southern California during the Pleistocene. Under more recent scientific scrutiny, much of this data has been proven to be erroneous (Erlandson et al. 2007:54). These cultures have traditionally been designated, depending on geography, as Paleoindian or Paleocoastal Traditions (Byrd and Raab 2007; Sutton 2008:2). Generally, these sites are centered in the Mojave and Colorado Deserts or along the coast of Southern California. Human femora from the Arlington Spring Site on Santa Rosa Island have been dated to approximately 13000 ± 200 years B.P.; midden from the Daisy Cave Site on San Miguel Island dates to approximately 11500 ± 200 years B.P. (Erlandson et al. 2011). One of the most widely publicized of these sites is the long-debated Calico Early Man Site in the desert of San Bernardino County (Erlandson et al. 2007; Schuiling 1979). Difficulties in conducting research on ancient, submerged shorelines has limited the archaeological investigation of potential Pleistocene sites along the Pacific Coast. However, continued research and new investigative methods are opening avenues for research in this arena, and new discoveries are pushing the timeline for a model of a Pacific Coast route back significantly (Braje et al. 2019). Multiple migrations along both land and sea are both being investigated and corroborated by archaeological evidence, and timelines and routes of migration will continue to change as new discoveries are made and hypotheses tested (Erlandson et al. 2007).

Terminal Pleistocene/Early Holocene (12600 B.P. to 8500 B.P.)

Warren's earliest interval for Southern California prehistory (Warren 1967, 1968; Warren et al. 1980) is the San Dieguito Tradition, beginning about 10000 B.P. and best defined in the coastal San Diego area (True 1958). Wallace (1978) calls this interval Period I: Hunting, which he believes began about 12000 B.P. In Sutton's more recently proposed cultural sequence for Southern California, this interval includes both terminal Paleocoastal and, later, San Dieguito "phases" of an undefined tradition (Sutton 2008).

The Terminal Pleistocene/Early Holocene interval is characterized by a lengthy period of human adaptation to environmental changes brought about by the transition from the late Pleistocene to the early Holocene geologic epochs. Between 13000 and 10000 B.P., climatic conditions became warmer and more arid, and Pleistocene megafauna gradually disappeared. The early occupants of Southern California initially were believed to have been nomadic large-game hunters who avoided the Los Angeles Basin. Tool assemblages included percussion-flaked scrapers and knives; large, well-made stemmed, fluted, or leaf-shaped projectile points (e.g., Lake Mojave, Silver Lake); crescentics; heavy core/cobble tools; hammerstones; bifacial cores; and choppers and scraper planes. However, more recent research and discoveries of paleo-coastal sites and archaeological sites on the Channel Islands suggest a more diversified economic strategy that included marine resources and a maritime tradition (Erlandson et al. 2007)

Middle Holocene (8500 B.P. to 3500 B.P.)

The Middle Holocene has been traditionally seen as a time of transition. The prevailing thought was that during this period, cultural practices from the Early Holocene began to shift to adaptations commonly identified archaeologically during the Late Holocene period (Byrd and Raab 2007). So-called Millingstone cultures are thought to appear during this time and flourish throughout the Southern California region. The cultural pattern recognized during this interval is thought to represent a higher reliance on foraging and seed processing than hunting, especially of large game. The interval between the Terminal Pleistocene/Early Holocene and the Middle Holocene has been

described as the Encinitas Tradition (Warren 1968) or the Millingstone Horizon (Wallace 1955), which spans from 8500 to 2600 B.P. (Warren 1968). Researchers have identified regional variations and technological differences and have named them differently (Sutton and Gardner 2006). Sutton and Gardner identify three phases of the Topanga pattern within the Encinitas Tradition: I, II, and III, of which phases I and II fall within the Middle Holocene time period. Its initial phase, Topanga I, dates to no earlier than 8500 B.P. and lasts until approximately 5000 B.P. (Sutton 2008). Assemblages of this phase typically include abundant manos and metates, many core tools and scraper planes, charmstones, cogged stones, and early discoidals, but few large points or faunal remains (Sutton and Gardner 2006). Secondary inhumation under cairns was a common mortuary practice (Johnson 1966:19), but extended southerly inhumations were also practiced.

Traditionally, the overall settlement/subsistence patterns of the Middle Holocene were thought to be exemplified by a greater emphasis on seed gathering. Adaptation to various ecological niches, further population growth, and an increase in sedentism typify the subsequent periods of cultural history in Southern California.

In general, during the Middle to Late Holocene, cultural patterns remained similar in character to those of the preceding horizon with some minor changes. Sutton (2008) identified the time period covering 5000 to 3500 B.P. as the Topanga II phase of the Encinitas Tradition. Changes in both mortuary practices and technology are identified in Topanga II assemblages. Typical Topanga II sites are said to contain higher numbers of mortars and pestles in relation to manos and metates, and higher numbers of projectile points. Mortuary patterns reflect higher numbers of flexed inhumations versus extended inhumations seen at Topanga I sites. Additionally, inhumations are often capped with large milling stones (Sutton and Gardner 2006).

A significant characteristic of the Middle Holocene is the identification of an apparent long-range interaction sphere termed the Western Nexus (Erlandson et al. 2007; Sutton and Gardner 2006). This interaction sphere is said to link cultures in the Southern California region with those in the northwestern Great Basin through trade. A key element identifying this interaction sphere is the presence of the relatively rare Olivella Grooved Rectangle bead on some sites containing Topanga II phase components (Erlandson et al. 2007; Raab and Howard 2002; Sutton and Gardner 2006; Sutton and Koerper 2005). Interestingly, the vast trade network seems to exclude the northern Channel Islands and skirts the Santa Barbara subregion. Some have hypothesized that this interaction sphere is representative of migration patterns of Uto-Aztecan speakers from the Great Basin into Southern California (Byrd and Raab 2007). This “Shoshonean Wedge” marks the end of the Middle Period and transition into the Topanga Phase III (Sutton 2008); however, Byrd and Raab (2007) place this transition in the Middle Holocene.

Late Holocene (3500 B.P. to A.D. 1769)

The Late Holocene subsumes two pre-contact periods often identified regionally as the Intermediate and Late Prehistoric Periods. Sutton (2008) has identified this time as both the end of the Encinitas Tradition (Topanga III – ca. 3500 to 2600 B.P.) and the beginning of what he terms as the Del Rey Tradition (Angeles II – VI ca. 2600 to 150 B.P.). It has been hypothesized that speakers of Uto-Aztecan languages migrated from the Great Basin across Southern California, eventually colonizing the Channel Islands. The period for this movement has been debated but is now generally understood as happening at approximately 3500 to 3000 B.P. (Sutton 2008). The movement of these people across Southern California is thought to have displaced resident groups, creating a distinctive Shoshonean “wedge” of speakers of Uto-Aztecan languages across Southern California (Kroeber

1925). Sutton (2005) argues that a "proto-Takic" group migrated south and into the Los Angeles Basin and Orange County by about 3500 B.P. and eventually became the people known as the Gabrielino.

Sutton notes that the Intermediate Period has been attributed to differing time periods regionally, and "rather uncritically as a temporal period" (Sutton 2008:5). In the Orange and Los Angeles County areas, the Intermediate was understood to signal cultural changes including distinct types of artifacts and settlement and subsistence practices with approximate date ranges of 3000 to 1350 B.P. Sutton suggests that a "general consensus" has formed with various researchers that the Shoshonean Wedge or Takic migration into the Southern California region happened during the end of the Encinitas Tradition (Topanga III/Angeles I, II, and II) and the beginning of the Intermediate period or what Sutton calls The Del Rey Tradition. Distinct biological, linguistic, settlement patterning, and subsistence practices are the hallmarks of this tradition. Biological markers including physical (cephalic) and ancient DNA have been used to identify the intrusive population (Byrd and Raab 2007). Material culture reflects an increase in hunting, as evidenced by higher numbers of projectile points, large-scale trade in both steatite and shell beads, and an increase in fishing, as evidenced through the identification of shell fishhooks that are not compound. Settlement patterns represent higher populations and fewer, but larger village sites. Mortuary practices vary slightly but appear to shift from inhumations to cremations towards the end of the period (Sutton 2008).

What has been termed the Late Period by most researchers, and a continuation of the Del Rey Tradition (Angeles Phase III) by Sutton, marks what is understood as an increase in cultural complexity in terms of social organization, interaction spheres, settlement patterning, subsistence practices, etc. (Sutton 2008). Traditional models have identified this time as one of great ecological stability and resource abundance; however, more recent research has shown this time to be less stable ecologically, with an increased emphasis on high-ranking food items such as shellfish, leading to overexploitation. The hunting of smaller sized species of shellfish, sea mammals, and terrestrial mammals has been said to indicate a decrease in foraging efficiency during this time (Byrd and Raab (2007). An important material culture component of the Late Period is the emergence of the bow and arrow, as reflected by the presence of small projectile points in larger proportions circa 1,600 B.P. (Sutton 2008).

The Medieval Climactic Anomaly represented an interval of increased climatic instability starting at approximately 1200 B.P. Long-term droughts associated with this anomaly are said to correspond with rapid social upheaval, as evidenced in the form of violence, settlement patterning changes, increased social complexity (including the development of chiefdoms), and subsistence changes related to increased population intensity (Byrd and Raab 2007; Sutton 2008).

Varying models of settlement patterning have been identified regionally during this time period. Settlement patterning is usually recognized as a system of relatively large, semi-permanent base camps surrounded by resource procurement or ephemeral sites related to resource procurement or specialized activities (Byrd and Raab 2007).

Research and analysis of archaeological data has begun to upend the traditional modeling of Late Holocene cultural patterns and behaviors (Gamble and Russell 2002; Koerper et al. 2002; Sutton 2008). Early modeling of behavior and settlement patterning in the region posited that this period was an analog for the settlement patterns, cultural practices, and ethnohistoric makeup of the groups that were observed by early Euro-American explorers (Byrd and Raab 2007). More recent

research has revealed that this period has more complexity than was previously thought, with dynamic regional and local patterns of change. For example, cultural change may have been rapid rather than gradual, and periods of cultural stress were not limited to post-contact times but occurred periodically during the pre-contact era as well (Byrd and Raab 2007).

Obvious cultural changes include population loss due to Hispanic-introduced diseases, political upheaval, the integration of European/Hispanic material culture items, the disruption of trade networks and interactions spheres, and the formation of new alliances and relationships as a result of the Spanish Mission system and an influx of nonnative colonists as well as other Native American groups such as the Cahuilla, Luiseño, and Serrano (Dietler et al. 2018; McCawley 1996; Sutton 2008).

Ethnohistoric Setting

The proposed project sites are near an ethnographic transition zone between multiple Native American groups including the Gabrielino/Tongva/Kizh, the Serrano, the Luiseno, and the Cahuilla. Refer to Section XVIII, *Tribal Cultural Resources*, for a detailed discussion of these Native American groups.

Historic Setting

History for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Some researchers subdivide the American Period in various phases, such as 19th century (1848–1900), Early 20th century (1900–1950), and Modern Period (1950–present).

Spanish Period

In the 18th century, the Spanish colonized present-day California, establishing a tripartite system consisting of missions, presidios, and pueblos (Bean and Rawls 1968). History records the Spaniard Pedro Fages as the first white person to pass through the San Bernardino Valley in 1772. Four years later, Fr. Francisco Hermenegildo Garcés, "the famous and revered Franciscan missionary-explorer-martyr," entered the valley, seeking to plot a road that would connect Monterey with Sonora (Beattie and Beattie 1939:3). It would be another 30 years before the Spanish returned to the region.

As the chain of missions prospered, their livestock holdings increased and became vulnerable to theft. The Spaniards responded by planning inland missions that could provide additional security and establish a presence beyond the coast. Efforts to colonize and evangelize were continued by Mission San Gabriel Arcángel, which established an estancia (rancho) at Puente at least by 1816 and further expanded its scope of operations by establishing the San Bernardino estancia at a site 1.5 miles east of Guachama in 1819. Other estancias in San Bernardino County soon followed at Agua Caliente and at the ranchos of Jucumba and Yucaipa (Beattie and Beattie 1939:12). The estancia at Guachama was intended to serve several purposes, one of which was to develop farming and teach the Cahuilla Indians about European agricultural methods. By 1821, mail was being carried between Sonora and California on the Cocomaricopa Trail, which passed through the San Bernardino Valley.

Mexican Period

Mexico proclaimed its independence from Spain in 1821 and became a federal republic in 1824, with both Baja and Alta California classified as territories (Starr 2005). The Mexican Republic began

to grant private land to citizens to encourage immigration to California. Huge land grant ranchos took up large sections of land in California. Between 1835 and 1846, more than 600 land grants were made in California by the Mexican government. The dons dominated the economy and defined the society of Mexican California (Robinson 1948; Starr 2005). These men, often referred to as "Californios," practiced an agricultural pattern that included mixed stock raising and commercial agriculture on their vast landholdings (Jelinek 1999; Starr 2005).

In 1833, Mexico adopted the Secularization Act of 1833, by which the Mexican government privatized most of the Franciscans' landholdings, including their California missions. By 1836, this sweeping process effectively reduced the California missions to parish churches and released their vast properties. Although earlier secularization plans had called for redistribution of lands to the Native American neophytes, who were responsible for construction of the mission empire, the mission lands and livestock holdings were instead redistributed by the Mexican government through land grants to Mexican ranchers (Langum 1987:15–18).

American Period

In 1848, at the end of the war between Mexico and the United States, the Treaty of Guadalupe Hidalgo was signed, giving control of California to the United States. The acquisition of California by the United States and the discovery of gold in 1849 drew many Euro-Americans into California (Robinson 1948). In 1850 California became a state and was subsequently divided into 27 counties. However, the great population influx was limited primarily to Central California, San Francisco, and the Gold Rush region of the Sierra Nevada. Southern California grew slowly during this time.

Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the Southern California economy through the 1850s. Cattle were no longer desired mainly for their hides, but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from Southern to Northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains where available. The cattle boom ended for Southern California as neighbor states and territories drove herds to Northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 1941:102–103).

Riverside County

In 1859, the first U.S. Post Office in what would become Riverside County was established at John Magee's store on Temecula Rancho (Gunther 1984:526). The first major population boom in Southern California followed completion of the Southern Pacific Railroad connection from Sacramento and the transcontinental Central Pacific Railroad route south to Los Angeles in 1874 (Lech 2007). The railroad brought land speculators, developers, and agriculturalists into the region, including Riverside and surrounding areas that seemed most fit for agricultural development.

In 1870, Judge John Wesley North and a group of associates founded the City of Riverside on part of Rancho Jurupa. Orange trees were first planted in Riverside County in 1871. By 1882, there were more than half a million citrus trees in California, almost half of which were in Riverside County. With the agricultural boom that the navel orange provided, the City of Riverside grew rapidly during the 1880s. On May 9, 1893, Riverside County was officially formed from portions of San Bernardino County and San Diego County (Patterson 1971). The citrus boom created a number of fortunes in

Riverside and, according to the Bradstreet Index, in 1895 the City became the wealthiest jurisdiction per capita in the United States (Patterson 1971).

During World War I, the federal government established a military presence in Riverside County. The U.S. Army constructed March Field, now March Air Reserve Base, to train aviators. The base increased in size during World War II, adding Camp Haan and a third facility, Camp Anza, now occupied by the National Veteran's Cemetery. Over the decades, new residents populated new towns such as Murrieta, Wildomar, and Lake Elsinore. Eastvale, Norco, and unincorporated areas within the county south of Corona zoned lots with enough acreage for "ranchettes" and permitted horse keeping. Civic activities with equestrian themes became a feature of towns and neighborhoods within the county area and towns south of the City of Riverside (County of Riverside 2010; March Air Reserve Base n.d.). The bulk of the county remained agricultural into the 1960s and 1970s, when real estate development activity began to occur (ICF 2012).

Discussion

A California Historical Resources Information System (CHRIS) cultural resources records search encompassing the proposed Riverside Gateway Parks Program project sites plus a 0.5-mile radius was requested at the Eastern Information Center at the University of California, Riverside on January 25, 2021, and results were provided on February 15, 2022. The records search included a review of all recorded historic and pre-contact archaeological sites, as well as recorded built environment resources within 0.5 mile of the project sites.

As a result of the records search, a total of 59 cultural resources studies were identified within the 0.5-mile radius of the project site boundaries. Thirty-one of the cultural resources studies overlap with the overall Riverside Gateway Parks Program project site boundaries. A total of 401 previously recorded resources were identified within a 0.5-mile radius of the overall proposed project. Eleven of these previously recorded resources are within the Martha McLean Anza Narrows Park (eight) and Jurupa Avenue Trailhead (three) project sites. Of the 11 previously recorded resources, eight are archaeological and three are built-environment resources, as discussed below.

Archaeological and built-environment pedestrian and windshield surveys were conducted to identify any new archaeological or built-environment resources and to update previously recorded resources. Three newly identified built-environment resources were identified at Martha McLean Anza Narrows Park and were analyzed as part of this study. No new archaeological resources were identified as a result of the pedestrian survey.

a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Martha McLean Anza Narrows Park

No Impact. The study area for built-environment cultural resources consists of the Martha McLean Anza Narrows Park site and adjacent parcels containing buildings and structures 50 years old or older, with the exception of parcels at the southeast border of the site, which contain Union Pacific Railroad. Originally the Atchison, Topeka and Santa Fe Railway, the railroad line dates to the late nineteenth century and would not be physically altered by the proposed project in any way. Historic aerial photographs show that in the vicinity of the existing park, the setting of the railroad has been thoroughly altered by development and landscape alterations since World War II (NETR 2023). By

implementing recreational construction and introducing new low-rise structures within an existing park that would remain a park, the master plan would have no potential to affect the railroad line were it to qualify as a historical resource. Therefore, the railroad parcels are not included in the study area. Martha McLean Anza Narrows Park contains built-environment resources over 50 years old created when the park consisted mainly of open space. However, as an existing park consisting of grass lawns, planted trees, and other landscaping, as well as shelter structures and hardscape features such as paved walkways and parking areas, Martha McLean Anza Narrows Park is less than 50 years old (NETR 2023).

Qualified architectural historians surveyed the study area and identified a total of five built environment resources 50 years or older within it. These consist of three residences, a road, and a trail marker. The three residences have not previously been recorded or evaluated and the two other resources were previously recorded and evaluated. A qualified architectural historian evaluated the five resources applying California Register of Historical Resources (CRHR) significance criteria and historic integrity considerations. The results of the evaluations are as follows.

Table V-1. Martha McLean Anza Narrows Park Built-Environment Survey and Evaluation Results

Resource	Year Built	Eligibility	Status Code
5281 Jurupa Avenue	1960	Not CRHR eligible	6Z[a]
5979 Tucson Court	1960	Not CRHR eligible	6Z
5965 Tucson Court	1960	Not CRHR eligible	6Z
De Anza Trail Marker (P-33-16851)	1942	Not CRHR eligible	6Z
Santa Ana River Trail Road (P-33-022304)	Circa 1940	Not CRHR eligible	6Z

[a] Found ineligible for National Register of Historic Places, CRHR, or local designation through survey evaluation

California Department of Recreation (DPR) 523-series forms documenting the resource evaluations are available for reference in Appendix H. These include updates for the trail marker and the road. None of the five built environment resources is eligible for the CRHR. Therefore, none of them qualify as historical resources under CEQA. Because there are no built-environment resources within the study area that qualify as historical resources under CEQA, implementation of the master plan would have no impact on historical resources.

Jurupa Avenue Trailhead

No Impact. The study area for built-environment cultural resources consists of the Jurupa Avenue Trailhead site and adjacent parcels containing buildings and structures 50 years old or older. Qualified architectural historians surveyed the study area and identified one previously recorded built-environment resource (P-33-009651) within it. A qualified architectural historian evaluated the resource applying CRHR significance criteria and historic integrity considerations. The result of the evaluation is as follows.

Table V-2. Jurupa Avenue Trailhead Built-Environment Survey and Evaluation Results

Resource	Year Built	Eligibility	Status Code
Eastern Spillway of the Hole Lake Complex (P-33-009651)	1915–circa 2011	Not CRHR eligible	6Z[a]

[a] Found ineligible for National Register of Historic Places, CRHR, or local designation through survey evaluation

DPR 523-series forms previously evaluating the resource and updating the record for this analysis are available for reference in Appendix H. Constructed circa 1915 and formed of a dam, spillways, pipelines, a channel, and a pumphouse, the Hole Lake Complex was recorded and found eligible for local designation in the 1990s and 2000s. The complex's original Eastern Spillway was within the study area. However, the Hole Lake Complex was largely demolished and reconstructed circa 2011. Most of the current Eastern Spillway structure within the study area is of recent construction. Consequently, the spillway does not retain integrity to any historic period and is not eligible for local designation or the CRHR. It does not, therefore, qualify as a historical resource for the purposes of CEQA. Implementation of the Jurupa Avenue Trailhead Master Plan would have no impact on a historical resource.

Overall Impact

Because there are no built-environment resources within the project sites that qualify as historical resources under CEQA, implementation of the proposed project would have no impact on historical resources.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

The CHRIS records search conducted for the proposed project identified two previously recorded archaeological resources (P-33-003357 and -009652) within the boundaries of the Jurupa Avenue Trailhead site and six previously recorded archaeological resources (P-33-000127, -016848, -017330, -017331, -017332, and -022303) within the Martha McLean Anza Narrows Park site.

ICF archaeologists Peter Pham, BA and Shannon Smith, BA conducted an archaeological pedestrian survey on March 16 and 17, 2022. Additional fieldwork was conducted on May 31 and June 1, 2022, to fully record and update archaeological resources at the project sites. The field survey methods consisted of both a systematic intensive pedestrian survey and a reconnaissance survey. The intensive pedestrian survey method consisted of teams of two walking 10-meter transects in areas where slope, vegetation, and/or terrain allowed transects to be maintained. Density of vegetation varied across the project sites and, in some cases, was very thick and hindered visibility and access. Although the ground surface was visible in some reconnaissance areas, transect coverage was precluded by dense and/or toxic vegetation such as poison oak. The reconnaissance survey method consisted of surveying visible areas where they were present and/or accessible, especially in areas of heavy vegetation.

No new archaeological sites were identified at either project site as a result of pedestrian surveys.

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact with Mitigation Incorporated. Studies conducted for the proposed project included a CHRIS records search, an intensive pedestrian survey, and research with archival sources. As a result of the records search, six previously recorded archaeological resources (P-33-000127, -016848, -017330, -017331, -017332, and -022303) were identified within Martha McLean Anza Narrows Park. Four of the resources are archaeological sites (three historical period; one pre-contact) and one is a pre-contact isolate. Each of these resources was evaluated as part of the Cultural Resources Technical Report for their potential inclusion on the CRHR. Table V-3 presents information about the resources and the recommended CRHR status. A brief description and

evaluation of each site are provided below. More detailed descriptions and evaluation discussion are provided in the Cultural Resources Technical Report (Appendix H). No new archaeological resources were identified as a result of the pedestrian survey conducted for the proposed project.

Table V-3. Archaeological Resources within the Martha McLean Anza Narrows Park Site

Primary	Trinomial	Age	Description	Recommended CRHR Status	CRHR Status Code
P-33-000127	CA-RIV-127	Pre-contact	Bedrock milling site	Recommended eligible for the purposes of the project	3CS[a]
P-33-016848	N/A	Historical period	Sewer line	Not eligible for CRHR	6Z[b]
P-33-017330	N/A (isolate)	Pre-contact	Isolated ground stone	Not eligible for CRHR	6Z
P-33-017331	CA-RIV-9014	Historical period	Refuse pit	Not eligible for CRHR	6Z
P-33-017332	N/A (isolate)	Pre-contact	Isolated ground stone	Not eligible for CRHR	6Z
P-33-022303	CA-RIV-11393	Historical period	Refuse scatter	Not eligible for CRHR	6Z

[a] Appears eligible for CRHR as an individual property through survey evaluation.
[b] Found ineligible for National Register of Historic Places, CRHR, or local designation through survey evaluation.

P-33-00127 (CA-RIV-127) is a bedrock milling site consisting of milling slicks and bedrock mortars on several granitic outcrops and is immediately adjacent to the proposed "Outpost Overlook" and associated trail as part of the Martha McLean Anza Narrows Park Master Plan. The site was originally recorded in 1951 and has been updated numerous times (Droessler and Vargas 2018; Haenszel 1971; Kirkish 1972; Hall 1975; McCarthy 1987; McLean and Bouscaren 2007; Ruzicka and Akyüz 2013). This site has been described as the location where de Anza's party camped and crossed the Santa Ana River in 1774 and 1776, although no evidence of his camp site has been identified. A few isolated ground stone artifacts have been identified in the area surrounding the site; however, no indications of a subsurface component or midden directly associated with the site have been recorded by any of the previous studies.

A 2018 survey by ICF archaeologists found the resource to be as previously recorded in 2013 by Ruzicka and Akyüz. A 2022 survey of portions of the site adjacent to the Martha McLean Anza Narrows Park project site conducted by ICF for this project confirmed the conditions of the site identified in 2018. No artifacts were identified on the ground surface surrounding the bedrock outcrops and they are still covered in layers of graffiti and cover-up paint; midden or other cultural materials would be present on the northern, lower edges of the site.

P-33-000127 has been recommended as eligible for the CRHR (Ruzicka and Akyüz 2013), although it is unknown if there has been concurrence on this recommendation. The site could be eligible under CRHR Criteria 1 and 2, because of its purported associated with the de Anza party; however, no evidence other than conjecture about the location from de Anza's diary has been presented to date. No physical evidence of the de Anza party camp or a Native American settlement at this location has been identified at the current time; however, there has been no subsurface test investigations on the site or in the surrounding area. Two isolates (P-33-017330 and P-33-017332) were identified

during monitoring of nearby excavations for road infrastructure. Both isolates consisted of Native American ground stone artifacts thought to be pre-contact. Both finds were identified as being buried, one as much as 1 meter below the ground surface. No other materials, midden, or other cultural strata were identified during the monitoring (CRM TECH 2010). The discovery of buried Native American resources in relatively close proximity to this site points to the possibility that buried resources may exist or have existed at this site. Subsurface testing could yield temporally or behaviorally diagnostic archaeological information that could clarify any association with de Anza's party or a particular pre-contact period and provide contextual data about the site (Criterion 4).

Without additional studies that might provide such contextual information, however, the site is not likely to yield any additional information important in prehistory, as the surface components and features at the site have been thoroughly documented. Because it is unknown whether a subsurface component exists at this site, it is not possible to make a recommendation for the site's potential eligibility for inclusion on the CRHR. The overall site boundaries are still somewhat ambiguous and it is unknown if a subsurface component exists at this site. Additional studies such as subsurface testing could cause unnecessary damage to the site and are beyond the scope of the current study. If possible, avoidance of this resource would be the preferred method of treatment. For these reasons, the site is recommended eligible for the purposes of the project only, and as such is considered a historical resource.

P-33-016848 (no trinomial) is identified as the Santa Ana River Trunk Sewer Line/Santa Ana River Outfall and it traverses both project sites. This site was originally recorded in December 2007 as two sewer lines along the south bank of the Santa Ana River. The lines were described to have been constructed in 1941 and 1957 and consisted of both 24-inch-diameter vitrified clay and 45-inch-diameter reinforced concrete pipelines and concrete-covered brick manholes with cast-iron manhole covers (Beedle 2008). The site was updated in December 2008 and several manhole features were added (Ballester 2008). In 2012 the site was again updated, and at this time it was noted that the site had been destroyed as part of the construction of its replacement. In 2018, ICF archaeologists revisited the recorded site area and observed that portions of the clay sewer line had been mostly removed as a result of the Santa Ana River Trunk Sewer Replacement Project in 2012. ICF archaeologists revisited this site while conducting pedestrian surveys in 2022 for this project. Manhole covers were identified and matched the descriptions given in previous recordings of the site. The site boundaries will be expanded to the north as a result of the survey for the proposed project.

In 2012, Loren-Webb and Ruzicka recommended this resource as ineligible for inclusion on the CRHR, as it did not have an important association with people or events (Criteria 1 and 2), it was not distinctive of a certain time, place, or construction method (Criterion 3), and would not yield additional information with further research (Criterion 4). Loren-Webb and Ruzicka concluded that the integrity of the site had been permanently altered and it could not be considered for inclusion in either the CRHR or National Register of Historic Places (NRHP). The site extends beyond the previous project boundaries and was also identified by the ICF team in the 5200 Tequesquite and Tequesquite North project sites. While the site boundaries will be extended, the condition and elements for consideration of the site's eligibility have not changed. Considering the lack of integrity of the site within the project areas of potential effects, the lack of ability for the site features to inform on research issues, and the lack of context to associate the site with important events or people, ICF concurs with the previous recommendation of "not eligible" for inclusion on the CRHR. As such, the site is not considered a historic resource per CEQA.

P-33-017330 (isolate; no trinomial) is a pre-contact isolate that consists of fragments of two metates. The isolate was originally recorded by Robert Porter of CRM Tech in 2007 during monitoring of excavations conducted to create an artificial bank near the edge of the adjacent Union Pacific Railroad tracks. It is assumed that the metates were whole, as the recorder described them as being "broken by the equipment." The fragments were dragged by the equipment several feet from their original location, and Porter estimated that the metates were originally at a depth of 50 centimeters below the "grading surface" (Porter 2007:1). It was noted that this find was in relatively close proximity to P-33-017332 (an isolated pre-contact mano [see below for discussion]) and that there is potential for additional subsurface archaeological materials in this area. ICF archaeologists surveyed the area where the isolated artifacts were recorded but did not identify any additional archaeological materials.

In 2010, CRM TECH evaluated this resource and noted that, as an isolate, P-33-017330 "by definition" was not considered a potential historic property (NRHP) or historic resource (CRHR). Additionally, it was recommended that P-33-017330 did not yield or have the potential to yield any information important to "advancing the field of archaeology" (CRM TECH 2010:59). Because the isolated artifacts were not found in association with other materials, midden, or features, there is no contextual information to associate with these artifacts. It is unclear whether these artifacts are components of a larger archaeological site. Without such contextual information and considering the ubiquity of such isolated artifacts in the region, this isolate does not appear to meet CRHR Criteria 1, 2, 3, or 4. As it is an archaeological isolate, ICF concurs with the previous recommendation by CRM TECH that the isolate does not meet the criteria for inclusion in the CRHR and is, therefore, not considered a historic resource.

P-33-017331 (CA-RIV-9014) is a historical-period refuse pit first recorded by Robert Porter in 2007 during monitoring of trenching activities. The site consisted of thousands of historical-period artifacts including numerous whole glass bottles, ceramics, farming tools, batteries, building materials, and other domestic refuse thought to be associated "with a farm or ranch" (Porter 2007:1). CRM TECH (2010) concluded that the refuse had been dumped into a gully that was later filled with sediment likely related to the widening of Jurupa Avenue in the 1950s. The deposit lacked internal stratigraphy and was identified at a depth of 6 feet below the ground surface and extending to 12 feet below the ground surface at the time. CRM TECH could not find any direct association with a particular residence, individual, or group "despite extensive research" (CRM TECH 2010:59).

In 2022, ICF surveyed the area where the deposit was recorded but did not identify any archaeological materials. Considering that the deposit was identified well below the existing ground surface, it was not likely that anything would have been visible during the survey for the proposed project.

After extensive analysis and research with archival sources, CRM TECH (2010) concluded that the site was not eligible for either the CRHR or NRHP. The DPR form notes that most of the site has been removed and that a small remaining portion was likely disturbed when the trench was backfilled. This disturbance, coupled with the fact that most of the site was previously excavated, means that the site's integrity appears to be severely altered. ICF concurs with the CRM TECH recommendation that the site does not meet any eligibility criteria of the CRHR; furthermore, the analysis conducted by CRM TECH has exhausted its research potential. As such, ICF concurs with CRM TECH and recommends that the site is not eligible for the CRHR and should not be considered a historic resource per CEQA.

P-33-017332 (isolate; no trinomial) is an isolated pre-contact ground stone artifact (mano) identified and recovered during archaeological monitoring. The isolated, whole mano was documented by CRM TECH (2010) approximately 1 meter below the ground surface. No other artifacts or signs of midden or an archaeological site were identified in proximity to the isolated artifact. CRM TECH also noted that "additional archaeological remains are likely buried in close proximity to this isolate and P-33-017330 discussed above" CRM TECH (2010). In 2022, ICF surveyed the area surrounding the location where this isolated artifact was originally recovered but did not identify any other archaeological materials.

In 2010, CRM TECH evaluated this resource and noted that, as an isolate, P-33-017332 "by definition" was not considered a potential historic property (NRHP) or historic resource (CRHR). Additionally, it was recommended that P-33-017332 did not yield or have the potential to yield any information important to "advancing the field of archaeology" (CRM TECH 2010:59). Because the isolated artifact was not found in association with other materials, midden, or features, there is no contextual information to associate with the artifact. It is unclear whether this artifact is a component of a larger archaeological site. Without such contextual information and considering the ubiquity of similar isolated artifacts in the region, this isolate does not appear to meet CRHR Criteria 1, 2, 3, or 4. ICF concurs with the previous recommendation by CRM TECH that the isolate does not meet the criteria for inclusion in the CRHR and is not considered a historic resource.

P-33-022303 (CA-RIV-11393) is a large, diffuse historical-period refuse deposit that was first recorded by Barbara Loren-Webb in 2011. The site was discovered during monitoring of mechanical excavations along a terrace edge on the south side of the Santa Ana River for the Santa Ana River Trunk Sewer Replacement Project. The site is described as a "large, extremely sparse and diffuse" deposit of refuse dating from the 1880s to the 1940s. Analysis of the depositional context of the materials as well as diagnostic elements of the artifacts led to the conclusion that the deposit is the result of multiple episodes of refuse disposal over a number of years (Akyüz and Ruzicka 2014). In 2022, ICF archaeologists surveyed the area of P-33-022303. A few artifacts including several bricks and brick fragments and one whiteware ceramic shard were identified within the site boundaries. Overall, the site appears to be in the same condition as when it was first identified; however, the original depositional context of the materials has likely been substantially altered due to the excavation of the large trench and placement of the sewer line in this area.

The site was evaluated by Akyüz and Ruzicka in 2014 and recommended ineligible for the CRHR due to a lack of contextual information to tie artifacts to and the "multi-episodic nature of the scatter" (Akyüz and Ruzicka 2014:49). The authors of the previous evaluation state that the lack of context makes it impossible to ascribe a distinct age or association with a particular event or person important to California or local history (CRHR Criteria 1 and 2). Additionally, it is noted that the site does not appear to hold any further research potential and, with the previous analysis of collected artifacts, its potential has likely been exhausted (CRHR Criterion 4). ICF concurs with the recommendations of Akyüz and Ruzicka and does not recommend the site eligible for inclusion in the CRHR. As such, P-33-022303 is not considered a historical resource for the purposes of the proposed project.

Summary

Four previously recorded archaeological sites and two previously recorded isolates were identified with the records search and updated during the pedestrian survey for the Martha McLean Anza Narrows Park site. The two isolates were not updated because the artifacts were collected in the

past; however, the areas surrounding the location of the isolates were surveyed and no additional materials were identified. All six of the archaeological resources were previously evaluated for their potential to be included in the CRHR. One of the resources (P-33-000127) was previously recommended as eligible for inclusion in the CRHR (Ruzicka and Akyüz 2013). Given our current understanding of the site, it is not possible to determine the site's eligibility until subsurface testing is conducted to confirm the presence of such a deposit. Because the vertical and horizontal boundaries of site P-33-000127 are not determined conclusively and it is possible that a subsurface component exists for the site, it is recommended that the site be considered eligible for the CRHR for the purposes of the proposed project only. Because the site will be assumed eligible and would be a historical resource per CEQA and because subsurface disturbances associated with construction activities would affect the site's boundaries, implementation of MM-CUL-1 through MM-CUL-5 would reduce impacts on the site to less-than-significant levels.

The remaining five resources have all been evaluated as not eligible for listing in the CRHR, and ICF concurs with these recommendations. As such, the remaining five resources (P-33-016848, -017330, -017331, -017332, and -022303) are not considered historic resources per CEQA and do not require additional consideration.

Because of the Martha McLean Anza Narrows Park site's proximity to previously recorded archaeological resources, including Native American archaeological sites, the proposed Martha McLean Anza Narrows Park site is considered to be archaeologically sensitive and to have potential for containing as-yet unidentified archaeological resources. The proposed project would include subsurface disturbance associated with construction activities adjacent to known resources. Implementation of MM-CUL-1 through MM-CUL-5 would reduce any significant impacts on unanticipated archaeological discoveries to less-than-significant levels.

Jurupa Avenue Trailhead

Less-than-Significant Impact with Mitigation Incorporated. Studies conducted for the proposed project included a CHRIS records search, an intensive pedestrian survey, and research with archival sources. As a result of the records search, two previously recorded archaeological resources (P-33-003357 and P-33-009652) were identified within the Jurupa Avenue Trailhead site. One site (P-33-003357) is a historical-period site and one (P-33-009652) is pre-contact in age. Each of these resources was evaluated as part of the Cultural Resources Technical Report for their potential inclusion on the CRHR. Table V-4 presents information about the resources and their recommended CRHR status. A brief description and evaluation of each site are provided below. More detailed descriptions and evaluation discussion are provided in the Cultural Resources Technical Report (Appendix H).

Table V-4. Archaeological Resources within the Jurupa Avenue Trailhead Site

Primary	Trinomial	Age	Description	Recommended CRHR Status	CRHR Status Code
P-33-003357	CA-RIV-3357H	Historical period	Water conveyance system	Not eligible for CRHR	6Z[a]
P-33-009652	CA-RIV-6452	Pre-contact	Bedrock milling site	Not eligible for CRHR	6Z

[a] Found ineligible for NRHP, CRHR, or local designation through survey evaluation.

P-33-0003357 (CA-RIV-3357H) is known as the Riverside Power Company Canal and was originally recorded as two different sites (CA-RIV-3357H and CA-RIV-5806H). The site was first recorded in 1987 by Romani et al. and updated in 1997 by Love and Tang; at that time, it was determined that the site was larger than originally recorded. Love and Tang decided that sites CA-RIV-3357H and CA-RIV-5806H should be combined, as they were part of the same hydroelectric system. Love and Tang did not evaluate the site or provide any indication of the site's condition. ICF updated the site again in 2019 and found it to be in poor condition. ICF described the site as having portions removed, destroyed, and/or deteriorated. ICF recommended the site as ineligible for the CRHR and NRHP based on a lack of integrity (ICF 2019). The site was revisited by ICF archaeologists on June 1, 2022, who found that much of what had been visible of the channel has since been filled in by sediment and modern refuse. Additionally, large numbers of unhoused people are using the area, apparently in a much higher density than was documented by ICF in 2019. The site has been heavily affected by this modern use, with large amounts of refuse and camping debris strewn along the route of the channel.

The present survey of the site confirmed the findings of earlier researchers and concurs with the recommendation of ICF 2019 that the site is not eligible for the CRHR. The site is in fact in worse condition than when it was updated by ICF in 2019. P-33-003357 does not appear to meet any of the criteria for inclusion in the CRHR and, as such, the site is not recommended as eligible for inclusion in the CRHR. The site is not identified as a historical resource for the purposes of the proposed project.

P-33-009652 (CA-RIV-6452) was originally recorded in 2000 by Collett as a large, isolated bedrock milling feature. Collett identified three grinding elements on the outcrop including one basin, one slick, and one "rub." Collett did not identify any other artifacts or midden constituents at the site. The site was updated by McKenna in 2011, and it was noted that the grinding elements were still visible; however, the outcrop had been vandalized with graffiti. The site was visited by ICF in 2018 and it was noted that construction of a new sewer outfall after the site was originally recorded had affected the site. Much of the boulder was obscured with sediment and vegetation and the rock is covered in graffiti and paint. A survey of the site as part of the proposed project was conducted by ICF in 2022. At that time, the boulder and surrounding area were obscured by the deposition of silt from the nearby hillslope, occupation of the area by unhoused people, large amounts of modern refuse, and heavy growths of brush. The site appeared to be in the same condition as when visited by ICF in 2018.

The milling feature lacks integrity because it has been altered by modern graffiti and painting, construction activities, disturbance from large populations of unhoused people, erosion of surrounding soils, and incorporation into the design of a modern sewage outfall feature. Milling sites such as this are ubiquitous in the region and, without an associated subsurface component, such sites are typically recommended as ineligible for inclusion on the CRHR for their lack of potential to yield information important to history or prehistory. No temporally diagnostic artifacts or dateable materials were recovered or identified at the site and, as such, the milling features cannot be associated with a particular time period or population. Individually, the site has not yielded and is not likely to yield information important to prehistory or history, and previous documentation has likely exhausted any further potential of the site to do so. P-33-009652 does not appear to meet any of the criteria for inclusion in the CRHR and, as such, the site is not recommended as eligible for inclusion in the CRHR under any of the criteria necessary for listing. The site is not identified as a historical resource for the purposes of the proposed project.

Summary

While two archaeological sites were identified within the Jurupa Avenue Trailhead site, neither of them is recommended as eligible and, therefore, neither is considered a historic resource per CEQA. As such, the Jurupa Avenue Trailhead site would not affect any known historical resources. However, the presence of pre-contact archaeological resources within the project site boundaries indicates the possibility for unidentified buried archaeological resources. Because of the overall project site's proximity to previously recorded archaeological resources, including Native American archaeological sites, the Jurupa Avenue Trailhead site is considered to have potential for containing as-yet unidentified archaeological resources. The proposed project would include subsurface disturbance associated with construction activities. Implementation of MM-CUL-1 through MM-CUL-4 would reduce any significant impacts on unanticipated archaeological discoveries to less-than-significant levels.

Overall Impact

A total of eight archaeological resources were identified in the Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead project sites. Of the eight archaeological resources, one (P-33-000127) is recommended eligible for the CRHR for the purposes of the proposed project only and considered a historical resource. The remaining seven (P-33-003357, -009652, -016848, -017330, -017331, -017332, and -022303) are recommended ineligible for listing in the CRHR and are not considered historical resources per CEQA. While there is only one historical resource that has been identified and may be affected within the two project sites, both project sites are considered sensitive for archaeological resources due to their proximity to known pre-contact archaeological resources. Therefore, ground-disturbing activities could result in the discovery of previously unidentified archaeological resources and the destruction of known archaeological resources, which would be a potentially significant impact. MM-CUL-1 through MM-CUL-5 should be implemented to reduce impacts on known and as-yet undiscovered archaeological resources to less-than-significant levels.

c. Disturb any human remains, including those interred outside of dedicated cemeteries?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact with Mitigation Incorporated. No pre-contact sites or cemeteries have been identified in the study area or within a 0.5-mile radius of the study area. Based on the results of the cultural resource records search, background research, and Native American consultation process, there is no evidence of any human remains, including those interred outside of dedicated cemeteries, within the study area that would be affected by the proposed project. However, because the proposed project would involve ground-disturbing activities, it is possible that such activities could unearth, expose, or disturb previously unknown human remains. Implementation of MM-CUL-5 would reduce potential impacts on unknown human remains to less-than-significant levels.

Mitigation Measures

The potential impacts of the project described in this section would be reduced to less-than-significant levels with implementation of the following mitigation measures.

MM-CUL-1: Retain a Qualified Archaeologist and Develop Worker Environmental Awareness Program Training to Be Delivered to Construction Crews

Prior to the start of any ground-disturbing activities, the City should retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (36 Code of Federal Regulations, Part 61) to carry out the following cultural resources measures. Prior to the start of ground-disturbing activities, the qualified archaeologist will prepare a cultural resources sensitivity training module to be used as part of the construction operations Worker Environmental Awareness Program training. Prior to the commencement of construction activities, at the project kickoff, the selected qualified archaeologist will provide a briefing to construction personnel to provide information on regulatory requirements for the protection of cultural resources. All construction personnel will receive sensitivity training prior to beginning work on site. Construction personnel will be informed about the types of archaeological resources that may be encountered and the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. Workers will be provided contact information and protocols to follow if unanticipated discoveries are made. The City and the lead construction firm (contractor) will ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

MM-CUL-2: Avoid Archaeological Sites through Establishment of Environmentally Sensitive Areas

If archaeological resources are identified either through an archaeological study or as unanticipated discoveries during construction, implementation of MM-CUL-2 would be required. Avoidance is always the preferred method of treatment for archaeological sites. Additionally, should sacred objects or objects of religious importance to Native American tribes be identified, preservation in place avoids conflicts with traditional values of tribes who ascribe meaning to these resources and their locations. Impacts on cultural resources can be avoided through establishing fencing around cultural resources with a buffer and delineating these locations as environmentally sensitive areas. The appropriate buffer size shall be delineated upon consultation with Native American tribes and the City (for pre-contact resources). The City and the consultant archaeologist for individual development projects shall determine appropriate buffers for historical-period (non-Native American) archaeological resources on a case-by-case basis based on the known extent of archaeological sites and the relationship to proposed ground disturbance.

MM-CUL-3: Provide Archaeological and Native American Monitoring

If avoidance is not feasible and project-related ground disturbance is anticipated to occur at previously identified archaeological sites or areas identified as archaeologically sensitive, it is recommended that an archaeologist be present to monitor the activity. If ground-disturbing activities are to proceed at known pre-contact archaeological sites or areas identified as sensitive for Native American or tribal cultural resources (TCRs), it is recommended a Native American monitor be retained in addition to an archaeological monitor.

The archaeologist, in consultation with consulting tribes, the applicant, and the City, shall develop an Archaeological Monitoring Plan to address the details, timing, and responsibility of

all archaeological and cultural activities that occur on a development site. Details in the plan shall include:

1. Project grading and development scheduling:
    a. The development of a rotating or simultaneous schedule in coordination with the applicant and the project archaeologist for designated Native American tribal monitors (if resources are pre-contact in age) from the consulting tribes during grading, excavation, and ground-disturbing activities on the site, including the scheduling, safety requirements, duties, scope of work, and Native American tribal monitors' authority to stop and redirect grading activities in coordination with all project archaeologists
    b. The protocols and stipulations that the applicant, tribes, and project archaeologist for the individual development project shall follow in the event of inadvertent cultural resource discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation
    c. Treatment and final disposition of any cultural resources, sacred sites, and human remains if discovered on a development site
    d. The scheduling and timing of the Cultural Sensitivity Training

The Native American monitor should be affiliated with a local Native American tribe. If project-related ground-disturbing activities in archaeologically sensitive areas are performed simultaneously in more than one location and these activities are performed at a distance greater than 300 feet apart, an archaeological monitor should be present at each location. At a minimum, the archaeological monitor will meet the Society for California Archaeology professional qualification standards for an archaeological crew leader and will work under the direction of an individual that meets the Secretary of the Interior's Standards and Guidelines for Archaeology and the Society for California Archaeology professional qualification standards for a Principal Investigator.

The archaeological monitor will have the authority to temporarily pause excavations, as needed, to examine potential archaeological discoveries. In the event of an unanticipated discovery of archaeological resources or human remains, the archaeological monitor will follow the unanticipated discovery protocols described below.

MM-CUL-4: Unanticipated Discoveries Protocol

If buried cultural resources are discovered inadvertently during ground-disturbing activities, work should be temporarily halted in the area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the lead agency. If the find is pre-contact or Native American in origin, consultation with local Native American tribes who have expressed interest and concern regarding the proposed project should be undertaken.

If the discovery is determined to be not significant in consultation with the lead agency, work will be permitted to continue in the area. If, in consultation with the lead agency, a discovery is determined to be significant, a mitigation plan should be prepared and carried out in accordance with state guidelines. If the resource cannot be avoided, a data recovery plan should be developed to ensure collection of sufficient information to address archaeological and historical research questions, with results presented in a technical report describing field methods, materials collected, and conclusions. The qualified archaeologist shall treat recovered items in

accordance with current professional standards by properly determining provenance, cleaning, analyzing, researching, reporting, and curating them in a collection facility meeting the Secretary of the Interior's Standards as promulgated in 36 Code of Federal Regulations 79.

MM-CUL-5: Human Remains and Associated or Unassociated Funerary Objects

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately and all work within 100 feet of the find shall be halted until the remains have been evaluated by the county coroner. If the human remains are determined to be pre-contact, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant. The City will ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials. The Most Likely Descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

VI Energy

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Affected Environment

The study area for electricity resources is within the Riverside Public Utilities (RPU) network, which extends throughout the City. For petroleum fuels, the resource study area is Riverside County. This section describes the energy demand in the study area and the impacts on energy demand that could result from construction and operation of the proposed project. The energy resources evaluated in this section include electricity and petroleum fuels, which include gasoline and diesel. Energy modeling inputs, assumptions, and results are contained in Appendices C1 and C2. Natural gas resources are not anticipated to be used during construction or operation of the proposed project.

Discussion

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The short-term construction and long-term operation of the proposed project would require the consumption of energy resources in several forms at the proposed project sites and within the project area. Construction and operational energy consumption are evaluated in detail below.

Electricity

Construction

Temporary electric power for potential as-necessary lighting and electronic equipment such as computers inside temporary construction trailers would be provided by RPU or other providers within Riverside County. The electricity used for such activities would be temporary and have a negligible contribution to the proposed project's overall energy consumption.

Operations

Project operation would require electricity for water supply and distribution as well as safety lighting. The estimation of operational electricity demand for this system was calculated by CalEEMod version 2022.1 and would be as high as 37,936 kilowatt-hours per year (21,292 kilowatt-hours per year for the Martha McLean Anza Narrows Park site and 16,644 kilowatt-hours per year for the Jurupa Avenue Trailhead site). The comparison of the operational electrical use to Riverside County's non-residential electrical use can be found within Appendices C1 and C2.

For comparison, non-residential electricity demand for Riverside County in 2021 was 8,256.71 gigawatt-hours per year (CEC 2022a). The proposed project's operational energy use of 0.0379 gigawatt-hour per year (0.0213 gigawatt-hour per year for the Martha Mclean Anza Narrows Park site and 0.0166 gigawatt-hour per year for the Jurupa Avenue Trailhead site) would result in a minimal increase in electricity consumption compared to the total demand in Riverside County (0.0005 percent). Therefore, impacts related to operational electricity use would be less than significant and no mitigation is required.

Natural Gas

Construction and Operations

Natural gas is not anticipated to be required during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the *Petroleum Fuel* subsection. Fuels used during operation would also primarily consist of diesel and gasoline. Therefore, impacts related to construction and operational natural gas use would be less than significant.

Petroleum Fuel

Construction

The proposed project would require the use of nonrenewable energy resources in the form of fossil fuels used to operate equipment and to fuel vehicle trips during construction and operation. Diesel and gasoline fuels would be consumed during the proposed project's construction activities. Energy expenditures during construction would be temporary, lasting for approximately 15 months for the Martha McLean Anza Narrows Park project site and 6 months for the Jurupa Avenue Trailhead site. Construction would not result in wasteful or inefficient use of energy. Table VI-1 and Table VI-2 show energy fuel consumption during construction for both sites. Construction fuel consumption represents total fuel use over the 15-month construction period for the Martha McLean Anza Narrows Park project site and a 6-month construction period for the Jurupa Avenue Trailhead site. Table VI-3 displays the total cumulative construction fuel consumption for both sites.

Table VI-1. Martha McLean Anza Narrows Park Project Construction: Annual Petroleum Consumption

Source	Diesel (gallons)	Gasoline (gallons)
Off-road Equipment	36,343	–
Haul Trucks	326	–
Vendor Trucks	327	–

Source	Diesel (gallons)	Gasoline (gallons)
Workers	–	2,848
Total Fuel Consumption	36,996	2,848

Source: Energy calculations are provided in Appendix C1.

Table VI-2. Jurupa Avenue Trailhead Project Construction: Annual Petroleum Consumption

Source	Diesel (gallons)	Gasoline (gallons)
Off-road Equipment	12,996	–
Haul Trucks	416	–
Vendor Trucks	223	–
Workers	–	1,040
Total Fuel Consumption	13,635	1,040

Source: Energy calculations are provided in Appendix C2.

Table VI-3. Cumulative Construction: Annual Petroleum Consumption

Source	Diesel (gallons)	Gasoline (gallons)
Off-road Equipment	49,339	–
Haul Trucks	742	–
Vendor Trucks	550	–
Workers	–	3,888
Total Fuel Consumption	50,631	3,888

Source: Energy calculations are provided in Appendices C1 and C2.

During the proposed project's construction period, diesel and gasoline would be used to fuel onsite construction equipment, offsite hauling vehicles, and workers' automobiles. As shown in Table VI-3, construction of the proposed project would consume an estimated 50,631 gallons of diesel and 3,888 gallons of gasoline (see Appendices C1 and C2). In Riverside County, approximately 290,000,000 gallons of diesel and approximately 981,000,000 gallons of gasoline were consumed in 2021 (CEC 2022b). The proposed project's diesel consumption would represent 0.017 percent of Riverside County use, and gasoline consumption would represent 0.0004 percent of Riverside County use. Therefore, energy consumed during project construction would be minimal and impacts would be less than significant.

Operations

Fuel consumption resulting from the proposed project's operational phase would be attributable to occasional maintenance trips and recreational trips to the proposed project site. In total, the proposed project is estimated to have approximately 323 maintenance-related trips per year (161 trips for each project site) and 59,641 recreational trips per year (24,827 trips for the Martha McLean Anza Narrows Park site and 34,814 trips for the Jurupa Avenue Trailhead site). Petroleum fuel consumption associated with motor vehicles traveling to and from the proposed project site during operation is a function of vehicle miles traveled (VMT) and the vehicle fleet mix. The proposed project's total VMT was calculated using data from the Traffic Assessments for the proposed project (Appendices J1 and J2) in addition to maintenance trips provided by the project applicant. The proposed project's operational fuel usage was calculated using CARB's Emission Factor model (EMFAC2021) for the SCAQMD region in addition to the default fleet mix from

CalEEMod for the project land use type of City Park. Using the annual maintenance operations and the CalEEMod default trip lengths, the proposed project's total yearly VMT would be approximately 796,793 miles (307,838 miles for the Martha McLean Anza Narrows Park site and 488,955 miles for the Jurupa Avenue Trailhead site). The estimated fuel use from vehicles traveling to and from the proposed project sites during operation is shown in Table VI-4 to Table VI-6.

Table VI-4. Martha McLean Anza Narrows Park Project Operations: Annual Petroleum Consumption

Fuel	Gallons
Gasoline Consumption	11,854
Diesel Consumption	2,224

Source: Energy calculations provided in Appendix C1.

Table VI-5. Jurupa Avenue Trailhead Project Operations: Annual Petroleum Consumption

Fuel	Gallons
Gasoline Consumption	18,828
Diesel Consumption	3,533

Source: Energy calculations provided in Appendix C2.

Table VI-6. Cumulative Project Operations: Annual Petroleum Consumption

Fuel	Gallons
Gasoline Consumption	30,682
Diesel Consumption	5,757

Source: Energy calculations provided in Appendices C1 and C2.

As such, during project operations, the proposed project would consume an estimated 5,757 gallons of diesel and 30,682 gallons of gasoline. In Riverside County, approximately 290,000,000 gallons of diesel and approximately 981,000,000 gallons of gasoline are consumed annually, based on Riverside County's consumption rates in 2021 (CEC 2022b). The proposed project's diesel consumption would represent approximately 0.002 percent of Riverside County use, and gasoline consumption would represent approximately 0.0031 percent of Riverside County use. Therefore, energy consumed during project operations would be minimal and impacts would be less than significant.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The City of Riverside and the County of Riverside, which have jurisdiction at the proposed project site, have not implemented local plans to specifically address renewable energy or energy efficiency. However, in 2019, the County of Riverside updated its Climate Action Plan (CAP), which aims to improve energy efficiency and mitigate greenhouse gas (GHG) emissions in Riverside County. As the proposed project is consistent with the criteria outlined by the 2019 CAP for a passive park and an active park, which best identify the proposed project, the proposed project is also consistent with the goals of the 2019 CAP for the passive park and active

park land use types. Furthermore, in 2016, the City of Riverside adopted its CAP, which provides local GHG-reduction measures to support the City's GHG-reduction goals. The proposed project is consistent with the GHG-reduction measures outlined by the 2016 CAP that are relevant to the proposed project. Therefore, the proposed project is consistent with the 2016 CAP. The proposed project would also be built to the 2022 California Green Building Standards Code (CalGreen) and Title 24 standards, which would exceed the 2017 Title 24 and CalGreen requirement listed in the 2019 CAP. In addition, equipment and vehicles associated with construction and operation of the proposed project would be subject to fuel standards at the state and federal levels. Therefore, the proposed project would not conflict with or obstruct a state or local plan adopted for the purpose of increasing the amount of renewable energy or energy efficiency. Consequently, direct, indirect, or cumulative project impacts would be less than significant, and no mitigation measures are required.

VII Geology, Soils, and Paleontological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
2. Strong seismic ground shaking?	☐	☐	☒	☐
3. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
4. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Affected Environment

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Both project sites are within the City of Riverside, which lies within the northern end of the Peninsular Ranges, approximately 12 miles south of the intersection with the Transverse Range. The Santa Ana Mountains are approximately 15 miles south and southwest of the City, while the San Jacinto Mountains are approximately 10 miles east and northeast of the City. The San Bernardino Mountains are about 20 miles north of the City. A series of hills and small mountains surround the project site. These hills and mountains are between the two dominant San Jacinto and Santa Ana Mountain ranges. They include La Sierra/Norco Hills, Mount Rubidoux, Box Springs Mountains, Sycamore Canyon, and the many smaller ranges south of the City. Within the City, surface elevations range from about 700 feet AMSL near the Santa Ana River to over 1,400 feet AMSL west of La Sierra. The highest point in the southern portion of the City's Sphere of Influence as defined by GP 2025 is Arlington Mountain, standing at 1,853 feet AMSL approximately 1.5 miles northwest of Lake Mathews. Additionally, portions of Box Springs Mountain Reserve in the northern portion of the City's Sphere of Influence area extend as high as 2,000 feet.

Both project sites and the hills in the project vicinity are made up of granite and adamellite, Mesozoic granitic rock, granodiorite, Mesozoic basic intrusive rocks, and alluvium (located around the Santa Ana River). Most date from the Mesozoic period, except for the alluvium, which dates from the Quaternary.

No Fault-Rupture Hazard Zone exists within both project sites (City of Riverside 2007). There are no known seismic faults within Riverside, and the City is not within a mapped Alquist-Priolo Earthquake Fault Zone (City of Riverside 2007). However, the City is in a region with several active fault lines including the San Jacinto and Elsinore faults. The San Andreas fault lies in San Bernardino County northeast of the proposed project sites (City of Riverside 2007). Additionally, Riverside County has an extensive record of fossil life starting in the Jurassic period, 150 million years ago.

Discussion

a.1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. No Fault-Rupture Hazard Zones exist within the proposed project area. There are no known seismic faults within the City of Riverside, and the City is not within a mapped Alquist-Priolo Earthquake Fault Zone (City of Riverside 2007). Compared to other portions of Southern California, localized seismic hazard potential is considered relatively slight, and there are no known seismic faults within the proposed project area. Therefore, the potential for surface fault rupture is considered to be low, and impacts would be less than significant.

a.2. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. As with most Southern California regions, both project sites would be subject to strong ground shaking in the event of a major earthquake. Three major fault zones and some subordinate fault zones are found in the Peninsular Ranges Geomorphic Province where the proposed project is located. Both project sites have a potential for strong seismic ground shaking according to the State of California Seismic Safety Commission map *Earthquake Shaking Potential for the Los Angeles Metropolitan Region, Counties, Summer, 2003* (California Seismic Safety Commission 2003). This map shows the relative intensity of ground shaking and damage in the greater Los Angeles metropolitan region from anticipated future earthquakes. As a result, the proposed project could be subject to future seismic shaking and strong ground motion resulting from seismic activity, and damage could occur.

Due to the nature of the proposed project as a neighborhood-service recreational resource, it is not expected to draw a substantial amount of people during project construction or permanently. No structures intended for human occupation would be built, and the potential risk to people as a result of strong seismic ground shaking would be extremely limited, while potential impacts on property would not occur. As a result, the proposed project would not expose people or structures to potential substantial adverse effects involving strong seismic ground shaking. Therefore, the potential for impacts due to strong seismic ground shaking would be less than significant.

a.3. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. Liquefaction occurs when saturated, low-density, loose materials (e.g., sand or silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure. The increase in pressure is caused by strong ground motion from an earthquake. Liquefaction more often occurs in areas underlain by silts and fine sands and where shallow groundwater exists. According to the GP 2025 EIR, the Martha McLean Anza Narrows Park project site has a very high, high, and moderate potential for liquefaction, and the Jurupa Avenue Trailhead project site has a high potential for liquefaction.

Implementation of the proposed project would not expose people or structures to substantial adverse effects from seismic-related ground failure, including liquefaction. As a neighborhood-service recreational resource, the proposed project is not expected to draw a substantial amount of people during project construction or permanently. Furthermore, no structures intended for human occupation or residence would be built and the potential risk to people as a result of ground failure or liquefaction would be extremely limited, while potential impacts on property would not occur. As a result, impacts would be less than significant.

a.4. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. According to the GP 2025 EIR (City of Riverside 2007), seismically induced landslides and rockfalls would be expected in the Santa Ana River floodplain in the event of a major earthquake or substantial ground disturbance caused by human activity. Strong ground motions can also worsen existing unstable slope conditions, particularly if coupled with saturated ground conditions. Factors contributing to the stability of slopes include slope height and steepness, engineering characteristics of the earth materials composing the slope, and intensity of ground shaking. A ground acceleration of at least 0.10 gravitational acceleration (g) in steep terrain is necessary to induce earthquake-related rockfalls, although exceeding this value does not guarantee that rockfalls would occur. Because there are several faults capable of generating peak ground accelerations of over 0.10 g in Riverside County, there is a potential for seismically induced rockfalls and landslides to occur. Construction crews and other onsite personnel could be exposed to landslide risk during project construction and maintenance. However, much of the proposed project sites are flat and as a neighborhood-service recreational resource, the proposed project is not expected to draw a substantial amount of people during project construction or permanently. These impacts would be temporary and would be less than significant.

b. Result in substantial soil erosion or the loss of topsoil?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. There is potential for soil erosion or the loss of topsoil from grading during construction. Maintenance activities during project operations involving vehicles traveling to the site and use of small equipment to remove weeds from the site may also result in potential erosion and siltation impact. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared in compliance with National Pollutant Discharge Elimination System (NPDES) Construction General Permit requirements. The SWPPP would specify both construction best management practices (BMPs) and permanent operational measures for erosion control. Therefore, impacts resulting in substantial soil erosion or loss of topsoil would be less than significant.

c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. Liquefaction and landslides are discussed above under Thresholds a.3 and a.4. As mentioned previously, the proposed project sites and the hills in the project vicinity are made up of granite and adamellite, Mesozoic granitic rock, granodiorite, Mesozoic basic intrusive rocks, and alluvium (located around the Santa Ana River). Most date from the Mesozoic period, except for the alluvium, which dates from the Quaternary. The Martha McLean Anza Narrows Park site ranges in elevation from 750 feet AMSL in the central portion to 778 feet AMSL on the southeastern end. Elevations at the Jurupa Avenue Trailhead site range from 671 feet AMSL where Hole Creek empties into the Santa Ana River channel to 740 feet AMSL on the plateau above the

upper portion of Hole Creek upstream of Jurupa Avenue. According to the grading plan, proposed retaining walls would provide stability where there are elevation changes. The proposed project is a recreational resource and it is not expected to result in instability for people or structures during project construction or permanently. Therefore, the potential for project implementation and operation to result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse would be less than significant.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. Implementation of the proposed project would not create substantial risks to life or property as a result of expansive soils. Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a substantial increase in volume with an increase in water content as well as a substantial decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. However, due to the nature of the proposed project as a neighborhood-service recreational resource, it is not expected to draw a substantial amount of people during project construction or permanently. Furthermore, no structures intended for human occupation would be built; therefore, potential risk to people would be extremely limited, while potential impacts on property would not occur. As a result, impacts would be less than significant.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project would not include any installation or use of septic tanks or alternative wastewater disposal systems. No impact would occur.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less than Significant with Mitigation Incorporated. According to the "Prehistoric Cultural Resources Sensitivity" map included in Chapter 5.5, *Cultural Resources*, of the GP 2025 EIR, the project area is in an area with unknown sensitivity for prehistoric cultural resources. Ground disturbance associated with construction, such as excavating, grading, and resurfacing, in a geologic unit that may contain significant fossils could affect paleontological resources that may be present at the proposed project site. The proposed project would create a potentially significant impact on a paleontological resource or site or unique geologic feature.

The potential impacts of the proposed project described in this section would be reduced to less-than-significant levels with implementation of the following mitigation measure.

MM-PAL-1: Conduct Paleontological Monitoring

Paleontological monitoring shall be implemented and shall include the following implementation steps:

- The City shall retain a qualified paleontologist, who shall attend the preconstruction meeting(s) to consult with the grading and excavation contractors or subcontractors concerning excavation schedules, paleontological field techniques, and safety issues. A qualified paleontologist is defined as an individual who (1) has an MS or PhD in paleontology or geology and/or a publication record in peer-reviewed journals; (2) also has demonstrated familiarity with paleontological procedures and techniques; (3) is knowledgeable in the geology and paleontology of the county; (4) has proficiency in recognizing fossils in the field, determining their significance, and collecting vertebrate fossils in the field; and (5) has worked as a paleontological mitigation project supervisor in the county for at least 1 year.
- A paleontological monitor or a qualified paleontologist shall be on site on a full-time basis to inspect exposures for contained fossils during excavation and ground-disturbing activities that occur in any undisturbed deposits below ground surface. The paleontological monitor shall work under the direction of the project's qualified paleontologist. A paleontological monitor is defined as an individual selected by the qualified paleontologist who has experience in the collection and salvage of fossil materials. If fossils that have significance for the scientific record are discovered on a development site, the qualified paleontologist shall recover them and temporarily direct, divert, or halt grading to allow recovery of fossil remains.
- The qualified paleontologist shall be responsible for the cleaning, repairing, sorting, and cataloguing of fossil remains collected during the monitoring and salvage portion of the mitigation program.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall be deposited (as a donation) at a scientific institution with permanent paleontological collections, such as the Los Angeles County Natural History Museum.
- Within 30 days after the completion of excavation and ground-disturbing activities, the qualified paleontologist shall prepare and submit to PRCSD a paleontological resource recovery report that documents the results of the mitigation program. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

VIII Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Affected Environment

This section describes GHG emissions in the study area and impacts on GHG emissions that could result from construction and operation of the proposed project. GHG modeling inputs, assumptions, and results are contained in Appendices C1 and C2. The study area for this resource is generally defined as Riverside County and the state of California, although GHG emissions and climate change are a global issue.

The phenomenon known as the greenhouse effect keeps the atmosphere near Earth's surface warm enough for the successful habitation of humans and other life forms. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHGs. Human activities that generate GHGs increase the amount of infrared radiation absorbed by the atmosphere, thus enhancing the greenhouse effect and amplifying the warming of Earth.

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures—a phenomenon commonly referred to as *global warming*. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events. Large-scale changes to Earth's system are collectively referred to as *climate change* (IPCC 2007).

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. IPCC estimates that human-induced warming reached approximately 1 degree Celsius (°C) above pre-industrial levels in 2017, increasing at 0.2°C per decade. Under the current nationally determined contributions of mitigation from each country until 2030, global warming is expected to rise 3°C by 2100, with warming to continue afterward. Large increases in global temperatures could have substantial adverse effects on the natural and human environments worldwide and in California (IPCC 2018).

The primary GHGs of concern associated with the proposed project are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Principal characteristics of these pollutants are discussed below.

Carbon dioxide enters the atmosphere through fossil fuels (oil, natural gas, and coal) combustion, solid waste decomposition, plant and animal respiration, and chemical reactions (e.g., manufacture of cement). CO_2 is also removed from the atmosphere (or sequestered) when it is absorbed by plants as part of the biological carbon cycle.

Methane is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal solid waste landfills.

Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Table VIII-1 lists the global warming potential of CO_2, CH_4, and N_2O and their lifetimes in the atmosphere.

Table VIII-1. Lifetimes and Global Warming Potentials of Key Greenhouse Gases

Greenhouse Gas	Global Warming Potential (100 years)	Lifetime (years)[a]
CO_2	1	50–200
CH_4	25	9–15
N_2O	298	121

Source: CARB 2021.
[a] Defined as the half-life of the gas.

Regulatory Background

Federal

Several federal Executive Orders (EO) have recently been signed by President Joseph R. Biden related to GHG emissions and climate resiliency. EO 13990, signed in January 2021, set a national goal to achieve a 50 to 52 percent reduction from 2005 levels in economy-wide net GHG pollution in 2030. EO 14057, signed in December 2021, requires federal agencies to develop strategic processes for achieving, among other things, carbon-free electricity by 2030 and 100 percent zero-emission vehicle acquisitions by 2035. President Biden has also signed two bills—Infrastructure Investment and Jobs Act (2021) and Inflation Reduction Act (2022)—that provide funding for infrastructure improvements that will reduce GHG emissions and bolster resilience to climate change. Despite these actions, there is currently no federal law or legislatively mandated national GHG-reduction target.

State

State Legislative Reduction Targets

Senate Bill (SB) 32 requires the state to reduce emissions to 40 percent below the 1990 level by 2030. Assembly Bill (AB) 1279 requires California to achieve net-zero GHG emissions (i.e., reach a balance between the GHGs emitted and removed from the atmosphere) no later than 2045 and to

achieve and maintain net negative GHG emissions from then on. It also mandates an 85 percent reduction in statewide anthropogenic GHG emissions (from 1990 levels) by 2045. SB 1203 requires state agencies aim to achieve net-zero GHG emissions resulting from their operations no later than 2035, or as soon as feasible thereafter.

The state's plan to reach these targets is presented in periodic Scoping Plans. CARB (2017) adopted the 2017 Climate Change Scoping Plan in November 2017 to meet the GHG-reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including Cap-and-Trade Regulation; low-carbon fuel standards; more efficient cars, trucks, and freight movement; Renewables Portfolio Standard; and reducing CH_4 emissions from agricultural and other wastes. CARB (2022a) adopted the 2022 Scoping Plan for Achieving Carbon Neutrality in November 2022 to identify a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045, pursuant to AB 1279. The 2022 Scoping Plan extends and expands upon GHG-reduction measures of the previous Scoping Plans and includes additional measures to capture and store atmospheric carbon through the state's natural and working lands and using a variety of mechanical approaches. The plan also assesses the state's progress toward meeting the GHG emission-reduction goal called for in SB 32.

Vehicle Efficiency and Zero-Emissions Standards

AB 1493 (Pavley I) required CARB to develop and implement regulations to reduce automobile and light-truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the model year 2009. Additional strengthening of the Pavley standards (referred to previously as Pavley II and now referred to as the Advanced Clean Cars measure) was adopted for vehicle model years 2017–2025 in 2012. Together, the two standards are expected to increase average fuel economy to roughly 54.5 miles per gallon in 2025.

In August 2022, the CARB Board members voted to approve the Advanced Clean Cars II proposal, which will dramatically reduce emissions from passenger cars for model years 2026 through 2035. The requires an increasing proportion of new vehicles to be zero-emission vehicles, with the goal of 100 percent zero-emission vehicles for new vehicles sold by 2035 (CARB 2022b).

CARB also adopted the Advanced Clean Truck Regulation to accelerate a large-scale transition of zero-emission medium- and heavy-duty vehicles. The regulation requires the sale of zero-emission medium- and heavy-duty vehicles as an increasing percentage of total annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b–3 truck sales, 75 percent of Class 4–8 straight truck sales, and 40 percent of truck tractor sales. By 2045, every new medium- and heavy-duty truck sold in California will be zero-emission. Large employers including retailers, manufacturers, brokers, and others are required to report information about shipments and shuttle services to better ensure that fleets purchase available zero-emission trucks.

Low-Carbon Fuel Standard

With EO S-01-07, Governor Arnold Schwarzenegger set forth the low-carbon fuel standard for California in 2007. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 20 percent by 2030.

Legislation Associated with Electricity Generation

The state passed legislation that requires increasing use of renewables to produce electricity for consumers. Specifically, California utilities are required to generate 52 percent of their electricity from renewables by 2027 (SB 100), 60 percent by 2030 (SB 100), 95 percent by 2035 (SB 1020), 95 percent by 2040 (SB 1020), and 100 percent by 2045 (SB 100/SB 1020). SB 1020 also requires state agencies to rely on 100 percent renewable energy and zero-carbon resources to serve their own facilities by 2030.

Local

South Coast Air Quality Management District

SCAQMD has primary responsibility for development and implementation of rules and regulations to attain the NAAQS and CAAQS as well as permitting new or modified sources, developing AQMPs, and adopting and enforcing air pollution regulations within the Basin. CARB's Scoping Plans do not provide an explicit role for local air districts with respect to implementing the reduction goals of SB 32 and AB 32, but CARB does state that it will work actively with air districts in coordinating emissions reporting, encouraging and coordinating GHG reductions, and providing technical assistance in quantifying reductions. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting but also through their role as a CEQA lead or commenting agency, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents.

On December 5, 2008, the SCAQMD Governing Board considered draft GHG guidance and adopted a staff proposal for an interim GHG significance threshold of 10,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year for industrial permitting projects where SCAQMD is the lead agency. The board letter, resolution, interim GHG significance threshold, draft guidance document, and attachments can be found under Board Agenda Item 31 of the December 5, 2008, Governing Board Meeting Agenda (SCAQMD 2008). In its draft guidance document, SCAQMD included evidence and rationale for developing thresholds, specifically citing State CEQA Guidelines Section 15064.7(a) ("each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects") and Subsection (b) ("Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule or regulation, and developed through a public review process and be supported by substantial evidence"). SCAQMD developed thresholds for stationary sources as well as for land use development projects. SCAQMD's recommended GHG significance threshold underwent a public review process as part of stakeholder working group meetings that were open to the public. The draft guidance document provides the supporting analysis and methodology for developing the GHG significance thresholds for stationary sources as well as for land use development projects. After completion of the public process, the proposed interim thresholds for land use development projects were brought to SCAQMD's Governing Board but were not formally adopted, while the threshold involving industrial permitting projects where SCAQMD is lead agency was adopted.

For industrial process, SCAQMD has formally adopted a 10,000 $MTCO_2e$ threshold for industrial (permitted) facilities where SCAQMD is the lead agency. This industrial source threshold is not appropriate for use on the proposed project because it is not associated with industrial processes.

SCAQMD noted that the proposed interim GHG significance thresholds for evaluation of land use development projects was only a recommendation for lead agencies and not a mandatory requirement. The GHG significance threshold may be used at the discretion of the local lead agency. The draft GHG guidance identified a tiered approach for determining the significance of GHG emissions, one of which included the use of numerical screening thresholds. With respect to numerical GHG significance thresholds, SCAQMD proposed two different approaches to be taken by lead agencies when analyzing GHG emissions:

- Option #1 includes using separate numerical thresholds for residential projects (3,500 $MTCO_2e$ per year), commercial projects (1,400 $MTCO_2e$ per year), and mixed-use projects (3,000 $MTCO_2e$ per year).
- Option #2 uses a single numerical threshold for all non-industrial projects of 3,000 $MTCO_2e$ per year. SCAQMD's most recent recommendation per its September 2010 meeting minutes is to use option #2.

County of Riverside Climate Action Plan

The 2015 County of Riverside CAP was updated in 2019. The 2019 CAP describes the County of Riverside's commitment to mitigate the impacts of climate change and establish climate resiliency (County of Riverside 2019). The 2019 CAP aims to reduce GHG emissions by 49 percent by 2030 and 80 percent by 2050 (from 2008 levels). The 2019 CAP analyzed strategies that reduce GHG emissions by using energy more efficiently, harnessing renewable energy to power buildings, recycling waste, and enhancing access to sustainable transportation modes. The 2019 CAP also assessed existing legislation and guidance from local, regional, state, and federal entities and completed an inventory of all new and/or existing emission-reducing policies. In total, full implementation of the 2019 CAP would help the County of Riverside avoid more than 2,982,947 $MTCO_2e$ emissions annually by 2050 (County of Riverside 2019).

To reach the GHG-reduction goals outlined in the 2019 CAP, the County of Riverside must implement local GHG-reduction measures in addition to the state efforts to reduce GHG emissions within the county. Such local measures encourage energy efficiency and renewable energy, development and penetration of zero-emission vehicles, water conservation, and increased waste diversion. In additional to local government, efforts at the local business and community levels would be required to achieve the GHG-reduction targets.

The 2019 CAP defines a project-level GHG significance threshold of 3,000 $MTCO_2e$ per year as the standard to identify which projects will have a less-than-significant effect on the County of Riverside's ability to achieve the GHG-reduction goals outlined in the 2019 CAP. If a project exceeds the significance threshold of 3,000 $MTCO_2e$ per year, the 2019 CAP requires that a project-specific technical analysis be completed to quantify and mitigate project emissions. However, the 2019 CAP further requires that projects generating less than 3,000 $MTCO_2e$ per year must adhere to the following measures to have a less-than-significant GHG impact:

- Energy efficiency matching or exceeding the Title 24 requirements in effect as of January 2017, and
- Water conservation measures that match CalGreen in effect as of January 2017.

City of Riverside Economic Prosperity Plan and Climate Action Plan

The 2016 CAP was published as part of the City of Riverside Restorative Growthprint in 2016. The 2016 CAP provides a path for the City of Riverside to achieve reductions in GHG emissions through 2020 and 2035 by using energy more efficiently, harnessing renewable energy to power buildings and vehicles, improving access to sustainable transportation modes, recycling more waste, conserving water, and building local food systems. The 2016 CAP provides a 2035 GHG emissions target of 1,542,274 $MTCO_2e$, which is 49 percent below the City's 2007 baseline emissions inventory of 3,024,066 $MTCO_2e$. The 2016 CAP further provides the framework for measuring GHG emissions, tracking the success of the reduction measures, and establishes measures that will enable the City to achieve substantial progress toward meeting its 2035 GHG-reduction target.

Greenhouse Gas Threshold

While SCAQMD and the City have not promulgated a mandatory quantitative GHG emissions threshold for land use projects to adhere to, the County of Riverside followed SCAQMD's recommendation for the use of a single numerical threshold of 3,000 $MTCO_2e$ per year in the requirements set forth by the 2019 CAP. The 2019 CAP uses the GHG emissions screening threshold of 3,000 $MTCO_2e$ per year to define small projects that, when combined with the modest efficiency measures, are considered less than significant and do not need to use the screening tables or alternative GHG mitigation analysis described in the 2019 CAP. Therefore, the 3,000 $MTCO_2e$-per-year threshold has been adopted for this analysis.

A consistency analysis is provided in the impact section below to evaluate the proposed project's consistency with the County of Riverside's 2019 CAP, the City of Riverside's 2016 CAP, and CARB's 2022 Scoping Plan (CARB 2022a).

Note that GHGs and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). Therefore, in accordance with the scientific consensus regarding the cumulative nature of GHGs, the analysis herein analyzes the cumulative contribution of proposed project-related GHG emissions.

Discussion

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The proposed project would not be expected to generate GHGs, either directly or indirectly, that may have a significant impact on the environment, as described below.

Short-term Construction

Construction of the proposed project would result in temporary generation of GHG emissions related to off-road equipment use and on-road vehicle operations. As mentioned previously, GHG emissions are measured exclusively as cumulative impacts; therefore, the proposed project's construction emissions are considered part of the total GHG emissions of the proposed project,

which also include GHG emissions during operations. It is assumed the proposed project would have a lifetime of 30 years, consistent with SCAQMD guidance (SCAQMD 2008). Therefore, the proposed project's construction emissions are amortized over a 30-year period and the resulting annual emissions are combined with the proposed project's annual operational GHG emissions.

Table VIII-2 below shows GHG emissions related to construction of the proposed project. As shown, construction of the proposed project is estimated to generate a total of 380 $MTCO_2e$ over the construction period. When amortized over the 30-year operational period, the proposed project's construction GHG emissions would be approximately 12.7 $MTCO_2e$ per year. Because construction emission sources would cease once construction is complete, construction emissions are considered short term.

Table VIII-2. Martha McLean Anza Narrows Park Estimated Short-term Construction-related GHG Emissions

Construction Years	Estimated GHG Emissions ($MTCO_2e$)[a]
2024	337.5
2025	42.5
Total Construction Emissions	**380**
Annual Construction Emissions (Amortized over 30 years)	*12.7*

Source: Emissions modeling by ICF using CalEEMod version 2022.1 methodology (Appendix C1).
[a] Totals may not add up due to rounding.

Long-term Operation

The proposed project would be operational by 2025 for purposes of this analysis. Indirect sources of GHG emissions associated with the proposed project site would primarily result from electricity and mobile sources as well as from water and solid waste sources. GHG emissions from electricity consumed on the proposed project site would be generated off site by fossil fuel combustion at the electricity provider. Motor vehicle trips to the site would generate mobile-source emissions. The proposed project plans to plant trees that sequester carbon, including Western sycamore, Fremont cottonwood, Blue elderberry, and oak trees, which would reduce the proposed project's GHG impact. However, the amount of carbon sequestered by the trees is not analyzed or included in the analysis.

The estimated operational GHG emissions resulting from the proposed project are shown in Table VIII-3. Additionally, in accordance with SCAQMD's recommendation, the proposed project's amortized construction-related GHG emissions from Table VIII-3 are added to the operational emissions estimate to determine the proposed project's total annual GHG emissions.

Table VIII-3. Martha McLean Anza Narrows Park Estimated Annual Greenhouse Gas Emissions from Project Operation (metric tons per year)

Emission Source	Estimated Annual GHG Emissions ($MTCO_2e$ per year)[a]
Martha McLean Anza Narrows Park	
Mobile Emissions	116.8
Electricity Emissions	7.62
Water Emissions	4.88
Solid Waste Emissions	0.11

Emission Source	Estimated Annual GHG Emissions ($MTCO_2e$ per year)[a]
Area Emissions	<0.1
Amortized Construction Emissions	12.7
Annual Project Emissions	142.1
Applicable Threshold	*3,000*
Threshold Exceeded?	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C1).
[a] Totals may not add up due to rounding.

The proposed project would generate approximately 142.1 $MTCO_2e$ per year starting in 2026, with the majority of the emissions stemming from mobile emissions; refer to Table VIII-3. The second largest emission source would be from electricity demand. The proposed project is expected to be fully operational by 2025. Therefore, the proposed project would be substantially below the 2019 CAP's GHG emissions threshold of 3,000 $MTCO_2e$ per year, and impacts would be less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project would not be expected to generate GHGs, either directly or indirectly, that may have a significant impact on the environment, as described below.

Short-term Construction

Construction of the proposed project would result in temporary generation of GHG emissions related to off-road equipment use and on-road vehicle operations. As mentioned previously, GHG emissions are measured exclusively as cumulative impacts; therefore, the proposed project's construction emissions are considered part of the total GHG emissions of the proposed project, which also include GHG emissions during operations. It is assumed the proposed project would have a lifetime of 30 years, consistent with SCAQMD guidance (SCAQMD 2008). Therefore, the proposed project's construction emissions are amortized over a 30-year period and the resulting annual emissions are combined with the proposed project's annual operational GHG emissions.

Table VIII-4 below shows GHG emissions related to construction of the proposed project. As shown, construction of the proposed project is estimated to generate a total of 143 $MTCO_2e$ over the construction period. When amortized over the 30-year operational period, the proposed project's construction GHG emissions would be approximately 5 $MTCO_2e$ per year. Because construction emission sources would cease once construction is complete, construction emissions are considered short term.

Table VIII-4. Jurupa Avenue Trailhead Estimated Short-term Construction-related GHG Emissions

Construction Years	Estimated GHG Emissions ($MTCO_2e$)[a]
2024	143
Total Construction Emissions	**143**
Annual Construction Emissions (Amortized over 30 years)	*4.8*

Source: Emissions modeling by ICF using CalEEMod version 2022.1 methodology (Appendix C2).
[a] Totals may not add up due to rounding.

Long-term Operation

The proposed project would be operational by 2025 for purposes of this analysis. Indirect sources of GHG emissions associated with the proposed project site would primarily result from electricity and mobile sources as well as from water and solid waste sources. GHG emissions from electricity consumed on the proposed project site would be generated off site by fossil fuel combustion at the electricity provider. Motor vehicle trips to the site would generate mobile-source emissions. The proposed project plans to plant trees that sequester carbon, including elderberry, desert willow, and oak trees, which would reduce the proposed project's GHG impact. However, the amount of carbon sequestered by the trees is not analyzed or included in the analysis.

The estimated operational GHG emissions resulting from the proposed project are shown in Table VIII-5. Additionally, in accordance with SCAQMD's recommendation, the proposed project's amortized construction-related GHG emissions from Table VIII-5 are added to the operational emissions estimate to determine the proposed project's total annual GHG emissions.

Table VIII-5. Jurupa Avenue Trailhead Estimated Annual Greenhouse Gas Emissions from Project Operation (metric tons per year)

Emission Source	Estimated Annual GHG Emissions ($MTCO_2e$ per year)[a]
Jurupa Avenue Trailhead	
Mobile Emissions	181
Electricity Emissions	4.54
Water Emissions	0.88
Solid Waste Emissions	0.21
Area Emissions	<0.1
Amortized Construction Emissions	4.8
Annual Project Emissions	191.4
Applicable Threshold	*3,000*
Threshold Exceeded?	No

Source: Emissions modeling by ICF using CalEEMod version 2022.1 (Appendix C2).
[a] Totals may not add up due to rounding.

The proposed project would generate approximately 191 $MTCO_2e$ per year starting in 2025, with the majority of the emissions stemming from mobile emissions; refer to Table VIII-5. The second largest emission source would be from electricity demand. The proposed project is expected to be fully operational by 2025. Therefore, the proposed project would be substantially below the 2019 CAP's GHG emissions threshold of 3,000 $MTCO_2e$ per year, and impacts would be less than significant.

Overall Impact

Less-than-Significant Impact. Construction would be temporary, and impacts would be less than significant. Cumulative construction impacts for both project sites, when amortized over 30 years, would have a total of approximately 333.5 $MTCO_2e$ per year, which would be below the 2019 CAP's GHG emissions threshold of 3,000 $MTCO_2e$ per year, and impacts would be less than significant.

b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. As discussed below, the proposed project would not conflict with the state's 2022 Scoping Plan, the County of Riverside's 2019 CAP, and the City's 2016 CAP. Therefore, the proposed project would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs.

2022 Scoping Plan Consistency

AB 32, SB 32, and AB 1279 outline the state's GHG emission-reduction targets for 2020, 2030, and 2045, respectively. In 2008 and 2014, CARB adopted the Scoping Plan and First Update, respectively, as a framework for achieving the emission-reduction targets in AB 32. The Scoping Plan and First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions as directed by AB 32. In 2017, CARB adopted the 2017 Scoping Plan as a framework to achieve the 2030 GHG-reduction goal described in SB 32. Most recently, in November 2022, CARB adopted the 2022 Scoping Plan, which extends and expands upon these earlier plans with a target of achieving carbon neutrality by 2045 and reducing statewide GHG emissions to 85 percent below 1990 levels, as directed by AB 1279. The 2022 Scoping Plan builds upon GHG-reduction measures of the previous Scoping Plans and includes additional measures to capture and store atmospheric carbon through the state's natural and working lands and using a variety of mechanical approaches. By incorporating GHG emission-reduction and carbon-capture methods, the 2022 Scoping Plan identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 (CARB 2022a). Because the proposed project is expected to be in operation by 2025, the statewide GHG emission-reduction target for 2045 is the statutory statewide milestone target applicable to the proposed project.

Based on CARB's 2022 Scoping Plan, the 2045 milestone of reducing anthropogenic GHG emissions to 85 percent below 1990 levels requires an aggressive reduction of fossil fuels wherever they are currently used in California, building on and accelerating carbon-reduction programs that have been implemented by the previous Scoping Plans. The 2022 Scoping Plan indicates that reductions would need to come in the form of changes pertaining to transportation emissions, changes pertaining to sources of electricity and increased energy efficiency at existing facilities, and state and local plans, policies, or regulations that will lower GHG emissions relative to business-as-usual conditions. The 2022 Scoping Plan carries forward GHG-reduction measures from the 2017 Scoping Plan and the 2014 First Update as well as new potential measures to help achieve the state's 2045 target across all sectors of the California economy, including transportation, energy, and industry. Table VIII-6 shows the proposed project's consistency with key residential and mixed-use project attributes identified in the state's 2022 Scoping Plan that aim to reduce GHG emissions.

Table VIII-6. Consistency of the Proposed Project with the 2022 Scoping Plan

Priority Areas	Key Project Attribute	Project Consistency Analysis
Transportation Electrification	Provides electric vehicle charging infrastructure that, at a minimum, meets the most ambitious voluntary standard in CalGreen at the time of project approval	Not Applicable. The proposed project includes zero dwelling units or commercial building space.

Priority Areas	Key Project Attribute	Project Consistency Analysis
Vehicle Miles Traveled (VMT) Reduction	Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer)	Consistent. The proposed project is underutilized land that is presently served by existing utilities and essential public services.
	Does not result in the loss or conversion of natural and working lands	Consistent. The proposed project provides designated natural land space.
	Consists of transit-supportive densities (minimum of 20 residential dwelling units per acre), or Is in proximity to existing transit stops (within a half mile), or Satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS)	Consistent. The proposed project is in proximity to existing transit stops.
	Reduces parking requirements by: • Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or • Providing residential parking supply at a ratio of less than one parking space per dwelling unit; or • For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.	Not applicable. The proposed project includes zero dwelling units or commercial space.
	At least 20 percent of units included are affordable to lower-income residents	Not applicable. The proposed project includes zero dwelling units.
	Results in no net loss of existing affordable units	Consistent. The proposed project develops underutilized open space and does not result in a net loss of existing affordable units.
Building Decarbonization	Uses all-electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water, or indoor cooking	Consistent. The proposed project does not include connections for natural gas, propane, or other fossil fuels.

Source: CARB 2022a.

As discussed in Table VIII-6, the proposed project would be consistent with the applicable policies from the 2022 Scoping Plan. As the proposed project would be consistent with these required measures, operation of the proposed project would not conflict with the statewide GHG target for 2030 mandated by SB 32 or the statewide GHG target for 2045 mandated by AB 1279. Impacts would be less than significant.

County of Riverside Climate Action Plan Consistency

The 2019 CAP defines a project-level GHG significance threshold of 3,000 $MTCO_2e$ per year as the standard to identify which projects will have a less-than-significant effect on the County of Riverside's ability to achieve the GHG-reduction goals outlined in the 2019 CAP. As detailed above, the project's construction and operational emissions would not exceed 3,000 $MTCO_2e$ per year. In addition, the proposed project would be consistent with the energy efficiency and water conservation measures from the 2022 Title 24 and 2022 CalGreen, which will exceed the 2017 Title 24 and 2017 CalGreen measures required by the 2019 CAP. Therefore, the proposed project would be consistent with GHG emission-reduction goals of the 2019 CAP and impacts would be less than significant.

City of Riverside Climate Action Plan Consistency

As shown in Table VIII-7, the 2016 CAP provides local GHG-reduction measures, which, if implemented, support a project's compliance with the goals of the 2016 CAP. Of the many local reduction measures proposed by the 2016 CAP, few measures are relevant to the proposed project. The relevant measures for the proposed project are E-2, T-1, T-2, T-7, T-8, and T-12. The proposed project would plant shade trees consistent with measure E-2, expand off-street bicycle infrastructure consistent with measure T-1, provide additional options for bicycle parking consistent with measure T-2, provide for a variety of development types and uses consistent with measure T-7, encourage walking by providing pedestrian-only community areas consistent with measure T-8, and accelerate the implementation of the City of Riverside's Bicycle Master Plan consistent with measure T-12 (City of Riverside 2007). As such, the proposed project is consistent with relevant GHG-reduction measures (E-2, T-1, T-2, T-7 T-8, and T-12) and is therefore consistent with the 2016 CAP. Impacts would be less than significant.

Table VIII-7. Relevant City of Riverside CAP Policies

Sector	Policy
Energy	E-2: Strategically plant trees at new residential developments to reduce the urban heat island effect.
Transportation	T-1: Expand on-street and off-street bicycle infrastructure, including bicycle lands and bicycle trails. T-2: Provide additional options for bicycle parking. T-7: Provide for a variety of development types and uses. T-8: Encourage walking by providing pedestrian-only community areas. T-12: Accelerate the implementation of all or specified components of a jurisdiction's adopted bike plan.

Source: City of Riverside 2016.

IX Hazards and Hazardous Materials

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐		☒
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Affected Environment

A hazardous material is any substance that, because of its quantity, concentration, or physical or chemical properties, may pose a hazard to human health or the environment. Under CCR Title 22, the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: (1) toxicity, (2) ignitability, (3) corrosiveness, and (4) reactivity (CCR Title 22, Chapter 11, and Article 3). A hazardous material is defined in CCR Title 22 as:

> [a] substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (CCR Title 22 Section 66260.10).

Hazardous materials in various forms can result in death, serious injury, long-lasting health effects, or damage to buildings, homes, and other property. Hazards to human health and the environment can occur during the production, storage, transportation, use, or disposal of hazardous materials.

Large users and transporters of hazardous materials are monitored and regulated by EPA and other federal, state, and county regulatory agencies, such as the California Department of Toxic Substances Control (DTSC) and the Riverside Fire Department (RFD). The City has two levels of a Hazardous Materials Response Plan: one for all responders and another for the City's Hazardous Materials Response Team.

EPA has identified a total of 29 sites in the City and within its Sphere of Influence in its 2007 Toxic Release Inventory database (City of Riverside 2007). These are sites known to release toxic chemicals into the air. EPA's Toxic Release Inventory reporting program closely monitors the emissions from these facilities to ensure that their annual limits allowed under federal regulations are not exceeded and that public health and safety are protected.

Given the City's proximity to the Santa Ana River and its heavy reliance upon local groundwater basins for drinking water, improper use and disposal of hazardous materials poses a significant threat. Sources of possible contaminants include septic systems, composting activities, and business practices. At present, the water supplied by RPU typically meets or exceeds state and federal water regulations and guidelines. RPU staff monitors the quality of the water supply and complies with state and federal regulatory requirements (City of Riverside 2007).

Martha McLean Anza Narrows Park

The project site is not on any known active hazardous material sites, within 0.25 mile of a school, or within a Very High Fire Hazard Severity Zone of local or state responsibility (CAL FIRE 2023). Construction of the proposed project would involve the transport, use, and disposal of hazardous materials that are typically associated with operating construction equipment, such as fuels, solvents, chemicals, and oils. The proposed project site is within Airport Influence Area Zone D for the Riverside Municipal Airport (RCALUC 2005).

Jurupa Avenue Trailhead

The project site is not on any known active hazardous material sites (DTSC 2023), within 0.25 mile of a school, or within a Fire Hazard Severity Zone (FHSZ) of local or state responsibility (CAL FIRE 2023). Construction of the proposed project would involve the transport, use, and disposal of hazardous materials that are typically associated with operating construction equipment, such as fuels, solvents, chemicals, and oils. The proposed project site is within Airport Influence Area Zone C for the Riverside Municipal Airport (RCALUC 2005).

Discussion

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. No transport, use, or disposal of hazardous materials is proposed as part of proposed activities during operation.

Construction of the proposed project would involve the transport, use, and disposal of hazardous materials such as fuel, solvents, chemicals, and oils associated with operating construction equipment. Such transport, use, and disposal would comply with applicable regulations such as the federal Resource Conservation and Recovery Act, which regulates the generation, transport, treatment, storage, and disposal of hazardous waste; California Department of Transportation (Caltrans) Hazardous Materials regulations, which cover all aspects of hazardous materials packaging, handling, and transportation; and the local Certified Unified Program Agency regulations. Although these materials would be transported, used, and disposed of during the construction phase, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. However, compliance with federal, state, and local regulations, in combination with construction BMPs implemented from a SWPPP as listed in Section X, *Hydrology and Water Quality*, would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize a significant hazard to the public during the construction phase of the project. As such, any impact would be less than significant.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. As discussed above in Threshold IX.a, construction of the proposed project would involve the transport, use, and disposal of hazardous materials such as fuel, solvents, chemicals, and oils associated with operating construction equipment. These materials are commonly used in construction projects and do not represent acutely hazardous materials. While it is possible that these substances could be released during construction activities, compliance with federal, state, and local regulations and implementation of construction BMPs from the SWPPP would minimize risk to the public and environment. Furthermore, during operation, both parks would not require hazardous materials to operate. As such, the impact would be less than significant.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. There is the potential for hazardous emissions or handling of hazardous materials, such as gas, oil, hydraulic fluid, or degreaser, from construction equipment. However, no schools are within 0.25 mile of either project site or proposed within 0.25 mile. As such, no impact would occur.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project was not identified in the State Water Resource Control Board's GeoTracker, DTSC's EnviroStor, or California Environmental Protection Agency's Cortese List Data Resources online databases (DTSC 2023). No impact would occur.

e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The project site is within 2 miles of the Riverside Municipal Airport, a public airport in the City of Riverside. The facility primarily functions as a reliever airport for commercial service airports in the Los Angeles metropolitan area.

The proposed project site is within Airport Influence Area Zone D for the Riverside Municipal Airport according to the Riverside County Airport Land Use Compatibility Plan (RCALUC 2005). No residences are proposed as part of this project, so the proposed project would not result in a safety hazard for people residing in the project area. During construction and maintenance of the proposed project, workers could be subject to safety hazards due to prolonged daily presence within the Airport Influence Area. However, the proposed project is not within any of the Community Noise Equivalent Level (CNEL) noise contours designated for the Riverside Municipal Airport and, as such, workers would not be exposed to excessive noise. The impact on people working in the project area would be temporary and would be considered less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project is within 2 miles of the Riverside Municipal Airport. The project site is within Airport Influence Area Zone C for the Riverside Municipal Airport according to the Riverside County Airport Land Use Compatibility Plan (RCALUC 2005). No residences are proposed as part of this project, so the proposed project would not result in a safety hazard for people residing in the project area. During construction and maintenance of the proposed project, workers could be subject to safety hazards due to prolonged daily presence within the

Airport Influence Area. However, the proposed project is within the 60-decibel (dB) CNEL noise contour designated for the Riverside Municipal Airport. The City's Municipal Code includes the following exterior noise standards: 65 A-weighted decibels (dBA) for office/commercial land uses; 70 dBA for industrial land uses; and 65 dBA for public recreation facilities. As such, workers would not be exposed to excessive noise. The impact on people working in the project area would be temporary and would be considered less than significant.

Overall Impact

Less-than-Significant Impact. Both project sites would develop parks that would not conflict with any of the applicable Airport Influence Zones C or D regulations of the Riverside Municipal Airport. Therefore, impacts would be less than significant.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project sites are within natural areas designated for open space uses and the proposed project would not alter any roadways that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. None of the project activities would involve modifications to facilities that are critical to emergency response, such as police, fire, and hospital facilities. No impact would result.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. No part of the proposed project area is immune from fire danger. Structural and automobile fires represent the most common types of fire in urbanized areas and can be caused by a variety of human, mechanical, and natural factors. Urban fires have the potential to spread to other structures or areas, particularly if not extinguished promptly. Wildland fires are common in the Santa Ana River watershed from natural causes, arson, and unintended incidents. As discussed in Section XX, *Wildfire,* the proposed project is not in an FHSZ of local or state responsibility (CAL FIRE 2023). Additionally, the proposed project would not include the construction of new fire-prone structures and would utilize mostly natural and fire-resistant materials such as gravel, reused concrete, and steel. The removal of invasive grasses and the reestablishment of native species may lower risks associated with wildland fires. As such, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires and the impact would be less than significant.

X Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:				
1. Result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
2. Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;	☐	☐	☒	☐
3. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
4. Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Affected Environment

The hydrology and water quality analysis provided below is based on the Drainage Study and Stormwater Quality Technical Reports prepared for Jurupa Avenue Trailhead (Rick Engineering Company 2023a) and Martha McLean Anza Narrows Park (Rick Engineering Company 2023b). The proposed project is in the Santa Ana River watershed, which drains from the San Bernardino Mountains to the valley floor of the Inland Empire, Prado Basin, Orange County, and ultimately to the Pacific Ocean. The watershed area upstream of the project area is approximately 9 square miles

with two major drainage channels, Spring Brook Wash and University Wash, which provide most of the runoff to the project area. These channels were constructed by the U.S. Army Corps of Engineers and are maintained by Riverside County Flood Control and Water Conservation District. Other major tributaries to the Santa Ana River include Temescal Creek, Day Creek, San Sevaine Channel, Box Springs Channel, and Anza Channel.

Due to the discharges from wastewater treatment plants serving the upper valley cities including Highland, San Bernardino, Rialto, Colton, and Loma Linda, the river flows perennially. Groundwater and urban runoff begin to enter the river as it flows past the City of Riverside. The proposed project is in the Upper Santa Ana Valley-Riverside-Arlington groundwater basin.

The Santa Ana River Reach 3 is 303(d) impaired for copper, lead, and indicator bacteria. The Middle Santa Ana River Waterbodies - Nitrogen Compounds Total Maximum Daily Load also manages bacteria levels and was approved by EPA on May 16, 2007. Major sources of bacteria include animal waste from dairies (State Water Resources Control Board 2023). Groundwater quality is poor, particularly with respect to ambient water quality related to total dissolved solids (on average greater than 950 milligrams per liter [mg/L]) and nitrate (on average greater than 20 mg/L, as nitrogen) (IEUA 2018). The total dissolved solids Basin Plan groundwater quality objective is 980 mg/L and the recommended secondary Maximum Contaminant Level is 500 mg/L. The Basin Plan groundwater quality objective for nitrate is 10 mg/L (Santa Ana Regional Water Quality Control Board 2019).

Martha McLean Anza Narrows Park

Generally, the Martha McLean Anza Narrows Park project site drains north, directly to the Santa Ana River. A small portion of the site drains south and off site where it is directed to a storm drain inlet in Jurupa Avenue. The Martha McLean Anza Narrows Park project site also contains one natural sump that does not drain off site, and presumably infiltrates. An existing storm drain on site discharges flows from an earthen basin in the northwestern portion of the Martha McLean Anza Narrows Park project site. Offsite flows are also conveyed to a discharge point beyond the Martha McLean Anza Narrows Park project site boundary on the Santa Ana River via a storm drain that runs through the southeastern portion of the site. The project site is predominantly outside of the Federal Emergency Management Agency (FEMA) 100-year floodplain; however, a portion of the northern and eastern boundary of the Martha McLean Anza Narrows Park project site including the Santa Ana River is within the FEMA 100-year floodway and floodplain (zone AE) (FEMA 2008).

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site is predominantly outside of the FEMA 100-year floodplain; however, the Santa Ana River is within the FEMA 100-year floodplain (zone AE), including a small portion at the northern boundary of the Jurupa Avenue Trailhead project site (FEMA 2008). However, according to a Flood Insurance Study in the project area, the Jurupa Avenue Trailhead project site is not actually within 100-year floodplain inundation limits. In addition, a Biological Avoidance Area Boundary exists between the Jurupa Avenue Trailhead project site and flooding sources. There are no existing drainage structures on the site. Generally, discharge from the project site flows northeast and a small portion of the site discharges to the south. The Jurupa Avenue Trailhead project site drains to Hole Lake, which ultimately drains to the Santa Ana River (Rick Engineering 2023a).

Discussion

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. There would be no pollutant discharges associated with the proposed project. During construction, soil disturbances and grading work could result in short-term water quality impacts associated with soil erosion and subsequent sediment transport to adjacent properties, roadways, or watercourses. There would be protections in place to prevent the transport of sediment related to construction activities from migrating into the Santa Ana River as well as hazardous materials such as gasoline or oils from construction equipment that could be accidentally released. The proposed project would comply with existing NPDES Construction General Permit requirements, including the preparation of a SWPPP required for all projects larger than 1 acre in size. As part of a SWPPP, BMPs would be identified to reduce polluted runoff. In addition, the proposed project would prepare a Water Quality Management Plan and include implementation of structural low-impact development (LID) BMP design features (two bioretention BMPs and one infiltration self-retaining BMP). Implementation of structural LID BMPs design features would capture runoff and treat, retain, and discharge flows, mimicking pre-project conditions. Proposed improvements include landscape refurbishments that would also allow for natural treatment of stormwater runoff. Implementation of the proposed project would not violate water quality standards or waste discharge requirements. Therefore, with compliance with existing regulations and implementation of BMPs and design features, the proposed project's impact on water quality would be less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. There would be no pollutant discharges associated with the proposed project. During construction, the removal of soil debris and grading work could result in short-term water quality impacts associated with soil erosion and subsequent sediment transport to adjacent properties, roadways, or watercourses. There would be protections in place to prevent the transport of sediment related to construction activities from migrating into the Santa Ana River as well as hazardous materials such as gasoline or oils from construction equipment that could be accidentally released. The proposed project would comply with existing NPDES Construction General Permit requirements, including the preparation of a SWPPP required for all projects larger than 1 acre in size. As part of a SWPPP, BMPs would be identified to reduce polluted runoff. A Water Quality Management Plan would also be prepared and include the implementation of one bioretention BMP. The bioretention BMP would capture runoff generated by the proposed improvements to treat, retain, and discharge flows, mimicking pre-project conditions. In addition, to enhance the natural characteristics at the proposed project site, the project design would incorporate natural materials, shade trees, native shrubs, flowers, and succulents into the landscape design, which allow for natural treatment of stormwater runoff. Implementation of the proposed project would not violate water quality standards or waste discharge requirements. Therefore, with compliance with existing regulations and implementation of BMPs and design features, the proposed project's impact on water quality would be less than significant.

Overall Impact

Less-than-Significant Impact. Both project sites would incorporate a SWPPP and a Water Quality Management Plan, which would ensure that there would be less-than-significant water quality impacts during project construction and operation. Therefore, the proposed project would have less-than-significant impacts.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. Implementation of the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. The project proposes improvements to an existing public park for recreational uses. Following project implementation, the groundwater recharge and drainage characteristics would remain similar to existing conditions. The majority of the Martha McLean Anza Narrows Park site would remain pervious in a natural state, with a minimal increase in impermeable ground cover (3 percent), including concrete pathways, roadways, and parking improvements. Proposed improvements include landscape refurbishments that would allow runoff and precipitation to infiltrate into the ground and allow groundwater to recharge the underlying aquifers, similar to existing conditions. No groundwater supplies would be utilized during construction or operation of the proposed project. Therefore, the proposed project would have less-than-significant impacts on groundwater resources.

Jurupa Avenue Trailhead

Less-than-Significant Impact. Implementation of the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. The proposed project is a public park and trailhead primarily consisting of permeable surfaces including natural land cover and landscaped areas. There would be approximately a 7 percent increase in impermeable ground cover; however, the Jurupa Avenue Trailhead project site would predominantly remain in a natural, pervious state (approximately 12 percent of the project site). The landscaped, natural state of the Jurupa Avenue Trailhead project site would allow runoff and precipitation to infiltrate into the ground, similar to existing conditions, and allow groundwater to recharge the underlying aquifers. No groundwater supplies would be utilized during construction or operation of the proposed project. Therefore, the proposed project would have a less-than-significant impact on groundwater resources.

Overall Impact

Less-than-Significant Impact. Both project sites would only minimally increase the impermeable ground cover, allowing similar groundwater recharge compared to existing conditions. Additionally, project construction and operation would not require groundwater. Therefore, impacts would be less than significant.

c.1. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Result in substantial erosion or siltation on or off site?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The Martha McLean Anza Narrows Park project site is primarily undeveloped land and does not contain a stream or river; therefore, the course of a stream or river would not be altered. While the Martha McLean Anza Narrows Park project site is situated atop a slope, implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site. Development of the proposed project would temporarily alter the drainage patterns of the Martha McLean Anza Narrows Park project site; however, after construction activities, drainage patterns would be similar to existing conditions.

Once the proposed project is operational, the drainage characteristics would be similar to existing conditions. The site would remain predominantly pervious, with proposed impervious features such as concrete pathways, roadways, and parking improvements limited to approximately 13 percent of the Martha McLean Anza Narrows Park project site. The greatest potential for erosion and siltation impacts would occur during project construction. However, maintenance activities during project operations involving vehicles traveling to the site and use of small equipment to remove weeds from the site may also result in potential erosion and siltation impacts. A SWPPP would be prepared in compliance with NPDES Construction General Permit requirements. The SWPPP would specify both construction BMPs and permanent operational measures for erosion control. With adherence to existing regulations, the proposed project would result in less-than-significant impacts from erosion or siltation.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The Jurupa Avenue Trailhead project site is primarily undeveloped land and does not contain a stream or river; therefore, the course of a stream or river would not be altered. While the Jurupa Avenue Trailhead project site is situated atop a slope, implementation of the proposed project would not alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site. Development of the proposed project would temporarily alter the drainage patterns of the Jurupa Avenue Trailhead project site. However, after construction activities, drainage patterns would be the same as existing conditions, predominantly discharging northeast, with a small portion discharging south, ultimately draining to the Santa Ana River.

The proposed site design would include permanent energy dissipation features, where applicable. Once operational, the proposed project would primarily consist of natural landscaped areas as well as parking for cars and horse trailers, concrete plazas, and shaded rest areas. The greatest potential for erosion and siltation impacts would occur during project construction. However, maintenance activities during project operations involving vehicles traveling to the site and use of small equipment to remove weeds from the site may also result in potential erosion and siltation impacts. A SWPPP would be prepared in compliance with NPDES Construction General Permit requirements. The SWPPP would specify both construction BMPs and permanent operational measures for erosion

control. With adherence to existing regulations, the proposed project would result in less-than-significant impacts from erosion or siltation.

Overall Impact

Less-than-Significant Impact. Both project sites would not alter the course of a river. Additionally, the proposed project would implement a SWPPP for both project sites to ensure that there would be less-than-significant erosion and siltation impacts.

c.2. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The proposed project is a public park, with the majority of the site remaining in a pervious, natural state, and includes landscape refurbishments. Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or alter the course of a stream or river, as no streams or rivers are on site. The proposed project would implement two bioretention BMPs and one infiltration self-retaining BMP to capture runoff generated by proposed improvements to treat, retain, and discharge flows, mimicking pre-project conditions. Generally, the Martha McLean Anza Narrows Park project site would remain pervious, with proposed impervious features such as concrete pathways, roadways, and parking improvements limited to approximately 13 percent of the project site. Once the proposed project is operational, the drainage characteristics would be similar to existing conditions. Existing storm drains on site or running through the site and the natural sump on site would continue to operate, similar to existing conditions. The proposed project would comply with all existing City drainage requirements. Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that could result in flooding on or off site, and impacts would be considered less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project is a public park that has been designed to maximize permeable surfaces on site, and includes landscaped areas. Implementation of the proposed project would not alter the existing drainage pattern of the site or alter the course of a stream or river, as no streams or rivers are on site. There would be an increase in impermeable ground cover on the Jurupa Avenue Trailhead project site. However, one structural LID bioretention BMP is proposed to capture runoff generated by proposed improvements to treat, retain, and discharge flows, mimicking pre-project conditions. Proposed land use improvements include shaded rest areas, parking for cars and horse trailers, concrete plazas, and equestrian facilities. Drainage patterns would be the same as existing conditions, ultimately draining to the Santa Ana River. The proposed project would comply with all existing City drainage requirements. Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that could result in flooding on or off site, and impacts would be considered less than significant.

Overall Impact

Less-than-Significant Impact. The proposed project would minimally increase the impervious groundcover at both project sites and would implement a SWPPP with BMPs and LID measures that would ensure that there would be less-than-significant impacts regarding runoff and flooding.

c.3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The proposed project would not introduce any sources that could degrade water quality within the nearby Santa Ana River or its tributaries. No hazardous materials or chemicals would be stored on site that could be a source of pollution to runoff. Under proposed conditions, the Martha McLean Anza Narrows Park project site would remain predominantly pervious, consisting of natural cover. For areas of the project site where an increase of impervious surfaces is proposed, the project would implement two bioretention BMPs and one infiltration self-retaining BMP to capture runoff generated by proposed impervious area improvements. Structural LID BMPs would treat, retain, and discharge flows, mimicking pre-project conditions. The natural site characteristics and landscape refurbishments on the Martha McLean Anza Narrows Park project site would also improve water quality by naturally filtering out pollutants from stormwater runoff and managing stormwater flow volumes and rates. Existing storm drains on site or running through the site and the natural sump on site would continue to convey flows through and off the Martha McLean Anza Narrows Park project site. The proposed project would generally maintain the site's existing drainage pattern, with runoff typically draining toward the Santa Ana River. The proposed project is not anticipated to generate a substantial increase in polluted runoff as compared to the existing conditions. As part of the SWPPP, construction BMPs would be identified to reduce pollutants in stormwater runoff. Therefore, drainage impacts would be considered less than significant.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project would not introduce any sources that could degrade water quality within the nearby Santa Ana River or its tributaries. No hazardous materials or chemicals would be stored on site that could be a source of pollution to runoff. A bioretention BMP north of the proposed impervious plaza area would capture runoff from the proposed parking lot and adjacent impervious plazas and walkways. The bioretention BMP would provide water quality treatment and mimic pre-project runoff volume and discharge. The remaining portions of the Jurupa Avenue Trailhead project site are considered self-treating areas, as the site consists primarily of natural slopes that drain off site toward Hole Lake. The proposed project would allow natural treatment of water through infiltration of runoff, potentially improving downstream water quality, as the majority of the project would primarily be pervious areas consisting of natural cover. The natural site characteristics could improve water quality by naturally filtering out pollutants from stormwater runoff and managing stormwater flow volumes and rates. Drainage patterns would be the same as existing conditions, predominantly discharging northeast, with a small portion

discharging south, ultimately draining to the Santa Ana River. In addition, the project would comply with existing NPDES requirements, including the preparation of a SWPPP. As part of the SWPPP, BMPs would be identified to reduce pollutants in stormwater runoff. Therefore, drainage impacts would be considered less than significant.

Overall Impact

Less-than-Significant Impact. The proposed project would not introduce any sources that could degrade water quality. Additionally, both project sites would implement a SWPPP with BMPs and LID measures that would ensure that stormwater from the project sites would not exceed the capacity of the existing stormwater drainage systems.

c.4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Impede or redirect flood flows?

Martha McLean Anza Narrows Park

No Impact. Based on FEMA's National Insurance Maps, the site is predominantly outside of a 100-year floodplain. A portion of the northern and eastern boundary of the Martha McLean Anza Narrows Park project site including the Santa Ana River is within the FEMA 100-year floodway and floodplain (zone AE) (FEMA 2008). However, no proposed improvements are within the floodway or floodplain extents. The proposed project would not place structures within a 100-year floodplain. The landscaped, natural state of the proposed project site as well as improvements including a playground, concrete pathways, roadways, parking improvements, signage, and circulation and vehicular control throughout park would not impede or redirect flood flows. The existing restroom building would be replaced with a small restroom. Therefore, implementation of the proposed project would not be expected to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows.

Jurupa Avenue Trailhead

No Impact. Based on FEMA's National Insurance Maps, the site is predominantly outside of a 100-year floodplain. A small portion on the northern boundary of the Jurupa Avenue Trailhead project site is with the FEMA 100-year floodway (zone AE) (FEMA 2008). However, the 1 percent Annual Chance Flood Base Flood Elevation (base flood elevation of 693 feet, North American Vertical Datum of 1988) is below the lowest developable ground elevation of 704 feet (North American Vertical Datum of 1988) found at the project site. Furthermore, a Biological Avoidance Area Boundary exists between the Jurupa Avenue Trailhead project site and flooding sources. In addition, the proposed project would not place structures within a 100-year floodplain. The landscaped, natural state of the proposed project site as well as the shaded rest areas, parking, concrete plazas, and equestrian facilities would not impede or redirect flood flows. Therefore, implementation of the proposed project would not be expected to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows. There would be no impact.

Overall Impact

No Impact. The proposed project would only develop areas that are outside of a 100-year floodplain. Additionally, all project components would not impede or redirect flood flows. Therefore, there would be no impact.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project is a substantial distance from the Pacific Ocean. Therefore, the project is not subject to inundation by a tsunami. A tsunami is large ocean wave associated with a seismic event. There are no reservoirs adjacent to the project sites; therefore, the project would not be prone to inundation by a seiche. A seiche is an oscillation of a land-locked waterbody, such as a lake. In addition, the proposed project sites are not close to a large waterbody. Because the nearby Santa Ana River and its tributaries are not currently subject to inundation by seiche or tsunami, the proposed project would not risk release of pollutants due project inundation. Therefore, no impacts would result.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project sites consist of primarily undeveloped City-owned and -managed parkland and are not associated with infrastructure required to implement a water quality control plan or sustainable groundwater management plan. The project does not propose development that would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Additionally, the proposed project would include structural LID BMPs, vegetation, and landscape refurbishments to improve groundwater infiltration. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and no impact would occur.

XI Land Use and Planning

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Affected Environment

For several decades, public and private agencies, nongovernmental organizations, and communities have collaborated on honing a vision for the future of development in the Santa Ana River corridor. The SARCP developed the Santa Ana River Parkway and Open Space Plan in 2018 and identified the Jurupa Avenue Trailhead and Martha McLean Anza Narrows Park, along with other park sites in Riverside County, as underused, existing public open spaces that can be improved to provide better public use and enjoyment of the area.

Martha McLean Anza Narrows Park

The Martha McLean Anza Narrows Park site is 39.5 acres of City-owned and -managed parkland that currently consists of turf, trees, irrigated plants, walking paths, picnic tables, a disc golf course, and restrooms. The site has direct Santa Ana River access through a chain-link fence, where there is a mix of native and nonnative plants and trees. The path to the river is an informal and uneven mix of stones, sand, and river debris. The project site is surrounded by the Santa Ana River Trail to the north, the Santa Ana River Trail and single-family homes to the east, Union Pacific Railroad and a vacant lot across Jurupa Avenue to the south, and Union Pacific Railroad to the west.

Martha McLean Anza Narrows Park has a GP 2025 land use designation of Public Park (P) and a zoning designation of Public Facilities (PF). The surrounding parcels have a Public Park (P) land use to the north, Public Park (P) and Low Density Residential (LDR) land uses to the east, Right-of-Way (ROW) and High Density Residential (HDR) land uses to the south, and Right-of-Way (ROW) to the west (City of Riverside 2023). The Martha McLean Anza Narrows Park project site is in Ward 1 of the Grand neighborhood area.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead site is 7.7 acres of undeveloped City-owned and -managed parkland with ground cover of dry grasses and dirt paths. The site does not currently include recreational elements or public amenities, like drinking fountains or bathrooms. The Jurupa Avenue Trailhead project site is along Jurupa Avenue. It is bordered by a residential neighborhood to the west, and the north and east sides of the project run along the Hole Lake recreation area.

Jurupa Park is zoned as Residential Estate (RE) and has a GP 2025 land use designation of Open Space (OS). Surrounding parcels have Open Space (OS) land uses to the north, Commercial and Public Facilities/Institutional to the east, Private Recreation and Open Space (OS) to the south, and Medium Density Residential to the west (City of Riverside 2023). The Jurupa Avenue Trailhead project site is in Ward 7 in the La Sierra Acres neighborhood area.

Discussion

a. Physically divide an established community?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The physical division of an established community typically refers to the construction of a linear feature, such as a highway or railroad, or removal of a means of access, such as a road or bridge, that would affect mobility within or between existing communities. The proposed improvements for Martha McLean Anza Narrows Park would occur within the boundaries of the existing park, and the proposed improvements for the Jurupa Avenue Trailhead would include the development of approximately 7.7 acres as a public park within the Residential Estate (RE) zoning designation and the Open Space (OS) GP 2025 land use designation. As such, the proposed project would not physically divide a community.

The proposed project sites are City-owned and -managed and would be developed in accordance with the City's existing land use regulations. While both sites are adjacent to established residential communities, no new urban development is proposed as part of the project. Recreational improvements for land designated for open space uses are generally considered a beneficial impact on a community, as the proposed project would provide two formal and direct connections to the Santa Ana River Trail and other recreational amenities such as restrooms, bike stops, shade, seating areas, and parking near planned commercial development. Martha McLean Anza Narrows Park and the Jurupa Avenue Trailhead would not create a barrier or physically divide an establish community. No impact would occur.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Martha McLean Anza Narrows Park

No Impact. The Martha McLean Anza Narrows Park project site has a GP 2025 land use designation of Public Park (P) (City of Riverside 2023). According to the GP 2025 Land Use and Urban Design Element, Public Park (P) designated areas may be developed to include large multipurpose fields for community events and informal recreation, areas for active sports play, tot lots, picnic areas, multipurpose sports fields and courts, public golf courses, concessions, community event space, outdoor amphitheaters, nature study centers, maintenance/support facilities, and caretaker facilities (City of Riverside 2019).

According to the City's Property Search mapping tool, the Martha McLean Anza Narrows Park project site is zoned as Public Facilities (PF) (City of Riverside 2022). The City's zoning code states that Public Facilities (PF) zoned areas should be preserved areas for official and public uses of property and related activities, including civic center, public schools, public buildings, parks and

recreation facilities, waterworks and drainage facilities, and similar areas that, for the welfare of the City, should be kept clear of particular structures or improvements, and for watershed areas for conservation of flood or stormwaters or for protection against flood or stormwaters. As detailed in Section 2.4, *Project Characteristics*, the proposed project would develop scenic outlooks, formal river access, playgrounds, an outdoor classroom, a new trail, exercise stations, bike stops, seating, a restroom, landscaping, and parking, which would provide recreational amenities to the public and conform to the project site's GP 2025 land use and zoning designation allowable uses.

The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur.

Jurupa Avenue Trailhead

No Impact. The Jurupa Avenue Trailhead project site has a GP 2025 land use designation of Open Space (OS) (City of Riverside 2023). According to the GP 2025 Land Use and Urban Design Element, the Open Space (OS) land use designation provides lands, both private and public as shown on the Land Use Map, for the preservation of natural resources, hillsides, and creeks; as well as open space for the protection of public health and safety, including floodways and stormwater retention areas, which is consistent with the vegetation buffer, native plant seeded area, and biological avoidance zone proposed for the site plan (City of Riverside 2019). The Jurupa Avenue Trailhead project site would remain an undeveloped, natural, open space with improvements added for enhanced recreational uses and natural resource preservation, which would be consistent with the GP 2025 land use designation.

According to the City's Property Search mapping tool, the proposed project site is zoned as Residential Estate (RE) (City of Riverside 2022). This zone was established to provide areas for large-lot single-family residences where the keeping of livestock and other farm animals and agricultural uses are not permitted. The City's zoning code states that parks are not permitted on land zoned Residential Estate (RE) but City projects are exempt from Title 19. The Santa Ana River Trail is an existing feature of the Jurupa Avenue Trailhead project site, so the site already serves a recreational purpose. Given that the proposed project would support the existing use of the site, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The proposed project is consistent with GP 2025, and would support the current use of the Jurupa Avenue Trailhead site. The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur.

Overall Impact

The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur for either park site.

XII Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Affected Environment

The California Department of Conservation classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975. The proposed project sites are not within a state-classified mineral resource zone (MRZ) (City of Riverside 2012). Historically, the quarrying of granitic rock was an important industry in the City. However, such operations have not been active for decades, and most extraction sites are now beyond the urban periphery (City of Riverside 2012).

Martha McLean Anza Narrows Park

As depicted on Figure 5.10-1, Mineral Resources, of the City's GP 2025 Programmatic EIR, the Martha McLean Anza Narrows Park site is designated as MRZ-4, which are areas containing known mineral occurrences or undetermined mineral resource significance (City of Riverside 2007).

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead site is not within an MRZ designation (City of Riverside 2012).

Discussion

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Martha McLean Anza Narrows Park

No Impact. The Martha McLean Anza Narrows Park project site is designated as MRZ-4 (City of Riverside 2007). Historically, the quarrying of granitic rock was an important industry in the City. However, such operations have not been active for decades, and most extraction sites are now beyond the urban periphery (City of Riverside 2012). The project site is currently an existing park surrounded by urban development. Therefore, the project site is not suitable as a mineral resource

area. Furthermore, there are no mines on or in the vicinity of the Martha McLean Anza Narrows Park project site (CDOC 2016). Therefore, implementation of the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region or the state, and no impact would occur.

Jurupa Avenue Trailhead

No Impact. The Jurupa Avenue Trailhead project site is not within a MRZ designation (City of Riverside 2012). Furthermore, there are no mines on or in the vicinity of the Jurupa Avenue Trailhead project site (CDOC 2016). The proposed project site is zoned as Residential Estate (RE) and, according to Table 19.150.020.B, Incidental Uses, in the City's Municipal Code, mining and mineral extraction within the Residential Estate (RE) zoning designation would require a Conditional Use Permit. Furthermore, while the quarrying of granitic rock was an important industry in Riverside historically, these operations have not been active for decades, and no excavation of mineral resources is occurring on site. Therefore, implementation of the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region or the state, and no impact would occur.

Overall Impact

Implementation of the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region or the state, and no impact would occur.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The GP 2025 Final Program EIR determined that there are no specific areas within the City boundary or Sphere of Influence that have locally important mineral resource recovery sites, and the proposed project site is not identified as a mineral resource area in GP 2025 (City of Riverside 2007). Therefore, the proposed project would not result in a loss of availability of a locally important resource recovery site delineated on a local general plan, specific plan, or other land use plan. No impact would occur.

XIII Noise

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☒	☐	☐
b.	Generate excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c.	Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Affected Environment

The study area for this resource includes the proposed project sites and closest neighboring properties in all directions, all of which are in the cities of Riverside and Jurupa Valley.

Martha McLean Anza Narrows Park

The closest noise-sensitive receptors in the City of Riverside are homes adjacent to the southeastern portion of the project site. Additionally, residences are to the south, across Jurupa Avenue. The closest noise-sensitive receptors in the city of Jurupa Valley are farther away to the north, more than 1,200 feet from the project site. Immediately west of the project site is a railroad, and farther west of the tracks are a variety of commercial and industrial land uses. Noise levels in the vicinity of the study area are moderate. The primary noise sources include traffic along nearby streets, trains on the railroad, aircraft from local airports, general neighborhood sources (e.g., air conditioners and various landscaping activities), and natural background noise. Jurupa Avenue, which borders the project site to the south, is a major arterial street. The railroad bounding the western border of the project site is an active Union Pacific Railroad used to transport freight and intercity passengers. The closest airports to the project site include Riverside Municipal Airport, a public airport owned by the City of Riverside approximately 0.9 mile southwest of the project site; and Flabob Airport, a privately owned airport approximately 1.7 miles northeast of the project site in the city of Jurupa Valley.

To quantify the existing ambient noise conditions, long-term (approximately 45-hour) and short-term (15- to 20-minute) noise monitoring was conducted in the project vicinity. Long-term noise monitoring was conducted at one location, designated LTe, at the southeastern side of the proposed project site, adjacent to the closest neighboring homes on Tuscan Court, between June 29 and July 1,

2022. Long-term monitoring was conducting using a Piccolo Type 2 sound level meter manufactured by Soft dB.[9] Short-term monitoring was also conducted at two locations. The first, ST1, was approximately 1,300 feet north of the project site, near homes in the city of Jurupa Valley; the noise measurement at this location was conducted on Wednesday, August 1, 2018. The second short-term monitoring location, STc, was approximately 300 feet southwest of the project site, near homes across Jurupa Avenue; the noise measurement at this location was conducted on Wednesday, June 29, 2022. Short-term monitoring was performed with a Larson Davis 831 Type 1 sound level meter and a Rion NL 22 Type 2 sound level meter.[10] All sound level meters were field-calibrated prior to the measurement to ensure accuracy, using a Larson Davis CAL200 or BWSA CA114 acoustical calibrator; the calibration was also re-checked at the conclusion of the measurement. The monitoring results are summarized in Table XIII-1.

Table XIII-1. Summary of Noise Measurement Results for Martha McClean Anza Narrows Park

Site#	Location	Date	Time of Day	Range of Hourly L_{eq} Values (Average), dBA	Range of Hourly L_{50} Values (Average), dBA
LTe	5965 Tuscan Court, adjacent to the southeast portion of the project site	6/29/22 to 7/1/22	Daytime (7 a.m. to 10 p.m.)	47.1–55.8 (52.0)	42.2–50.4 (45.9)
			Nighttime (10 p.m. to 7 a.m.)	40.8–57.1 (50.1)	40.2–46.9 (43.2)
ST1	Intersection of Avenue Juan Diaz and Riverview Drive, north of the project site	8/1/18	1:05 p.m.	50.8	42.3
STc	Southwest of the project site, near 6024 William Street	6/29/22	11:58 a.m.	55.1	53.7

L_{eq} = Equivalent sound level. The L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour.
dBA = A-weighted decibel level. A logarithmic measurement scale that approximates the frequency response of the human ear.
L_{50} = Noise level exceeded for 50% of the time (i.e., 30 minutes per hour).

Jurupa Avenue Trailhead

The closest noise-sensitive receptors to the Jurupa Avenue Trailhead project site are neighboring homes to the west. Additional homes are south of Jurupa Avenue. Existing noise levels in the study area are moderate and the nearest noise-sensitive receptors are not close to major noise sources such as freeways, railroads, or industrial activities. The primary noise sources include traffic along nearby streets, aircraft from local airports, general neighborhood sources (e.g., air conditioners and landscaping activities), and natural background noise (e.g., songbirds, insects, rustling leaves). Van Buren Boulevard, which borders the project site to the northeast, is a major arterial street. Jurupa

[9] Type 2 sound level meters are considered general purpose grade for field use.
[10] Type 1 sound level meters are considered precision grade.

Avenue, which borders the project site to the south, is also an arterial street. The closest airports to the Jurupa Avenue Trailhead project site include Riverside Municipal Airport, a public airport owned by the City of Riverside approximately 0.75 mile southeast of the project site; and Flabob Airport, a privately owned airport approximately 3.4 miles northeast of the project site in the city of Jurupa Valley.

To quantify the existing ambient noise conditions in the project vicinity, noise monitoring was conducted between Wednesday, August 1 and Friday, August 3, 2018. Long-term noise monitoring was conducted at one location, designated LT3, at the west side of the Jurupa Avenue Trailhead project site, adjacent to the closest neighboring homes on Bradford Street. Monitoring was conducting using a Piccolo Type 2 sound level meter manufactured by Soft dB. The sound level meter was field-calibrated prior to the measurement to ensure accuracy, using a Larson Davis CAL200 acoustical calibrator; the calibration was also re-checked at the conclusion of the measurement. The monitoring results are summarized in Table XIII-2.

Table XIII-2. Summary of Noise Measurement Results for the Jurupa Avenue Trailhead Site

Site#	Location	Date	Time of Day	Range of Hourly L_{eq} Values (Average), dBA	Range of Hourly L_{50} Values, dBA
LT3	West side of Jurupa Avenue Trailhead site, adjacent to the rear property line of 7124 Bradford Street	8/1/18 to 8/3/18	Daytime (7 a.m. to 10 p.m.)	53.6–59.9 (57.2)	52–58 (55)
			Nighttime (10 p.m. to 7 a.m.)	53.4–64.6 (59.2)	50–63 (56)

L_{eq} = Equivalent sound level. The L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour.
dBA = A-weighted decibel level. A logarithmic measurement scale that approximates the frequency response of the human ear.
L_{50} = Noise level exceeded for 50% of the time (i.e., 30 minutes per hour).

Discussion

a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

The City of Riverside Municipal Code regulates noise from both construction and operational sources. Construction noise is controlled with limits on the hours during which construction activities are permitted. Section 7.35.010 B.5. prohibits "[o]perating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, grading or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on weekdays and between 5:00 p.m. and 8:00 a.m. on Saturdays or any time on Sunday or federal holidays." Additionally, Section 7.35.020 G. provides an explicit exemption from the City's noise standards for "[n]oise sources associated with the construction, repair, remodeling, or grading of any real property; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday."

Stationary (non-transportation) noise sources associated with project operation are regulated by Section 7.25.010 of the municipal code. For the noise-sensitive land uses considered in this IS, the applicable exterior noise limits are summarized in Table XIII-3.

Table XIII-3. Applicable City of Riverside Exterior Noise Standards

		Residential	
Noise Level that May Not Be Exceeded for More than…	**Noise Metric Descriptor**	**Daytime (7:00 a.m. to 10:00 p.m.)**	**Nighttime (10:00 p.m. to 7:00 a.m.)**
30 minutes in any hour	L_{50}	55 dBA	45 dBA
15 minutes in any hour	L_{25}	60 dBA	50 dBA
5 minutes in any hour	$L_{8.33}$	65 dBA	55 dBA
1 minute in any hour	$L_{1.67}$	70 dBA	60 dBA
Anytime (i.e., maximum noise level)	L_{max}	75 dBA	65 dBA

Note: If the measured ambient noise level exceeds that permissible within any of the first four noise limit categories, the allowable noise exposure standard shall be increased in 5-dB increments in each category as appropriate to encompass the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. L_{XX} = noise level exceeded for a percentage of the time; L_{max} = maximum noise level

Due to Martha McLean Anza Narrows Park's proximity to noise-sensitive receptors in the neighboring city of Jurupa Valley, applicable regulatory information from this city is described below.

Chapter 11.05, Noise Regulations, of the City of Jurupa Valley Municipal Code regulates noise from both construction and operational sources. The code also states, "This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act…and no such thresholds are established." However, this does not preclude the use of the municipal code by any CEQA lead agency to establish thresholds of impact for any individual project. As such, the municipal code standard is used to assess potential impacts from Martha McLean Anza Narrows Park on sensitive receivers in the city of Jurupa Valley.

The municipal code specifies various categories of construction noise, maintenance, and operations that are either entirely exempt from the municipal code noise standards or are exempt during certain hours. Exemptions that would potentially apply to the proposed project are listed in Sections 11.05.020(1), 11.05.020(2), and 11.05.020(3) of the municipal code, which exempt construction associated with facilities owned or operated by or for a governmental agency; capital improvement projects of a governmental agency; and the maintenance or repair of public properties.

Based on the exemptions described above, noise associated with construction and property maintenance of parks owned or operated by or for a governmental agency are entirely exempt from the municipal code noise standards. Some of the municipal code exemptions described above could also apply to project operations. These exemptions would be 1 (facilities owned or operated by or for a governmental agency), 3 (the maintenance or repair of public properties), and 10 (property maintenance between the hours of 7:00 a.m. and 8:00 p.m.).

Non-exempt stationary (non-transportation) noise sources are regulated by Section 11.05.040 of the municipal code. For the noise-sensitive land uses considered in this analysis, the applicable exterior noise limits are summarized in Table XIII-4. Although park operations would likely be considered

exempt from the City of Jurupa Valley noise standards, the exterior noise standards are used in the following analysis to assess potential operational noise impacts.

Table XIII-4. Applicable City of Jurupa Valley Exterior Noise Standards

		Residential	
Noise Level that May Not Be Exceeded for…	**Noise Metric Descriptor**	**Daytime (7:00 a.m. to 10:00 p.m.)**	**Nighttime (10:00 p.m. to 7:00 a.m.)**
Anytime (i.e., maximum noise level)	L_{max}	55 dBA	45 dBA

Surface transportation noise sources (i.e., traffic and rail) are typically regulated by the applicable general plan. However, no significant surface transportation noise impacts would occur because the proposed project would not generate substantial vehicular traffic (refer to Section XVII, *Transportation*) or affect railroad operations. The effects of project-generated traffic are discussed briefly under *Traffic Noise*, below. Aircraft noise is discussed separately under Threshold XIII.c, below.

Martha McLean Anza Narrows Park

Less than Significant with Mitigation Incorporated.

Construction Noise

Two types of short-term noise impacts could occur during project construction. First, construction vehicles would incrementally increase noise levels on access roads. This would include construction worker vehicles and haul trucks traveling to and from the project site. Although there would be a relatively high single-event noise level, which could cause an intermittent noise nuisance (e.g., passing trucks at 50 feet would generate up to 77 A-weighted decibels [dBA]), the effect on longer-term ambient noise levels would be small. Therefore, there would be no impacts related to the short-term noise associated with commuting construction workers and transporting equipment and materials to the proposed project site.

The second category of construction noise would be noise generated during onsite project construction. These potential noise impacts were evaluated based on the proposed project's construction equipment schedule and phasing assumptions developed as part of the air quality analysis (refer to Section III, *Air Quality*). Construction noise was analyzed using data and modeling methodologies from the Federal Highway Administration's Roadway Construction Noise Model (FHWA 2008), which predicts average noise levels at nearby receptors using information such as the type of equipment, distance between the source to receptor, and usage factor (the fraction of time the equipment is operating in its noisiest mode while in use). This methodology calculates the composite average noise level for multiple equipment items scheduled during each construction phase. Because of the acoustically soft ground conditions around the project site (i.e., unpaved ground with grass, trees, and other plants), it was assumed that construction noise levels would be reduced at a rate of 7.5 decibels (dB) per doubling of distance from the source. However, to provide a conservative analysis, the potential barrier effects provided by topography, walls, fences, buildings, and other objects were not included in the calculations. The average construction noise level for an 8-hour workday (i.e., 8-hour equivalent continuous sound level [L_{eq}]) during each phase

of construction was calculated at a reference distance of 50 feet. The reference noise levels were then adjusted for each receiver based on the acoustical average distance from the project site to each receiver.[11] These distances were estimated using project plans and aerial photography (Google Earth).

Detailed construction noise analysis tables are provided in Appendix I. The tables include the construction equipment and phasing, individual noise source levels, and noise levels for each phase of construction. The results for receptors are summarized in Table XIII-5.

[11] The acoustical average distance is used to represent noise sources that are mobile or distributed over an area (such as the analyzed construction area); it is calculated by multiplying the shortest distance between the receiver and the noise source area by the farthest distance and then taking the square root of the product.

Table XIII-5. Summary of Estimated Construction Noise Levels for the City of Riverside

		Construction Noise Level, $L_{eq}(h)$, dBA					
City	**Receiver**	**Phase 1 Demolition**	**Phase 2 Site Preparation**	**Phase 3 Grading**	**Phase 4 Building Construction**	**Phase 5 Paving**	**Phase 6 Architectural Coating**
Riverside	5681 Tucson Court	70	68	68	67	65	60
	5965 Tucson Court	70	68	68	68	65	60
	6027 Sheppard Street	58	56	57	56	53	48
	6019 William Street	55	53	54	53	50	45
Jurupa Valley	5760 Riverview Drive	46	44	44	43	41	36

$L_{eq}(h)$ = hourly equivalent sound level

Construction noise levels would be temporary and would cease once project construction is complete. Regarding potential impacts in the City of Riverside, the results of the analysis shown in Table XIII-5 indicate that average noise levels during construction would range from approximately 60 to 70 dBA L_{eq} at the closest neighboring homes (along Tucson Court), depending on the phase of construction. These noise levels would exceed the measured daytime ambient noise levels of approximately 47 to 65 dBA L_{eq} (based on the noise measurement at LTe) and construction noise would be clearly audible at these homes. At more distant homes to the southwest, on Sheppard Street and William Street, construction noise levels would range from approximately 45 to 58 dBA L_{eq}, which would also exceed the measured daytime ambient noise level of approximately 55 dBA L_{eq} (based on the noise measurement at STc).

If construction is restricted to the time periods permitted by the City of Riverside Municipal Code, it would be exempt from any specific noise limits. Any construction-related noise occurring outside the permitted time periods could cause a significant impact. Therefore, MM-NOI-1 would be required to limit noise-generating construction activity to the permitted daytime hours and to implement standard noise-reduction methods to minimize potential annoyance at nearby noise-sensitive receptors. With implementation of MM-NOI-1, the noise impacts during construction would be less than significant in the City of Riverside.

Regarding potential impacts in the city of Jurupa Valley, the results of the analysis shown in Table XIII-5 indicate that average noise levels during construction would range from 36 and 46 dBA L_{eq} at the closest home (5760 Riverview Drive), depending on the phase of construction. These noise levels would be below the measured daytime ambient noise level of approximately 51 dBA L_{eq} (based on the noise measurement at ST1).

The City of Jurupa Valley Municipal Code identifies in Sections 11.05.020(1), 11.05.020(2), and 11.05.020(3) that construction of associated facilities owned or operated by or for a governmental agency, capital improvement projects of a governmental agency, and the maintenance or repair of public properties is considered exempt from any noise standard. Therefore, impacts related to construction noise for Martha McLean Anza Narrows Park would be considered less than significant in the city of Jurupa Valley.

Traffic Noise

All traffic would access the project site via Jurupa Avenue, which is a four-lane divided roadway classified in the City of Riverside's General Plan Circulation and Community Mobility Element (February 2018) as a four-lane, 110-foot-wide arterial road. Based on the traffic assessment for the proposed project (Appendix J1), the proposed project is anticipated to generate a total of 70 new trips per day on a typical weekday and 63 new trips per day on a typical Saturday. This would include seven trips during the weekend peak morning hour (four inbound, three outbound), eight trips during the weekday PM peak hour (four inbound, four outbound), and seven trips during the highest Saturday peak hour (four inbound, three outbound). The existing park sees an estimated total of 790 trips on a typical weekday and 790 trips on a typical Saturday. Traffic volume increases associated with the proposed project would be small, especially relative to the size of the existing Jurupa Avenue. As such, the proposed project would create a negligible change to existing traffic noise levels. The impact of the proposed project on traffic noise levels would be less than significant and no mitigation measures are required for traffic noise.

Noise from Onsite Operations

Based on conceptual plans and descriptions of the proposed project, improvements to the existing Martha McLean Anza Narrows Park would bring a variety of passive recreational opportunities including native planting and pollinator gardens, terraced hillside steps and river steps, paths, trails, shaded seating area and crosswalk to river access, exercise stations, and overlooks. Active park elements include an outdoor classroom, community band shell, exercise stations, and play areas. The proposed project is designed to provide free or low-cost, easily accessible recreational opportunities so that the community has convenient access to play, exercise, connect with nature, and gather as a community.

The anticipated buildout for the proposed project includes the following features that would be expected to generate noise when used by visitors to the park:

- Nature play area
- Water play area
- Community band shell
- Parking lots

In addition, modest levels of noise may be generated by people congregating at passive use areas such as the proposed bike rest stop, community meadow and gathering space, shaded seating areas, overlook areas, and benches. In many of these cases, the existing park contains these attractions already, making noise associated with them a part of the local ambient noise levels. Furthermore, noise contributions at nearby homes from passive park uses is expected to be negligible relative to the primary noise sources, such as the play areas, community band shell, and parking lot.

To estimate hourly average (L_{50}) and maximum noise levels at the nearest homes due to onsite park activities, a noise analysis was conducted that considered the following:

- 100 children playing continuously within each of the two play areas (nature play area and water play area) throughout an entire hour (i.e., 200 children total)
- On- and off-axis noise propagation from amplified speech and music at the proposed band shell
- 36 inbound and 35 outbound vehicles using the parking lot in a single hour. This matches the maximum trip estimates provided in the project traffic assessment (Appendix J1).

The noise levels for children playing were based on noise measurements conducted at Linda Vista Elementary School in San Diego. Noise levels were measured from approximately 10:30 a.m. to 11:40 a.m. to capture morning recess, and from 12:20 p.m. to 1:40 p.m. to capture lunch recess. The measurements indicated an L_{50} noise level of 59 dBA at an acoustical average distance of 120 feet with an average of approximately 58 children playing simultaneous at various locations including flat asphalt playground areas, climbing/play equipment, a tetherball area, and a decomposed granite field. The measured noise levels were normalized to a reference distance of 50 feet. The maximum noise level, 82 dBA maximum noise level (L_{max}) at a distance of 60 feet, was the highest measured L_{max} level captured during the two measurement periods. These noise levels were then adjusted to account for the assumed number of children playing at Martha McLean Anza Narrows Park and the distances to the closest homes.

Noise associated with the band shell would include amplified speech or music from events or live concerts. Noise measurements taken by ICF personnel were obtained from a previous study

involving a small outdoor live music venue. A blues band with full amplification performed at the venue; it is anticipated that this would be representative of acts at the louder end of the range at the proposed band shell. Noise levels were measured at 200 feet from the front of the center of the stage (on-axis) during the live performance and found to be approximately 79.1 dBA L_{eq} and 96.8 dBA L_{max}. In addition, performance noise was measured 100 feet from the side of the stage (off-axis) and was found to be approximately 73.3 dBA L_{eq} and 90.4 dBA L_{max}. For the purposes of this analysis, it was assumed that the measured L_{eq} noise level provides a reasonable estimate of the L_{50} noise level considered by the City's noise standards (it is noted that both metrics are ways of describing the average noise level). Based on conceptual drawings and the orientation of the proposed band shell, on- and off-axis noise levels were then propagated from the proposed location to the nearest homes.

The noise level for the parking lot was estimated using prediction algorithms provided by SoundPLAN noise modeling software that indicated a sound power of approximately 91 dBA for a parking lot with 71 trips per hour. Although this sound power level represents an L_{eq} noise level, it is used as a conservative estimate for the L_{50} noise level considered by the City's noise standards (with only 71 trips per hour, the actual noise-generating activity within the parking facilities would likely last less than 30 minutes per hour). Maximum parking lot noise was estimated using source data for a car door slamming provided by SoundPLAN noise modeling software. In this case, source data were a maximum sound power level of 98 dBA (SoundPLAN 2022). These estimated sound power levels were adjusted to account for the distance to the nearest homes.

Complete calculations for the noise from play areas, band shell, and parking lot activity are provided in Appendix I. A summary of the overall noise levels from the analyzed onsite activities at the nearest homes in the City of Riverside is provided in Table XIII-6, which shows noise levels are anticipated to exceed the City's allowable daytime noise standard of 55 dBA L_{50} by up to 7 dB.

Table XIII-6. Summary of Estimated Noise Levels at Homes in the City of Riverside from Onsite Activities for the Martha McLean Anza Narrows Park Site

	Noise Level, dBA L_{50}			
Receiver	**Play Areas**	**Band Shell**	**Parking Lot**	**Combined Noise Level**
5681 Tucson Court	31.8	46.7	44.2	48.7
5965 Tucson Court	32.2	47.5	39.3	48.2
6027 Sheppard Street	33.2	61.1	25.6	61.1
6019 William Street	39.3	61.6	25.6	61.7

Additionally, Table XIII-7 shows combined noise levels at the nearest home in the city of Jurupa Valley. The noise standard in the city of Jurupa Valley has a noise threshold of 55 dBA L_{max}. In this case, estimated noise levels would exceed the allowable threshold at the nearest home by approximately 2 dB.

Table XIII-7. Summary of Estimated Noise Levels from Onsite Activities to Homes in the City of Jurupa Valley for the Martha McLean Anza Narrows Park Site

Receiver	Play Noise Levels, dBA L_{max}	Band Shell Noise Levels, L_{max}	Parking Lot Noise Levels, dBA L_{max}	Combined Noise Levels, dBA L_{max}
5760 Riverview Drive	49.1	55.9	28.8	56.7

It should be noted that children are not anticipated play at the park during the nighttime hours established by both the City of Riverside and the City of Jurupa Valley (10:00 p.m. to 7:00 a.m.). Similarly, the band shell is also not anticipated to be used during these hours. Therefore, nighttime noise levels would be substantially lower than indicated in Table XIII-6 and Table XIII-7, and would be below the nighttime noise standards of 45 dBA L_{50} (City of Riverside) and 45 dBA L_{max} (City of Jurupa Valley).

Nonetheless, onsite operational noise is estimated to exceed the applicable daytime noise thresholds, resulting in a significant impact. Table XIII-6 and Table XIII-7 show that the dominant contributor to these exceedances would be noise associated with amplified speech or music coming from the band shell. Therefore, MM-NOI-2 would be required to limit noise levels from band shell uses. With implementation of MM-NOI-2, the noise impacts during park operation would be less than significant.

Mitigation Measures

MM-NOI-1: Limit Construction to Permitted Hours and Employ Noise-reducing Construction Practices

The following noise-control measures shall be incorporated into the project contract specifications to ensure project construction complies with the City of Riverside Municipal Code and to reduce construction noise and vibration effects.

- Construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays and 8:00 a.m. to 5:00 p.m. on Saturdays, and shall not occur at any time on Sundays or federal holidays. Outside of these hours, construction personnel shall not be permitted on the job site, and material or equipment deliveries and collections shall not be permitted.
- All construction equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specifications.
- All mobile or fixed construction equipment used on the project that is regulated for noise output by a local, state, or federal agency shall comply with such regulations while used for project construction.
- All construction equipment shall be properly maintained.
- All construction equipment shall be operated only when necessary and shall be switched off when not in use.
- Construction employees shall be trained in the proper operation and use of the equipment.

- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- Construction site and access road speed limits shall be established and enforced during the construction period.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.
- To minimize potential public objections to unavoidable noise, the contractor shall maintain good communication with the surrounding community regarding the schedule, duration, and progress of the construction. Notification shall be provided advising that there will be loud noise associated with construction and providing a telephone contact number for affected parties to ask questions and report any unexpected noise levels. The onsite construction supervisor shall have the responsibility to receive and resolve noise complaints with notification required to be provided to the City for review and concurrence.

MM-NOI-2: Regulate Special Events at the Proposed Martha McLean Anza Narrows Park Amphitheater

City of Riverside PRCSD, Planning and Design Division, shall ensure that special events at the proposed amphitheater adhere to adopted noise standards and ordinances to minimize potential noise impacts on surrounding neighborhoods. Special events at the proposed amphitheater shall be properly regulated to comply with noise standards presented in Table XIII-3 and Table XIII-4. Methods to control noise levels and minimize potential impacts at the surrounding neighborhoods may include, but are not limited to, the following:

- Designing specifications for the amphitheater that help control noise (e.g., limiting sound system and loudspeaker output, ensuring proper orientation of loudspeakers).
- Limiting hours of operation, which may include avoiding early morning or late evening hours, limiting large events to weekends only, or requiring hard stop times at which the sound system must be powered off so that events are not allowed to run over their assigned time.
- Enacting operational controls to ensure compliance with ordinances and minimize potential nuisances; these may include limits on crowd sizes, proper policing of events, prohibiting consumption of alcohol, or prohibiting the use of noise-making devices by event attendees.
- Monitoring community noise; in the event of noise complaints from the surrounding community, it may be necessary to conduct noise monitoring during special events to determine if noise exceedances are occurring. In the event that exceedances are confirmed, additional noise control methods should be implemented.

Jurupa Avenue Trailhead

Less than Significant with Mitigation Incorporated.

Construction Noise

Two types of short-term noise impacts could occur during project construction. First, construction vehicles would incrementally increase noise levels on access roads. This would include construction worker vehicles and haul trucks traveling to and from the Jurupa Avenue Trailhead project site. Although there would be a relatively high single-event noise level, which could cause an intermittent noise nuisance (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-

term ambient noise levels would be small. Therefore, there would be no impacts related to the short-term noise associated with commuting construction workers and transporting equipment and materials to the Jurupa Avenue Trailhead project site.

The second category of construction noise would be noise generated during onsite project construction. These potential noise impacts were evaluated based on the proposed project's construction equipment schedule and phasing assumptions developed as part of the air quality analysis (refer to Section III, *Air Quality*). Construction noise was analyzed using data and modeling methodologies from the Federal Highway Administration's Roadway Construction Noise Model (FHWA 2006), which predicts average noise levels at nearby receptors by analyzing the type of equipment, distance between the source to receptor, and usage factor (the fraction of time the equipment is operating in its noisiest mode while in use). This methodology calculates the composite average noise level for multiple equipment items scheduled during each construction phase. Because of the acoustically soft ground conditions around the project site (i.e., unpaved ground with grass, trees, and other plants), it was assumed that construction noise levels would be reduced at a rate of 7.5 dB per doubling of distance from the source. However, to provide a conservative analysis, the potential barrier effects provided by topography, walls, fences, buildings, and other objects were not included in the calculations. The average construction noise level for an 8-hour workday (i.e., 8-hour equivalent continuous sound level [L_{eq}]) during each phase of construction was calculated at a reference distance of 50 feet. The reference noise levels were then adjusted for each receiver based on the acoustical average distance from the project site to each receiver.[12] These distances were estimated using project plans and aerial photography (Google Earth).

Detailed constriction noise analysis tables are provided in Appendix I. The tables include the construction equipment and phasing, individual noise source levels, and noise levels for each phase of construction. The results are summarized in Table XIII-8.

Table XIII-8. Summary of Estimated Construction Noise Levels for the Jurupa Avenue Trailhead Site

	Construction Noise Level, L_{eq}(h), dBA			
Receiver	**Phase 1 Site Preparation**	**Phase 2 Grading**	**Phase 3 Building Construction**	**Phase 4 Paving**
7164 Bradford Street	70	75	71	73
7120 Bradford Street	72	77	73	76
7106 Bradford Street	68	74	70	72
6948 Glendale Avenue	47	52	48	51
8607 Parker Way	45	50	46	49

L_{eq}(h) = hourly equivalent sound level

Construction noise levels would be temporary and would cease once project construction is complete. The results of the analysis indicate that average noise levels during construction would range from approximately 68 to 77 dBA at the closest neighboring homes on Bradford Street,

[12] The acoustical average distance is used to represent noise sources that are mobile or distributed over an area (such as the analyzed construction area); it is calculated by multiplying the shortest distance between the receiver and the noise source area by the farthest distance and then taking the square root of the product.

depending on the phase of construction. These noise levels would exceed the measured daytime ambient noise levels of approximately 54 to 60 dBA and construction noise would be clearly audible at these homes. At more distant homes to the south, on Glendale Avenue and Parker Way, construction noise levels would range from approximately 45 to 52 dBA, which would be below the measured daytime ambient noise levels. If construction is restricted to the time periods permitted by the City of Riverside Municipal Code, it would be exempt from any specific noise limits. Any construction-related noise occurring outside the permitted time periods could cause a significant impact. Therefore, MM-NOI-1 would be required to limit noise-generating construction activity to the permitted daytime hours and to implement standard noise-reduction methods to minimize potential annoyance at nearby noise-sensitive receptors. With implementation of MM-NOI-1, the noise impacts during construction would be less than significant.

Traffic Noise

All traffic would access the Jurupa Avenue Trailhead project site via Jurupa Avenue, which is a four-lane divided roadway classified in the City of Riverside's *General Plan Circulation and Community Mobility Element* (February 2018) as a four-lane, 110-foot-wide Arterial. Based on the Traffic Assessment for the proposed project (Appendix J2), the proposed project is anticipated to generate a total of 93 trips per day on a typical weekday and 90 trips per day on a typical Saturday. This would include seven trips during the weekday AM peak hour (three inbound/four outbound), eight trips during the weekday PM peak hour (four inbound/four outbound), and nine trips during the highest Saturday peak hour (four inbound/five outbound). These traffic volumes are very small, especially relative to the size of the existing Jurupa Avenue. As such, the project would create a negligible change to existing traffic noise levels. The impact of the proposed project on traffic noise levels would be less than significant and no mitigation measures are required for traffic noise.

Noise from Onsite Operations

The proposed project would develop a public park and trailhead to provide a variety of passive recreational opportunities including paths and trails, native planting and pollinator gardens, seating, shade structures, educational signage, and overlooks. Active park elements include bike paths and play areas. The proposed project is designed to provide a low-use, high-security development that capitalizes on the views, existing trail, geologic features, and native landscaping options on the project site. Vehicular parking would be provided on site along Jurupa Avenue.

The anticipated buildout for the proposed project includes the following features that would be expected to generate noise when used by visitors to the park:

- Parking lot
- Nature play area
- Arroyo Plaza play area
- Music play area with trees

In addition, modest levels of noise may be generated by people congregating at passive use areas such as the proposed bike hub, shade structures, the Great Lawn, and benches. However, due to the low-use nature of the park, the noise contributions at nearby homes from passive park uses is expected to be negligible relative to the primary noise sources from the parking lot and play areas.

To estimate hourly noise levels at the nearest homes due to onsite park activities, a noise analysis was conducted that considered the following:

- 10 children playing continuously at each of the three play areas (nature play area, arroyo plaza play area, and music play area) throughout an entire hour (i.e., 30 children total).
- Four inbound and five outbound vehicles using the parking in a single hour. This matches the maximum trip estimates provided in the project Traffic Assessment (Appendix J2).

The noise levels for children playing were based on noise measurements conducted at Linda Vista Elementary School in San Diego. Noise levels were measured from approximately 10:30 a.m. to 11:40 a.m. to capture morning recess, and from 12:20 p.m. to 1:40 p.m. to capture the lunch recess. The measurements indicated a noise level exceeded for 50 percent of the time (L_{50}) of 59 dBA at an acoustical average distance of 120 feet with an average of approximately 58 children playing simultaneously at various locations including flat asphalt playground areas, climbing/play equipment, a tetherball area, and a decomposed granite field. The measured noise levels were normalized to a reference distance of 50 feet, then adjusted to account for the assumed number of children playing at Jurupa Avenue Trailhead and the distances to the closest homes.

The noise level for the parking lot was estimated using prediction algorithms provided by SoundPLAN noise modeling software that indicate a sound power[13] of approximately 77 dBA for a parking lot with nine trips per hour. Although this sound power level represents an L_{eq}, it is used as a conservative estimate for the L_{50} noise level considered by the City's noise standards (with only nine trips per hour, the actual noise-generating activity at the parking lot would likely last fewer than 30 minutes per hour). The estimated sound power level was adjusted to account for the distances to the closest homes.

Complete calculations for the noise from play areas and parking lot activity are provided in Appendix I. A summary of the overall noise levels from the analyzed onsite activities at three homes neighboring the park are provided in Table XIII-9. As shown in Table XIII-9, the combined noise levels would all be below the City's daytime noise standard of 55 dBA L_{50}. Because children would not be anticipated to play at the park during the City's nighttime hours of 10:00 p.m. to 7:00 a.m., nighttime noise levels would be substantially lower than indicated in Table XIII-9 and would be below the City's nighttime noise standard of 45 dBA L_{50}.

Table XIII-9. Summary of Estimated Noise Levels from Onsite Play Areas and Parking Lot at the Jurupa Avenue Trailhead Site

	Noise Level, dBA L_{50}		
Receiver	**Three Play Areas**	**Parking Lot**	**Combined Noise Level**
7100 Bradford Street	37.8	18.2	37.9
7120 Bradford Street	53.2	35.0	53.3
7164 Bradford Street	50.7	38.8	51.0
6948 Glendale Avenue	31.4	14.9	31.5
8607 Parker Way	30.8	14.2	30.9

$L_{eq}(h)$ = hourly equivalent sound level

[13] Sound power is the total airborne sound energy radiated by a sound source per unit of time. The sound power is a characteristic of the noise source that is independent of distance and location.

Additional noise at the park would be generated by musical equipment at the music play area. The specifications of this equipment, including the types, numbers, and noise level output, are currently unknown, but such equipment could include acoustical play features similar to bells, xylophones, and percussion instruments, or installations with electronic sound sources. If the musical play equipment were to generate more than 50 dBA L_{50} at the nearest home, the total combined noise level could exceed the City's daytime standard of 55 dBA.[14] Due to the uncertainty in the final musical play equipment noise levels, it is conservatively assumed that total combined noise from onsite park activities with musical play equipment could exceed the City's daytime noise standard, which would be a significant impact. Therefore, MM-NOI-3 would be required to limit noise levels from musical play equipment. With implementation of MM-NOI-3, the noise impacts during park operation would be less than significant.

Mitigation Measures

MM-NOI-1: Limit Construction to Permitted Hours and Employ Noise-reducing Construction Practices, as described under *Martha McLean Anza Narrows Park, Mitigation Measures*, above.

MM-NOI-3: Select and Install Musical Play Equipment with Noise Levels Not to Exceed 50 dBA L_{50} at the Surrounding Homes (Jurupa Avenue Trailhead)

The musical play equipment at the project site shall be selected and installed to ensure it does not generate more than 50 dBA L_{50} at the surrounding homes when in use. (This limit is selected to keep overall noise levels from Jurupa Avenue Trailhead to 55 dBA L_{50} or less as required by the City's daytime noise standard.) This may be achieved by including site-specific noise limits (50 dBA L_{50} at the surrounding homes) in the procurement contract(s) for musical play equipment. Prior to construction of the music play area, the contractor supplying and/or installing the musical equipment shall provide written evidence demonstrating, to the City's satisfaction, that the design will comply with the stated noise limits. If compliance with the 50 dBA L_{50} noise limit cannot be demonstrated by the contractor, the City and/or contractor shall retain a qualified acoustical consultant to conduct site-specific noise modeling based on actual equipment selections and noise level data (provided by the manufacturer or measured at existing installations) and detailed designs for the music play area layout. If the noise modeling indicates noise levels from the equipment will exceed 50 dBA L_{50}, then noise-reduction techniques shall be implemented as necessary to reduce the noise levels to 50 dBA L_{50} at the surrounding homes. These noise reduction techniques may include, but are not limited to:

- Select quieter musical equipment, reduce the number of equipment items, and/or limit the noise output from electronic sound sources.
- Add noise barriers between the music play area and the affected homes. Noise barriers should be constructed of materials with a minimum surface density of 4 pounds per square foot or a demonstrated sound transmission class of 25. Alternatively, noise barriers may be provided by earthen berms or by blocking the line of sight between the musical play equipment and the homes using the grading/terrain of the park.

[14] Based on worst-case noise levels predicted at 7120 Bradford Street:
55 dBA (City's noise standard) – 53.3 dBA (combined play and parking noise) = 50 dBA

Overall Impacts

Less than Significant with Mitigation Incorporated. Construction and operation of the proposed parks could generate significant noise impacts. Therefore, mitigation measures have been recommended to reduce the impacts of both construction and operational noise from both proposed project sites related to construction for Martha McLean Anza Narrows Park (MM-NOI-1 and MM-NOI-2) and construction and use of musical play equipment for Jurupa Avenue Trailhead (MM-NOI- and MM-NOI-3). With implementation of the required mitigation measures (MM-NOI-1, MM-NOI-2, and MM-NOI-3), the impacts would be reduced to a less-than-significant level.

b. Generate excessive groundborne vibration or groundborne noise levels?

The Cities of Riverside of Jurupa Valley do not provide any quantitative criteria regarding groundborne noise and vibration. Therefore, while the proposed project would not be subject to Caltrans oversight, guidance published by the agency nonetheless provides groundborne vibration criteria that are useful in quantifying potential impacts. Caltrans' widely referenced *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020) provides guidance for two types of potential impacts: (1) damage to structures, and (2) human response/potential annoyance. Guideline criteria for each are provided in Table XIII-10 and Table XIII-11.

Table XIII-10. Caltrans Guideline Vibration Damage Criteria

	Maximum PPV (in/s)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2020.
PPV = Peak particle velocity. The maximum instantaneous positive or negative peak amplitude of the vibration velocity.
in/s = inches per second. The unit of measurement for PPV.
Transient source = a vibration source that creates a single isolated vibration event, such as blasting or drop balls.
Continuous/frequent intermittent source = a vibration source that generates a continuous, repetitive vibration such as impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table XIII-11. Caltrans Guideline Vibration Annoyance Criteria

	Maximum PPV (in/s)	
Human Response	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10

	Maximum PPV (in/s)	
Human Response	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Severe	2.0	0.4

Source: Caltrans 2020.
in/sec = inches per second; PPV = peak particle velocity

Construction-related vibration was analyzed using data and modeling methodologies provided by Caltrans' *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020). This guidance manual provides typical vibration source levels for various types of construction equipment, as well as methods for estimating the propagation of groundborne vibration over distance. Table XIII-12 provides reference peak particle velocity (PPV) levels for construction equipment expected to be used by the proposed project; the levels are provided for a reference distance of 25 feet. All the analyzed equipment is classified as continuous/frequency intermittent vibration sources.

Table XIII-12. Construction Equipment Vibration Levels

Equipment Item	Reference PPV at 25 feet, in/s [a]
Vibratory roller	0.21
Large bulldozer[b]	0.089
Small bulldozer[d]	0.003

Notes:
[a] Obtained from Caltrans 2020.
[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.
[c] Considered representative of smaller equipment such as small skid steers and mini excavators.
in/sec = inches per second

The following equation from the guidance manual was used to estimate the change in PPV levels over distance:

$$PPV_{rec} = PPV_{ref} \times (25/D)^{n}$$

where PPV_{rec} is the PPV at a receptor; PPV_{ref} is the reference PPV at 25 feet from the equipment; D is the distance from the equipment to the receiver, in feet; and n is a value related to the vibration attenuation rate through ground (the default recommended value for n is 1.1).

Because PPV is calculated based on the maximum instantaneous vibration, the worst-case (closest) distance between each source and receiver should be used in the analysis (rather than an average distance). However, the precise future distances between project construction equipment and each of the surround buildings is currently unknown. Therefore, potential impact distances were calculated for each equipment item relative to criteria for both potential building damage and for potential human annoyance. These results were then used as screening distances to determine where and when mitigation would be required.

Martha McLean Anza Narrows Park

Less than Significant with Mitigation Incorporated.

Construction Vibration

The results of the potential building damage analysis are provided in Appendix I and summarized in Table XIII-13. The analysis considers the building types found on the closest surrounding properties, which all appear to be modern residential structures. As shown in the table, potential damage could occur if heavy equipment operates at distances ranging from 1 foot to 19 feet from nearby buildings, depending on the type of structure and the type of construction equipment being used. Based on available aerial imagery it does not appear that construction equipment would operate within 1 foot of existing offsite buildings, so damage from small bulldozers and similar equipment (e.g., small skid steers, mini excavators) would not occur. However, construction within the larger impact distances (6 to 19 feet) of existing offsite buildings cannot be ruled out. Therefore, MM-NOI-4 would be required to reduce construction-generated groundborne vibration to below the criteria levels for potential building damage. With implementation of MM-NOI-4, the potential building damage impacts during construction would be less than significant.

Table XIII-13. Impact Distances for Potential Vibration Damage from Project Construction

Equipment Item	Building Category	Vibration Damage Impact Criteria, PPV, in/s[a]	Distance to Impact Criteria, feet
Vibratory roller	Old residential structures	0.5	19
Large bulldozer[b]	Old residential structures	0.5	9
Small bulldozer[c]	Old residential structures	0.5	1

[a] Obtained from Caltrans 2020 (all criteria are based on the values for continuous/frequent intermittent sources).
[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.
[c] Considered representative of smaller equipment such as small skid steers and mini excavators.
in/sec = inches per second

The results of the potential human response/annoyance analysis are provided in Appendix I and summarized in Table XIII-14. As shown in the table, the likely human response to groundborne vibration from project construction varies from barely perceptible to potentially severe depending on the equipment used and the distance to the nearest occupied building. Groundborne vibration at the higher end of the range could cause a significant impact if it occurred during nighttime hours (when people are typically resting/sleeping and most sensitive to vibration) or for prolonged periods. However, due to the mobile nature of the construction equipment and the size of the project site, the duration of activity close to any individual receptor would be limited and the vibration levels would reduce rapidly as work moves away from the receptor location. While the City Municipal Codes do not provide quantitative construction vibration standards, they do exempt construction activities from the noise ordinance provided they occur only during the permitted daytime hours. Therefore, MM-NOI-1 would be required to limit vibration-generating construction activity to the permitted daytime hours and avoid intrusive nighttime vibration at the neighboring homes. With implementation of MM-NOI-1, the potential vibration impacts associated with human response/annoyance during construction would be less than significant.

Table XIII-14. Distances from Project Construction to Various Levels of Human Response

Equipment Item	Human Response	Response Criteria, PPV, in/s[a]	Distance to Response Criteria, feet
Vibratory roller	Barely perceptible	0.01	399
	Distinctly perceptible	0.04	113
	Strongly perceptible	0.1	50
	Severe	0.4	14
Large bulldozer[b]	Barely perceptible	0.01	183
	Distinctly perceptible	0.04	52
	Strongly perceptible	0.1	23
	Severe	0.4	7
Small bulldozer[c]	Barely perceptible	0.01	9
	Distinctly perceptible	0.04	3
	Strongly perceptible	0.1	2
	Severe	0.4	1

[a] Obtained from Caltrans 2020 (all criteria are based on the values for continuous/frequent intermittent sources).
[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.
[c] Considered representative of smaller equipment such as small skid steers and mini excavators.
in/sec = inches per second

Operational Vibration

The proposed project would not include any permanent sources of vibration. As a result, there would be no operational vibration impacts.

Jurupa Avenue Trailhead

Less than Significant with Mitigation Incorporated.

Construction Vibration

The results of the potential building damage analysis are provided in Appendix I and summarized in Table XIII-15. The analysis considers the building types found on the closest surrounding properties, which all appear to be modern residential structures. As shown in the table, potential damage could occur if heavy equipment operates at distances ranging from 1 foot to 12 feet from nearby buildings, depending on the type of structure and the type of construction equipment being used. Based on available aerial imagery, it does not appear that construction equipment would operate within 1 foot of existing offsite buildings, so damage from small bulldozers and similar equipment (e.g., small skid steers, mini excavators) would not occur. However, construction within the larger impact distances (6 to 12 feet) of existing offsite buildings cannot be ruled out. Therefore, MM-NOI-5 would be required to reduce construction-generated groundborne vibration to below the criteria levels for potential building damage. With implementation of MM-NOI-5, the potential building damage impacts during construction would be less than significant.

Table XIII-15. Impact Distances for Potential Vibration Damage from Project Construction

Equipment Item	Building Category	Vibration Damage Impact Criteria, PPV, in/s[a]	Distance to Impact Criteria, feet
Vibratory roller	New residential structures	0.5	12
Large bulldozer[b]	New residential structures	0.5	6
Small bulldozer[c]	New residential structures	0.5	1

[a] Obtained from Caltrans 2020 (all criteria are based on the values for continuous/frequent intermittent sources).
[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.
[c] Considered representative of smaller equipment such as small skid steers and mini excavators.
in/sec = inches per second

The results of the potential human response/annoyance analysis are provided in Appendix I and summarized in Table XIII-16. As shown in the table, the likely human response to groundborne vibration from project construction varies from below perceptible to potentially severe depending on the equipment used and the distance to the nearest occupied building. Groundborne vibration at the higher end of the range could cause a significant impact if it occurred during nighttime hours (when people are typically resting/sleeping and most sensitive to vibration) or for prolonged periods. However, due to the mobile nature of the construction equipment and the size of the project site, the duration of activity close to any individual receptor would be limited and the vibration levels would reduce rapidly as work moves away from the receptor location. While the City's Municipal Code does not provide quantitative construction vibration standards, it does exempt construction activities from the noise ordinance provided they occur only during the permitted daytime hours. Therefore, MM-NOI-1 would be required to limit vibration-generating construction activity to the permitted daytime hours and avoid intrusive nighttime vibration at the neighboring homes. With implementation of MM-NOI-1, the potential vibration impacts associated with human response/annoyance during construction would be less than significant.

Table XIII-16. Distances from Project Construction to Various Levels of Human Response

Equipment Item	Human Response	Response Criteria, PPV, in/s[a]	Distance to Response Criteria, feet
Vibratory roller	Barely perceptible	0.01	399
	Distinctly perceptible	0.04	113
	Strongly perceptible	0.1	50
	Severe	0.4	14
Large bulldozer[b]	Barely perceptible	0.01	183
	Distinctly perceptible	0.04	52
	Strongly perceptible	0.1	23
	Severe	0.4	7
Small bulldozer[c]	Barely perceptible	0.01	9
	Distinctly perceptible	0.04	3
	Strongly perceptible	0.1	2
	Severe	0.4	1

[a] Obtained from Caltrans 2020 (all criteria are based on the values for continuous/frequent intermittent sources).
[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[c] Considered representative of smaller equipment such as small skid steers and mini excavators.
in/sec = inches per second

Operational Vibration

The proposed project would not include any permanent sources of vibration. As a result, there would be no operational vibration impacts.

Mitigation Measures

MM-NOI-4: Observe Buffer Distances around Martha McLean Anza Narrows Park and Use Less Vibration-intensive Construction Equipment to Avoid Potential Building Damage Impacts during Project Construction

The following buffer distances from offsite buildings around Martha McLean Anza Narrows Park shall be incorporated into the project contract specifications to ensure the construction contractor(s) observe the necessary clearances to avoid potential building damage during project construction:

- Avoid vibratory compaction (including vibratory rollers) within 12 feet of residential structures.
- Avoid the use of large bulldozers and similar full-size heavy earthmoving equipment (e.g., excavators, graders, backhoes) within 6 feet of residential structures.

If the prescribed buffer distances cannot be maintained, impacts shall be reduced to less-than-significant levels by using alternative equipment that avoids or reduces high vibration levels at the source. For example, a non-vibratory roller may be used in place of a vibratory roller, and smaller earthmovers (e.g., Bobcat, skid steer, mini excavator) may be used instead of full-size heavy earthmoving equipment.

MM-NOI-5: Observe Buffer Distances around Jurupa Avenue Trailhead and Use Less Vibration-intensive Construction Equipment to Avoid Potential Building Damage Impacts during Project Construction

The following buffer distances from offsite buildings around Jurupa Avenue Trailhead shall be incorporated into the project contract specifications to ensure the construction contractor(s) observe the necessary clearances to avoid potential building damage during project construction:

- Avoid vibratory compaction (including vibratory rollers) within 12 feet of residential structures.
- Avoid the use of large bulldozers and similar full-size heavy earthmoving equipment (e.g., excavators, graders, backhoes) within 6 feet of residential structures.

If the prescribed buffer distances cannot be maintained, impacts shall be reduced to less-than-significant levels by using alternative equipment that avoids or reduces high vibration levels at the source. For example, a non-vibratory roller may be used in place of a vibratory roller, and smaller earthmovers (e.g., Bobcat, skid steer, mini excavator) may be used instead of full-size heavy earthmoving equipment.

Overall Impacts

Less than Significant with Mitigation Incorporated. Construction of the proposed parks could generate significant groundborne vibration impacts. Therefore, mitigation measures have been recommended to reduce the impacts of construction vibration from both project sites. With implementation of the required mitigation measures (MM-NOI-1, MM-NOI-4, and MM-NOI-5), the impacts would be reduced to a less-than-significant level.

c. Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

Martha McLean Anza Narrows Park

No Impact. The two closest airports to the project site include Riverside Municipal Airport, a public airport owned by the City of Riverside approximately 0.9 mile southwest of the project site, and Flabob Airport, a privately owned airport approximately 1.7 miles northeast of the project site in the city of Jurupa Valley. The Riverside County Airport Land Use Commission has published noise contour maps for these two airports. Contour maps for the Riverside Municipal Airport were published for 2003 existing conditions, 2025 future conditions, and ultimate noise impacts. In all three cases, the proposed Martha McLean Anza Narrows Park is outside of the 55 dB CNEL contour (RCALUC 2005). With respect to Flabob Airport, a map showing estimated noise contours for the year 2022 shows noise levels at the proposed park would be below 55 dB CNEL (RCALUC 2004). Table 2B of the Riverside County Airport Land Use Compatibility Plan states that park uses are normally acceptable in areas with noise levels up to 65 dB CNEL and marginally acceptable in areas with noise levels of up to 70 dB CNEL (RCALUC 2004). Furthermore, the proposed project would not introduce any new aircraft noise sources and would not cause changes to flight operations at any existing airports, airfields, airstrips, or heliports in the region. As a result, there would be no aircraft noise impacts due to implementation of the proposed project.

Jurupa Avenue Trailhead

No Impact. The two closest airports to the project site are Riverside Municipal Airport, a public airport owned by the City of Riverside approximately 0.75 mile southeast of the project site, and Flabob Airport, a privately owned airport approximately 3.4 miles northeast. The Riverside County Airport Land Use Commission has published noise contour maps for these two airports. Contour maps for the Riverside Municipal Airport were published for 2003 existing conditions, 2025 future conditions, and ultimate noise impacts. The 2003 and 2025 contour maps estimate noise levels at the proposed Jurupa Avenue Trailhead to be between 55 and 60 dB CNEL; however, the ultimate noise impact map estimate noise levels as high as 63 dB CNEL (RCALUC 2005). With respect to Flabob Airport, a map showing estimated noise contours for the year 2022 shows noise levels at the proposed park would be below 55 dB CNEL (RCALUC 2004). Table 2B of the Riverside County Airport Land Use Compatibility Plan states that park uses are normally acceptable in areas with noise levels of up to 65 dB CNEL and marginally acceptable in areas with noise levels of up to 70 dB CNEL (RCALUC 2004). Furthermore, the proposed project would not introduce any new aircraft noise sources and would not cause changes to flight operations at any existing airports, airfields,

airstrips, or heliports in the region. As a result, there would be no aircraft noise impacts due to implementation of the proposed project.

Overall Impacts

No Impact. The two closest airports to the project site are Riverside Municipal Airport, a public airport owned by the City of Riverside, and Flabob Airport, a privately owned airport in the city of Jurupa Valley. The proposed project sites would not introduce any new aircraft noise sources and would not cause changes to flight operations at any existing airports, airfields, airstrips, or heliports in the region. As a result, there would be no aircraft noise impacts due to implementation of the proposed project.

XIV Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Affected Environment

Martha McLean Anza Narrows Park

The project site consists of the existing Martha McLean Anza Narrows Park. The area surrounding the project site includes undeveloped land, single-family houses, and right-of-way uses. The proposed project would not include the construction of homes or businesses, nor would it extend roads or involve the addition of infrastructure that would facilitate population growth.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site is primarily undeveloped City-owned and -maintained parkland. The area surrounding the Jurupa Avenue Trailhead project site includes medium-density residential housing, open space, and commercial industrial uses. The proposed project would not include the construction of homes or businesses, nor would it extend roads or involve the addition of infrastructure that would facilitate population growth.

Discussion

a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project would feature passive recreation, play areas, and bike and trail routes as active recreation elements at the Jurupa Avenue Trailhead project site and would incorporate new recreational amenities to the existing Martha McLean Anza Narrows Park. The proposed project would not directly induce population growth, as the proposed project would not include the addition of any growth-inducing infrastructure, such as new homes and businesses. Furthermore, the proposed project would not indirectly support new population or economic

expansion. The proposed project would not result in any substantial change to the existing land use pattern or trigger growth in the area. Therefore, there would be no impact.

b. Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project sites are on City-owned parkland that does not contain housing. The proposed project would not displace any housing units or people or necessitate the construction of replacement housing elsewhere. Therefore, no impact would occur.

XV Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Affected Environment

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

The proposed project sites are entirely within the City of Riverside and are served by RFD and the Riverside Police Department (RPD) (City of Riverside 2007).

Discussion

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

Fire protection?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. Mount Rubidoux, Camp Evans/Fairmount Park, and the Santa Ana River are areas with fire risk. However, the proposed project does not include development of these areas. Distribution locations, also known as points of service delivery, are established to ensure the rapid deployment

of fire resources to intervene in routine emergencies and provide the appropriate emergency response. The proposed project would not include new homes or businesses that would require additional services or extended response times for fire protection services. Therefore, the proposed project would not substantially alter the existing fire service demands following the completion of construction. RFD would not be required to expand or construct new fire station locations to serve the project area, and impacts on service ratios, response times, or other performance objectives are not anticipated. Therefore, no impact would occur.

Police protection?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. RPD provides police services to the project sites (City of Riverside 2007). The nearest police station to the project sites is approximately 1 mile southwest at 10191 Cypress Avenue (Station 7) in the Arlanza area. Construction activities would be short term, and operation and maintenance of the proposed project would be performed by City of Riverside employees or contractors. The proposed project would not include new housing or businesses that would require additional police protection services. Therefore, police protection needs would not increase, RPD would not be required to expand or construct new police stations to serve the proposed project, and impacts on service ratios, response times, or other performance objectives are not anticipated. Therefore, no impacts would occur.

Schools?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The nearest public school to the proposed project site, Terrace Elementary School, is 0.5 mile southwest of the project sites. The proposed project would not change existing demand for school services or result in adverse impacts on schools, because the proposed project would not result in an increase in population, as no new development that would result in population growth is proposed. Therefore, the proposed project would have no impact related to school services.

Parks?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project includes the development of approximately 7.7 acres for a public park on undeveloped park land for the Jurupa Avenue Trailhead and would implement additional recreational amenities to the existing Martha McLean Anza Narrows Park. The proposed project would provide new park facilities for area residents. An increase in patronage at other park facilities is not expected. Therefore, no impacts associated with the construction or expansion of park facilities would occur.

Other public facilities?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The nearest community center, Joyce Jackson Community Center, is 0.25 mile southeast of the project sites, and the nearest library is Arlanza Public Library at 8267 Philbin Avenue, more than 1 mile south of the project sites. The proposed project would not include new housing or

businesses that would require any additional services or public facilities, such as libraries or community centers. Therefore, the proposed project would have no impact related to other public facilities.

XVI Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☒	☐	☐

Affected Environment

For several decades, public and private agencies, nongovernmental organizations, and communities have worked toward the goal of developing a continuous Santa Ana River Trail (Coastal Conservancy 2018). When completed, the trail will be 110 miles long and run through Riverside County, San Bernardino County, and Orange County. In 2014, the California State Legislature created the SARCP. Among the SARCP's goals are to develop open space and trails and facilitate public access to, enjoyment of, and enhancement of recreational and educational experiences along the Santa Ana River Trail in a manner consistent with the protection of land and natural resources and economic resources in the area trail (Coastal Conservancy 2018). The SARCP developed the Santa Ana River Parkway and Open Space Plan in 2018 and identified the proposed project sites and other park sites in Riverside County as underused, existing public open space that can be improved to provide better public use and enjoyment of the area. Existing publicly accessible recreational uses along the Santa Ana River Trail include trails, trail connections, parks, and open space; parkway amenities, such as restrooms and drinking fountains, are available on some portions of the trail.

The *Riverside Comprehensive Park, Recreation & Community Services Master Plan* adopted February 4, 2020 (City of Riverside 2020), serves as a guide and implementation tool for the management and development of parks and recreational facilities and programs for the City. The master plan is part of the defined strategy to continue to address the primary actions and policies set forth in the Parks and Recreation Element of GP 2025. The City's 61.09-acre Hole Lake property, which includes the Jurupa Avenue Trailhead project site, is included in the master plan as a special use facility.

Martha McLean Anza Narrows Park

The existing Martha McLean Anza Narrows Park is composed of approximately 39.5 acres of City-owned and -managed parkland. The project site is bounded by the Santa Ana River Trail to the north and east, Jurupa Avenue to the south, and Union Pacific Railroad to the west. Proposed park improvements on a 10.63-acre portion of the park site would include a variety of passive recreational opportunities including a river trail, a community meadow, native pollinator gardens, a

bike rest stop, and an outdoor classroom. Active park elements include exercise stations, a nature play area, and terraced river and hillside steps. Other proposed recreational features are described in Section 2.4, *Project Characteristics.*

Jurupa Avenue Trailhead

The project site is approximately 7.7 acres of undeveloped City-owned and -managed parkland immediately adjacent to the Santa Ana River Trail. The proposed project site is bounded by the Santa Ana River to the north, Van Buren Boulevard to the east, Jurupa Avenue to the south, and Bradford Street to the west. The Santa Ana River Trail surrounds the project site to the east, south, and west. Additionally, the existing Rutland Park is across the street from the Jurupa Avenue Trailhead project site. The proposed project would develop a public park and trailhead to provide a variety of passive recreational opportunities including paths and trails, native planting and pollinator gardens, seating, shade structures, educational signage, and overlooks. Active park elements include bike paths and music and nature play areas. Other proposed recreational features are described in Section 2.4, *Project Characteristics.*

Discussion

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. At the existing Martha McLean Anza Narrows Park, the project proposes implementation of additional recreational components, which would allow existing park visitors to use a larger variety of recreational activities. At the Jurupa Avenue Trailhead, the project proposes the development of a special use facility public park and trailhead, which would increase recreational uses available to community members. The proposed project would not cause an increase in use or deterioration of other existing park and recreational facilities and would result in a beneficial impact by providing new park facilities for area residents. Therefore, no impact would result.

b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The project proposes the improvement of an existing park and development of a public park and trailhead that would include recreational facilities. Anticipated facilities include paths and trails, native planting and pollinator gardens, seating, shade structures, educational signage, overlooks, bike hub with restrooms, new pike path alignment, and parking. The potential environmental impacts that would result from the construction of these recreational facilities are evaluated as part of the construction of the proposed project as a whole. The project involves development of a park and trailhead for recreational use by the public. Aside from the project, construction or expansion of any other recreational facilities would not be required. The

project would encourage use of recreational facilities throughout the system, potentially prolonging the life of existing parks and recreational facilities throughout the City. Maintenance activities would help prevent substantial physical deterioration of existing facilities. Therefore, impacts of the project on the environment due to construction or expansion of recreational facilities would be less than significant.

XVII Transportation

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b.	Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c.	Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d.	Result in inadequate emergency access?	☐	☐	☐	☒

Affected Environment

Martha McLean Anza Narrows Park

The Martha McLean Anza Narrows Park project site is at 5759 Jurupa Avenue in the City of Riverside. Jurupa Avenue is a four-lane, 88-foot arterial and would likely be used for site access during construction. On-street parking is prohibited on Jurupa Avenue in the vicinity of the existing park. Class II bike lanes are provided on Jurupa Avenue in each direction of travel for a majority of the roadway length. Several sections of the roadway also provide a 2-foot buffer for bicyclists on both sides of the roadway. The posted speed limit on Jurupa Avenue is 45 miles per hour in the vicinity of the existing park.

Jurupa Avenue Trailhead

The Jurupa Avenue Trailhead project site is adjacent to the Santa Ana River Trail, northwest of the intersection of Jurupa Avenue (a four-lane 110-foot arterial) and Van Buren Avenue (an eight-lane 144-foot arterial). A raised median with intermittent turn lanes is currently provided west of Van Buren Boulevard. On-street parking is prohibited on Jurupa Avenue in the vicinity of the project site. Construction traffic would likely access the site via Van Buren Avenue.

Class II bike lanes are provided on Jurupa Avenue in each direction of travel for a majority of the roadway length. Several sections of the roadway also provide a 2-foot buffer for bicyclists on both sides of the roadway. The Santa Ana River Bike Trail currently runs along the north side of the roadway fronting the project site. The posted speed limit on Jurupa Avenue is 40 miles per hour in the immediate vicinity of the project site.

Discussion

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Martha McLean Anza Narrows Park

Less-than-Significant Impact. The proposed project would incorporate park improvements to the existing Martha McLean Anza Narrows Park. All improvements would be within the project site and would not involve alterations to the existing traffic or circulation system in the project area or nearby communities. A Traffic Assessment (Appendix J1) was prepared for the proposed project and includes the results of a trip generation analysis that indicates the proposed project would generate approximately 70 trips per day on weekdays and 63 trips per day on weekends. The estimated project traffic falls below the peak-hour threshold of 110 trips in the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (City of Riverside 2020). As such, it is anticipated that the project-generated traffic would have minimal impacts on intersections and roadways in the vicinity of the project. Any potential increases to the traffic volume in the surrounding areas would be limited to trips taken by construction vehicles for project improvements and construction debris, which would only be temporary. In the long term, after the completion of the proposed project improvements, the proposed project is not anticipated to generate any additional vehicular traffic except for routine maintenance, which would be intermittent and as needed, similar to current conditions, or park patrol monitoring. While an increase in park use is expected, that increase would be within service levels per the City's General Plan. A new pattern of peak traffic may be created as a result of concerts and events at the Martha McLean amphitheater. This peak would be reduced through programming controls such as making events pre-sale tickets only to limit the number of people attending.

The proposed project would develop improvements such as adding a trail and additional parking, which would improve pedestrian and vehicular circulation within the project site compared to existing conditions. As discussed in the Traffic Assessment (Appendix J1), the new pedestrian paths would be consistent with the City of Riverside Trails Master Plan (City of Riverside 2021), and development of the proposed project would not conflict with the existing or future bicycle network in the immediate vicinity of the project site.

Therefore, impacts of the proposed project on traffic of the surrounding area would be less than significant with implementation of programming controls.

Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project is a public park and would not involve alterations to the existing traffic or circulation system in the project area or nearby communities. A Traffic Assessment (Appendix J2) was prepared for the proposed project and includes the results of a trip generation analysis that indicates the proposed project would generate approximately 93 trips per day on weekdays and 90 trips per day on weekends. The estimated project traffic falls below the peak-hour threshold of 100 trips in the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (City of Riverside 2020). As such, it is anticipated that the project-generated traffic would have minimal impacts on intersections and roadways in the vicinity of the project. Any potential increases to the traffic volume in the surrounding areas would be limited to trips taken by construction vehicles for project improvements, and construction debris

from the proposed project to the Badlands Landfill. In the long term, after the completion of the proposed project improvements, the proposed project is not anticipated to generate any additional vehicular traffic except for routine maintenance, which would be intermittent and as needed, similar to current conditions, or park patrol monitoring.

As discussed in the Traffic Assessment (Appendix J2), the proposed project would include construction of a portion of the Santa Ana River Greenway, which would consist of a decomposed granite pedestrian path alongside the Santa Ana River Trail within the proposed developed area of the park. The proposed project also proposes realignment of the existing Class II bike lanes along Jurupa Avenue and the Santa Ana River Trail. The proposed pedestrian and trail improvements are consistent with the City of Riverside's Trails Master Plan (City of Riverside 2021), and development of the proposed project would not conflict with the existing or future pedestrian network in the immediate project vicinity. The proposed bicycle network improvements are consistent with the City's Master Plan of Trails and Bikeways in the General Plan Circulation and Community Mobility Element (City of Riverside 2018) and the City's Bicycle Master Plan Update Addendum (City of Riverside 2012). In addition, the Riverside Transit Agency provides bus transportation services to Riverside County, and bus route 21 runs adjacent to the proposed project site along Van Buren Avenue and would not be affected.

No impact related to operational traffic would result with implementation of the proposed project. Therefore, impacts of the proposed project on traffic of the surrounding area would be less than significant.

Overall Impact

The project proposes two public parks and would not involve alterations to the existing traffic or circulation system in the project area or nearby communities. No impact related to operational traffic would result with implementation of the proposed project. Therefore, impacts of the proposed project on traffic of the surrounding area would be less than significant.

b. Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project includes improvements to City-owned and -managed parkland and thus would not generate additional VMT. As discussed in the Traffic Assessments (Appendices J1 and J2), the Western Riverside Council of Governments VMT tool indicates that the project is in low-VMT-generating areas and is therefore exempt from VMT analysis. Furthermore, the City's VMT screening criteria list local parks as a land use type that is presumed to have a less-than-significant impact. Because the proposed project is a local-serving park in an area with low VMT generation, it is screened out from further VMT analysis and is presumed to have a less-than-significant VMT impact. In addition, the project sites are estimated to generate fewer than 110 trips per day and are therefore below the City's VMT screening threshold for small projects.

Short-term traffic associated with project construction is not anticipated to significantly affect the traffic levels of the surrounding areas or cause congestion, as construction vehicles would be mainly contained on site and would be present temporarily. Most staging and parking would be contained

to the project sites, which would be closed to traffic except for maintenance vehicles and therefore would not contribute to congestion or the amount and distance of automobile travel attributable to the project. Therefore, short-term impacts during construction would be less than significant. After the completion of construction activities, the proposed project is not anticipated to generate any additional vehicular traffic and the amount of VMT would not noticeably change from existing conditions. No impact related to operational traffic would result with implementation of the proposed project.

c. Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project does not include any geometric design features that would be deemed hazardous. The proposed project would comply with existing standard development procedures, including submitting site plans to the City for review and approval prior to the issuance of building permits. The proposed project would be reviewed to ensure that there would not be an increased hazard due to a design feature, or incompatible use. Therefore, no impacts would occur.

d. Result in inadequate emergency access?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project would not impair emergency access to the proposed project sites. The proposed project would not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency response or evacuation in the proposed project's vicinity. Traffic in the surrounding areas is anticipated to be minimal and limited to onsite construction-related equipment entering and exiting the project area. All large construction vehicles entering and exiting the sites would be guided by personnel using signs and flags to direct traffic. As such, implementation of the proposed project would not result in inadequate access for any emergency response entities. Because no habitable structures or buildings are proposed and the project would only improve the existing sites for recreational uses, emergency access would be adequate, similar to existing conditions. Therefore, no impact would occur.

XVIII Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Affected Environment

This section describes existing conditions pertaining to TCRs, with an analysis of the potential impacts on TCRs that could result from implementation of the proposed project. The analysis and assessment are based on consultation with Native American tribes traditionally and culturally affiliated with the project area and the cultural resources study conducted by ICF (Appendix H). Refer to Section V, *Cultural Resources*, for additional details regarding archaeological and historical resources on the proposed project sites.

A TCR is a site, feature, place, cultural landscape, sacred place, or object that is of cultural value to a recognized Native American tribe. The resource may be in or eligible for listing in the CRHR or a local historic register, or a lead agency may choose to treat a resource as a TCR. Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential significant impacts on TCRs, and reduce the potential for delay and conflict in the environmental review process (see PRC Section 21083.3.2). Information may also be available from the NAHC's Sacred Lands File per PRC Section 5097.96 and the CHRIS administered by the California Office of Historic Preservation. PRC Section 21082.3(c) also contains provisions specific to confidentiality.

The proposed project is near an ethnographic transition zone between the Gabrielino/Tongva/Kizh, Serrano, Luiseño, and Cahuilla Native American tribes. Efforts to identify TCRs included a Sacred

Lands File search with the NAHC and invitations to Native American tribes to consult on the proposed project pursuant to AB 52.

Ethnohistoric Setting

The project site is near an ethnographic transition zone between multiple Native American groups including the Gabrielino/Tongva/Kizh, Serrano, Luiseño, and Cahuilla. All four groups are speakers of Takic languages, which are part of the Uto-Aztecan linguistic stock (Bean and Shipek 1978; Bean and Smith 1978a, 1978b). Because the project area occupies a transitional zone among these groups, it is necessary to consider all five groups to fully understand the occupation history of the region. The ethnographic contexts presented in this analysis are drawn from ethnographic sources and were often recorded and written by non-Native authors. They do not necessarily represent the individual perspectives of the Native American tribes that are represented by the proposed project. Native American groups have a long history of occupation of this region for many millennia. The City of Riverside and the surrounding region contains numerous archaeological remnants of this occupation history. A discussion of the archaeological background for the proposed project is presented in detail in Section 3.3.V.

Cahuilla

The Cahuilla settled in a territory that extended west to east from the present-day City of Riverside to the central portion of the Salton Sea in the Colorado Desert, and south to north from the San Jacinto Valley to the San Bernardino Mountains. Evidence suggests the Cahuilla migrated to Southern California about 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada ranges of east-central California (Moratto 1984). Cahuilla villages were usually in canyons or on alluvial fans near accessible water such as springs or where large wells could be dug. Major religious ceremonies of the clan were held in a separate ceremonial house. Houses and ancillary structures were often spaced apart, and villages typically spread over a mile or two.

The Cahuilla used more than 200 desert and mountain plants (Bean and Saubel 1972). Though 60 percent of Cahuilla territory was in the Lower Sonoran Desert environment, 75 percent of their diet came from plant resources acquired in Upper Sonoran and Transition environmental zones (Bean 1978). Key plant foods included acorns, screwbean and honey mesquite, pinon nuts, prickly-pear cactus fruit and leaves, and yucca blossoms and stalks. The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. Hunting was achieved using the bow and arrow, traps, nets, slings, and blinds for land mammals and birds and nets for fish when Lake Cahuilla was filled. Food processing was achieved using a variety of tools: portable and bedrock mortars, basket hopper mortars, pestles, manos and mutates, bedrock grinding slicks, hammerstones and anvils, woven strainers and winnowers, leaching baskets and bowls, woven parching trays, knives, bone saws, and wooden drying racks. Pottery was initially introduced to the Cahuilla during the Late Pre-contact Period, and the art of ceramic production was later adopted by the Cahuilla, who used the paddle and anvil technique.

Asistencias were established near Cahuilla territory at San Bernardino and San Jacinto by 1819. Interaction with Europeans was less intense in the Cahuilla region than for coastal groups because the topography and paucity of water rendered the inland area inhabited by the Cahuilla unattractive to colonists. By the 1820s, however, the Pass Cahuilla experienced consistent contact with the ranchos of Mission San Gabriel, whereas the Mountain Cahuilla frequently received employment from private rancheros and were recruited to Mission San Luis Rey. Mexican ranchos were located

near Cahuilla territory along the upper Santa Ana and San Jacinto Rivers by the 1830s, providing the opportunity for the Cahuilla to earn money ranching and learn new agricultural techniques. The expansion of immigrants into the region introduced the Cahuilla to European diseases. By 1891, only 1,160 Cahuilla remained within what was left of their territory, down from an aboriginal population estimated at 6,000 to 10,000 (Bean 1978). Between 1875 and 1891, the United States established ten reservations for the Cahuilla within their territory: Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez (Bean 1978). Four of these reservations are shared with other Native American groups, including the Chemehuevi, Cupeno, and Serrano.

Gabrielino/Tongva/Kizh

A portion of the current boundaries of the City was occupied by the Native American group known as the Gabrielino/Tongva/Kizh. Following the Spanish custom of naming local tribes after nearby missions, these people were variously called the Gabrielino, Gabrieleño, or San Gabrieleño in reference to Mission San Gabriel Arcángel. The term Gabrielino refers to the Native American group historically associated with Mission San Gabriel. This post-contact name does not reflect how these people would have identified themselves; in recent times, descendants of this group have referred to themselves as Tongva or Kizh. This subject has been argued extensively; therefore, for purposes of this report, and so as not to give preference to one group or the other, the term Gabrielino will be used herein. The Gabrielino language is one of a group of Californian Uto-Aztecan languages that have been designated as Takic (Bean and Smith 1978a:538). Linguistic analysis suggests that Takic-speaking immigrants from the Great Basin may have moved into Southern California around 500 B.C. (Kroeber 1925:579). The Gabrielino occupied much of present-day Los Angeles and Orange Counties and some portions of San Bernardino and Riverside Counties (McCawley 1996:3). The total area of the Gabrielino mainland territory exceeded 3,886 square kilometers (1,500 square miles). Gabrielino chieftanship was hereditary.

By 1500 before present, the Gabrielino had established permanent villages along rivers and streams (Bean and Smith 1978a). Johnston (1962) observed that large Gabrielino village sites were located at the mouths of canyons with flowing streams. McCawley (1996) suggests that permanent settlements were located at the intersection of two or more environmental zones, such as the prairie-foothill transition zone; elevated locations near water courses; and sheltered bays and inlets. Site types included primary residential villages, hunting and gathering areas, ritual sites, and special use locations (McCawley 1996). In the region, important food resources included acorns, sage, yucca, deer, numerous small rodents, cactus fruit, and a variety of plants, animals, and birds associated with freshwater marshes (McCawley 1996). A wide variety of tools and implements were used by the Gabrielino/Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Foods were processed with a variety of tools, including hammer stones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks.

The fundamental economy of the Gabrielino/Tongva/Kizh was one of subsistence gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal environmental zones. Deceased individuals were either buried or cremated (Harrington 1942; McCawley 1996). Cremation was the standard practice for the mainland Gabrielino/Tongva during the contact period.

Luiseño

The name Luiseño was created by non-Native people and refers to those Takic-speaking people who were associated with that mission. The Luiseño ancestral territory included approximately 1,500 square miles. Along the coast, it extended from Agua Hedionda Creek on the south to near Aliso Creek on the northwest. Their territory extended inland to Santiago Peak, east to the Elsinore Valley, and south to east of Palomar Mountain and included most of the drainages of the San Luis Rey and the Santa Margarita Rivers. The Juaneño portion of Luiseño territory extended from the Pacific Ocean to the crest of the Santa Ana Mountains (Bean and Shipek 1978).

Luiseño clans settled in valley, foothill, coastal, and mountain areas, providing them with the resources of many different ecological niches. Individual lineages or families owned specific resource areas within the clan territory. Most inland clans also owned fishing and gathering sites on the coast, to allow for fishing and shellfish collecting. However, most of the Luiseño foods were available in locations within a day's travel of the village. The principal game animals were deer, rabbit, jackrabbit, woodrat, mice and ground squirrels, antelope, valley and mountain quail, doves, ducks, and other birds. Most predators were avoided as food as were tree squirrels and most reptiles. Coastal marine foods included sea mammals, fish, crustaceans, and mollusks (especially abalone). Trout and other fish were caught in mountain streams. Acorns were an important food resource; six species were used (Bean and Shipek 1978:552).

The Luiseño settlement pattern was seasonally based. In the winter, the larger clan coalesced into a shared habitation village and lived primarily on stored foods such as acorns. Beginning in the spring, the winter village group divided into smaller groups, with each group occupying and exploiting a small area where fresh vegetal resources could be gathered. Occasionally, journeys to the coast to collect shellfish may have occurred (White 1963). This breakup of the village group into family groups at the end of winter, after the stored fall crops were depleted, was a normal occurrence in hunter-gatherer societies and compensated for sparse spring resources, which were generally harder to find and less plentiful. At the end of summer and beginning of fall, a secondary base camp, frequently situated near an oak grove, was inhabited for 2 to 3 months for acorn collecting as well as hunting. These summer-fall camps were subdivisions of the primary winter camp and occupied by smaller subdivisions of the larger clan group.

Serrano

The Serrano were originally a relatively small group residing within the San Bernardino and Sierra Madre Mountains, and the term "Serrano" has come to be ethnically defined as the name of the people in the San Bernardino Mountains (Kroeber 1925). The Serrano occupied an area in and around the San Bernardino Mountains between approximately 1,500 and 11,000 feet AMSL. Their territory extended west into the Cajon Pass, east as far as Twentynine Palms, north past Victorville, and south to the Yucaipa Valley. Year-round habitation tended to be out on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources (Kroeber 1908; Bean and Smith 1978b). Most Serrano lived in small villages near water sources (Bean and Smith 1978b). Houses measuring 12 to 14 feet in diameter were domed and constructed of willow branches and tule thatching.

The subsistence economy of the Serrano was one of hunting and collecting plant goods, with occasional fishing (Bean and Smith 1978b). Large and small animals were hunted, including mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Plant

staples consisted of seeds; acorn nuts of the black oak; pinon nuts; bulbs and tubers; and shoots, blooms, and roots of various plants, including yucca, berries, barrel cacti, and mesquite. Fire was used as a management tool to increase yields of specific plants, particularly chia. Trade and exchange were important aspects of the Serrano economy. Those living in the lower-elevation desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources.

Mainly due to the inland territory that Serrano occupied beyond Cajon Pass, contact between Serrano and Europeans was relatively minimal prior to the early 1800s. As early as 1790, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on that mission. Most of the remaining western Serrano were moved to an asistencia built near Redlands in 1819, where they provided much of the labor to establish the Mill Creek Zanja that irrigated much of the land between present day Mentone and the asistencia (Bean and Smith 1978b). By 1834, most western Serrano had been moved to the missions. Only small groups of Serrano remained in the area northeast of the San Gorgonio Pass and were able to preserve some their native culture. In the 1860s, a smallpox epidemic decimated many indigenous Southern Californians, including the Serrano (Bean and Vane 2002). Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later became a reservation (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and toward the valley floors, and eventually settled what later became the San Manuel Band of Mission Indians Reservation. This reservation was established in 1891.

Regulatory Setting

Assembly Bill 52

On September 25, 2014, California Governor Jerry Brown signed into law AB 52, which amended PRC Section 5097.94 and added Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to establish a new category of environmental resources that must be considered under CEQA: TCRs. This amendment took effect on July 1, 2015. The amendment defines TCRs as either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are included in the CRHR or a local register of historical resources, or that are determined to be eligible for inclusion in the CRHR; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the CRHR. For projects with applications filed on or after July 1, 2015, lead agencies are also required to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, including tribes that may not be federally recognized, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area, and the tribe requests consultation, prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Furthermore, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects on tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document

and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3(a)).

Public Resources Code Section 5097

PRC Section 5097 addresses archaeological, paleontological, and historic sites on state land as well as the cooperative efforts with the NAHC that are to proceed as part of a project being evaluated under CEQA. PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal public lands. PRC Section 5097.5 considers it a misdemeanor to knowingly and willfully excavate upon or remove, destroy, injure, or deface any historic or pre-contact ruins, burial grounds, archaeological site, or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency having jurisdiction over the lands. The disposition of Native American burials falls within the jurisdiction of the NAHC, which prohibits willfully damaging any historic, archaeological, or vertebrate paleontological site or feature on public lands (PRC Section 5097.9). PRC Section 5097.98 stipulates that whenever the NAHC receives notification of a discovery of Native American human remains from the county corner, it shall immediately notify those people it believes to be the most likely descendants of the deceased Native American. The descendants may inspect the site of discovery and make recommendations on the removal or reburial of the remains.

Health and Safety Code 7050.5

Health and Safety Code 7050.5 addresses the protection of human remains discovered in any location other than a dedicated cemetery and makes it a misdemeanor for any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law, except as provided in PRC Section 5097.99. It further states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to the provisions concerning investigation of the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in PRC Section 5097.98. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC.

California Government Code Section 6254(r) and 6254.10

California Government Code Section 6254(r) and Section 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission,

the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

California Native American Graves Protection and Repatriation Act of 2001

The California Native American Graves Protection and Repatriation Act conveys to American Indians of demonstrated lineal descendance human remains and funerary items that are held by state agencies and museums. Human remains require special handling and must be treated with dignity. Procedures for the handling of human remains are pursuant to §15064.5e of the State CEQA Guidelines, Section 5097.98 of the PRC, and Section 87.429 of the County's Grading Ordinance. In the event of the discovery of human remains and/or funerary items, the following procedures, as outlined by the NAHC, must be followed (14 CCR 15000 et seq.).

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
    a. The County Coroner must be contacted to determine that no investigation of the cause of death is required, and
    b. If the Coroner determines that the remains are Native American:
        i. The Coroner shall contact the NAHC within 24 hours.
        ii. The NAHC shall identify the person or persons it believes to be the most likely descended from the deceased Native American.
        iii. The MLD [most likely descendant] may make the recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code, Section 5097.98, or
2. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.
    a. The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 24 hours after being notified by the commission;
    b. The descendant identified fails to make a recommendation; or
    c. The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

Methodology and Thresholds of Significance

Efforts to identify TCRs included a Sacred Lands File search with the NAHC and invitations to Native American tribes to consult on the proposed project pursuant to AB 52.

Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential significant impacts on TCRs, and reduce the potential for delay and conflict in the environmental review process (see PRC Section 21083.3.2). Information may also be available from the NAHC's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. PRC Section 21082.3(c) also contains provisions specific to confidentiality.

On the City's behalf, ICF contacted the NAHC on June 24, 2022, requesting a search of the Sacred Lands File and a listing of potentially interested Native American groups and individuals. The NAHC responded on August 1, 2022, stating that the search was positive. While the NAHC did not identify the locations of any resources, it recommended contacting the Gabrieleño Band of Mission Indians – Kizh Nation for additional information. Additionally, the NAHC provided a list of 31 Native American representatives who may have knowledge of cultural resources near the proposed project sites.

As part of the effort to determine whether the proposed project may result in impacts on TCRs, the City sent consultation letters on September 22, 2022, via email and certified U.S. Mail, to the tribes listed below as formal notification of the proposed project and to invite them to consult on the proposed project under AB 52:

- Agua Caliente Band of Cahuilla Indians: Patricia Garcia, Director of Tribal Historic Preservation Office
- Cahuilla Band of Indians: Bobby Ray Esparza, Cultural Coordinator
- Gabrieleño Band of Mission Indians – Kizh Nation: Andrew Salas, Chairperson
- Gabrieleno/Tongva San Gabriel Band of Mission Indians: Anthony Morales, Chairperson
- Morongo Band of Mission Indians: Robert Martin, Tribal Chairman
- Pechanga Cultural Resources Department: Ebru T. Ozdil, Planning Specialist
- Rincon Band of Luiseño Indians: Cultural Resources Manager
- San Manuel Band of Mission Indians: Jessica Mauck, Director of Cultural Resources Management
- Soboba Band of Luiseño Indians: Joseph Ontiveros, Cultural Resources Department

The City also met with representatives from the Sherman Indian Museum on September 22, 2022. As part of this meeting, museum representatives provided information about Native American sites near the project site. Representatives from the museum also requested that the project name perhaps honor indigenous culture in the area and to be careful of exposing sensitive sites to the public.

At the time of this report, four tribes responded to the invitation to consult emails and letters from the City. Three tribes wish to consult and requested additional information about the project (Morongo Band of Mission Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians), and one tribe (Agua Caliente Band of Cahuilla Indians) has deferred to other tribes and ended consultation. At the time of this analysis, five tribes have not responded (Cahuilla Band of Indians, Gabrieleño Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Pechanga Cultural Resources Department, and Rincon Band of Luiseño Indians). No tribes have provided information related to TCRs for the Martha McLean Anza Narrows and Jurupa Avenue Trailhead park sites at the time of this analysis. Responses to consultation are summarized below and in Table XVIII-1.

- On September 29, 2022, Nicole Raslich, Archaeological Technician from the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office, responded via email to the City that the tribe appreciated the City's efforts and inquiry. Ms. Raslich stated that a records check of the Tribal Historic Preservation Office's cultural registry showed that the project is not located within the tribe's Traditional Use Area and that the tribe defers to other tribes in the area. Thus, consultation with Agua Caliente Band of Cahuilla Indians could be considered concluded.

- On September 29, 2022, Alisa Sramala from the City of Riverside Parks, Recreation, and Community Services Department sent an email notification to Joseph Ontiveros and Jessica Valdez of the Soboba Band of Luiseño Indians stating that the certified letter containing the invitation to consult under AB 52 had been returned. Ms. Sramala also included a copy of the invitation to consult letter in the email. On October 7, 2022, Jessica Valdez, Cultural Resource Specialist with the Soboba Band of Luiseño Indians, sent a letter and response from Joseph Ontiveros, Tribal Historic Preservation Officer, requesting to consult under AB 52. As part of this letter, requests for more information were made by the tribe. At the time of this writing, additional consultation between the tribe and the City has not been conducted , but will continue during project design development.
- On October 3, 2022, Laura Chatterton, Cultural Resource Specialist with the Morongo Band of Mission Indians Tribal Historic Preservation Office, responded to the City via email that the Project is within the ancestral territory and Traditional Use Area of the Cahuilla and Serrano people of the Morongo Band of Mission Indians. Ms. Chatterton recommended that the tribe participate (monitor) any ground-disturbing activities as part of the Project. Additionally, the tribe stated that they would like to initiate government-to-government consultation under AB 52. The tribe also requested additional information such as the cultural resources technical report. At the time of this writing, it is unknown if additional consultation between the tribe and the City has been conducted.
- On October 11, 2022, Ryan Nordness, Cultural Resource Analyst for the San Manuel Band of Mission Indians (Yuhaaviatam) replied via email that a portion of the overall project (Camp Evans at Fairmont Park) was within Serrano ancestral territory and that the proposed project is of interest to the tribe. The Yuhaaviatam of San Manuel National Cultural Resources Department requested copies of the cultural report, geotechnical report, and project plans showing the depth of proposed disturbance upon availability. It was stated that these materials would assist Yuhaaviatam in ascertaining how the tribe will assume consulting party status under CEQA and participate in project review and implementation. Nordness also stated that if this information cannot be provided within the 30-day consultation window, the tribe automatically elects to be a consulting party under CEQA. At the time of this writing, it is unknown if additional consultation between the tribe and the City has been conducted.
- On October 18, 2022, Cheryl Madrigal, Tribal Historic Preservation Officer for the Rincon Band of Luiseño Indians, replied via email that the projects are within the Territory of the Luiseño people, and Rincon is traditionally and culturally affiliated to the project area, and asked that the tribe be notified of any construction projects associated with the Riverside Gateway Project. Madrigal stated the tribe had no further comments at this time and do not request consultation .

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Potential to cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k).
- Potential to cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by

the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Table XVIII-1. Native American Consultation Record (as of January 2025)

Native American Group/ Individual	First Contact Certified Letter/Email	Date of Tribal Response	Second Contact Phone/Email/Letter	Date of Tribal Response	Additional Contacts Phone/Email/Letter	Summary of Communications
Agua Caliente Band of Cahuilla Indians – Patricia Garcia, Director of Tribal Historic Preservation Office ACBCI-THPO@aguacaliente.net 5401 Dinah Shore Drive, Palm Springs, CA 92264	09/22/2022 (email and certified letter)	09/29/2022 (email response)	N/A	N/A	N/A	09/22/22 – City sent email and certified letter to tribe. 09/29/22 – email response from Nicole A Raslich, Archaeological Technician, stating that a records check of the tribe's cultural registry revealed that this project is not within the tribe's Traditional Use Area. Agua Caliente deferred to the other tribes in the area, and the email concluded consultation efforts.
Cahuilla Band of Indians – Bobby Ray Esparza, Cultural Coordinator Besparza@cahuilla.net 52701 Highway 371, Anza, CA 92539	09/22/2022 (email and certified letter)	No response	N/A	N/A	N/A	09/22/22 – City sent email and certified letter to tribe. As of this time, no further contact with the tribe has occurred.
Gabrieleño Band of Mission Indians - Kizh Nation Andrew Salas, Chairperson admin@gabrielenoindians.org PO Box 393, Covina, CA 91723	09/22/2022 (email and certified letter)	No response	N/A	N/A	N/A	09/22/22 – City sent email and certified letter to tribe. As of this time, no further contact with the tribe has occurred.
Gabrieleno/Tongva San Gabriel Band of Mission Indians Anthony Morales, Chairperson GTTribalcouncil@aol.com PO Box 693, San Gabriel, CA 91778	09/22/2022 (email and certified letter)	No response	N/A	N/A	N/A	09/22/22 – City sent email and certified letter to tribe. As of this time, no further contact with the tribe has occurred.
Morongo Band of Mission Indians – Robert Martin, Tribal Chairman thpo@morongo-nsn.gov abrierty@morongo-nsn.gov lchatterton@morongo-nsn.gov 12700 Pumarra Road, Banning, CA 92220	09/22/2022 (email and certified letter)	10/03/2022 (email)	10/03/2022 (email)	N/A	N/A	09/22/22 – City sent email and certified letter to tribe. 10/03/22 – Laura Chatterton, Cultural Resource Specialist, sent an email to the City stating Morongo received the letter regarding the project and that the proposed project is within the ancestral territory and Traditional Use Area of the Cahuilla and Serrano people of the Morongo Band of Mission Indians. It was also stated that tribal participation (monitoring) is recommended during all ground-disturbing activities. The Morongo Tribal Historic Preservation Office requests to initiate government-to-government consultation under AB 52. The tribe also requested additional information about the project. As of this time, no further contact with the tribe has occurred.
Pechanga Cultural Resources Department – Ebru T. Ozdil, Planning Specialist eozdil@pechanga-nsn.gov jochoa@pechanga-nsn.gov PO Box 2183, Temecula, CA 92593	09/22/2022 (email and certified letter)	No response	N/A	N/A	N/A	09/22/22 – City sent email and certified letter to tribe. As of this time, no further contact with the tribe has occurred.
Rincon Band of Luiseño Indians – Cultural Resources Manager crd@rincon-nsn.gov One Government Center Lane, Valley Center, CA 92082	09/22/2022 (email and certified letter)	10/18/2022	N/A	N/A	N/A	10/18/2022 - On October 18, 2022, Cheryl Madrigal, Tribal Historic Preservation Officer for the Rincon Band of Luiseño Indians, replied via email that the projects are within the Territory of the Luiseño people, and Rincon is traditionally and culturally affiliated to the project area, and asked that the tribe be notified of any construction projects associated with the Riverside Gateway Project. Madrigal stated the tribe had no further comments at this time and do not request consultation.

Native American Group/ Individual	First Contact Certified Letter/Email	Date of Tribal Response	Second Contact Phone/Email/Letter	Date of Tribal Response	Additional Contacts Phone/Email/Letter	Summary of Communications
San Manuel Band of Mission Indians – Jessica Mauck, Director of Cultural Resources Management jmauck@sanmanuel-nsn.gov 26569 Community Center Dr, Highland, CA 92346	09/22/2022 (email and certified letter)	10/10/22 (email)	10/11/2022 (email)	N/A	N/A	09/22/22 – City sent email and certified letter to the tribe. 10/10/22 – Ryan Nordness, Cultural Resource Analyst, replied via email that a portion of the overall project (Camp Evans at Fairmont Park) was within Serrano ancestral territory and that the proposed project is of interest to the tribe. Yuhaaviatam of San Manuel Nation requested copies of the cultural report, geotechnical report, and project plans showing the depth of proposed disturbance upon availability. It was stated that these materials would assist *Yuhaaviatam* in ascertaining how the tribe will assume consulting party status under CEQA and participate in project review and implementation. Nordness also stated that if this information cannot be provided within the 30-day consultation window, the tribe automatically elects to be a consulting party under CEQA. As of this time, no further contact with the tribe has occurred.
Soboba Band of Luiseño Indians Joseph Ontiveros, Cultural Resources Department jontiveros@soboba-nsn.gov jvaldez@soboba-nsn.gov PO Box 487, San Jacinto, CA 92581	09/22/2022 (email and certified letter)	No response	09/29/2022 (email)	10/07/2022 (email)	10/07/2022 (email)	09/29/22 – City sent email to Joseph Ontiveros and Jessica Valdez stating that a certified mail notification was returned as unclaimed and asked if there was a street address instead of a PO box to send the letter. 10/07/22 – Jessica Valdez, Cultural Resources Specialist, responded via email requesting a time for a consultation meeting and/or phone call. The tribe also included a letter from Joseph Ontiveros, Tribal Historic Preservation Officer. As of this time, no further contact with the tribe has occurred.

Discussion

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact with Mitigation Incorporated. The cultural resources records search and archaeological pedestrian survey have not identified any previously recorded cultural resources within the study areas for the Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead sites that have been identified as TCRs. To date, consultation with Tribes has not resulted in the identification of TCRs or other Native American resources in the Martha McLean Anza Narrows or Jurupa Avenue Trailhead park sites. Two pre-contact Native American sites have been identified with each of the project sites; however, it is unknown whether Native American tribes would consider these resources to be TCRs. P-33-009652 is a pre-contact milling site in the Jurupa Avenue Trailhead project site area. ICF recommended this site as ineligible for the CRHR. P-33-000127 is a pre-contact milling site in the Martha McLean Anza Narrows Park project site. ICF has recommended P-33-000127 as eligible by for the CRHR for the purposes of the proposed project only due to the potential for the site to contain buried archaeological resources that could be affected by the proposed project.

Both park sites are considered archaeologically sensitive due to their potential to contain unknown buried archaeological resources. In addition to the milling station site (P-33-009652), an archaeological site (P-33-000884) known to be of importance to the Morongo Band of Mission Indians and that could be considered a TCR (ICF 2019) is less than 300 feet from the northwestern boundary of the Jurupa Avenue Trailhead site. At the Martha McLean Anza Narrows Park site, buried archaeological artifacts have been found in two different locations. Because of the proximity of these previously recorded archaeological resources, proximity to at least one site known to be of importance to Native American tribes, and the potential for containing as-yet unidentified archaeological resources, both project sites should be considered to have potential for containing TCRs. Some pre-contact resources may be considered TCRs and can include sites, features, and objects listed in the CRHR, eligible to be listed in the CRHR, or locally listed as defined in PRC Section 5020.1(k).

The City has provided information about the project to nine tribes, three of whom (Morongo Band of Mission Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians) have requested formal notification in accordance with AB 52. The Agua Caliente Band of Cahuilla Indians deferred consultation, and five tribes have not responded. Consultation is ongoing; however, it is unknown whether the tribes consider the project sites as sensitive for TCRs. Additionally, the NAHC has identified the overall project as being positive for Sacred Lands, although the locations are unspecified. The NAHC recommended contacting the Gabrieleño Band of Mission Indians – Kizh Nation for additional information. Through continued consultation with tribes on a project site–

specific basis and implementation of MM-TCR-1, it is possible that the City will be able to determine whether the project sites are known locations of TCRs.

The excavation of soil in potentially undisturbed areas would occur on both project sites. Excavation activities, particularly those that involve disturbance of previously unexcavated native soil, could result in the discovery of previously unidentified resources that might be considered TCRs. Therefore, ground-disturbing activities could result in disturbance or destruction of TCRs, which would be a significant impact. Implementation of MM-CUL-1 through MM-CUL-5 (presented in Section V, *Cultural Resources*), and MM-TCR-1 (see below) would reduce this potential impact to less-than-significant levels.

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact with Mitigation Incorporated. As discussed above, the proposed park sites have the potential to encounter pre-contact Native American archaeological resources that could be considered or have elements that could be considered TCRs. As of the time of this report, no TCRs have been identified specifically for the project sites. The NAHC has identified the overall Riverside Gateway Parks proposed project area as being positive for Sacred Lands and has suggested the City conduct additional consultation with Native American tribes to gather more information about them. Resources listed as Sacred Lands are likely to be considered TCRs, and the delineation of the locations of such resources will be necessary prior to construction. Additionally, because the proposed project could affect pre-contact Native American archaeological sites that might be considered TCRs or have elements that might be considered TCRs, it is possible that the proposed project could cause a substantial adverse change in the significance of a TCR (if they exist) with value to a California Native American tribe and that is a resource determined by the lead agency to be significant.

At the time of this reporting, not all tribes have responded to the City's invitation to consult under AB 52, and consultation is ongoing, nor have any consulting Tribes identified TCRs or other resources within the Martha McLean/Anza Narrows and Jurupa Avenue Trailhead park sites. It is possible that, through the consultation process, locations of individual TCRs can be delineated and a determination can be made as to whether TCRs would be affected. As such, any ground-disturbing activities associated with the proposed project could have the potential to cause a substantial adverse change in the significance of a TCR with cultural value to a California Native American tribe and that is a resource determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. Continued consultation with Native American tribes and implementation of MM-CUL-1 through MM-CUL-5 (listed in Section V, *Cultural Resources*) and MM-TCR-1 would reduce these impacts to less-than-significant levels.

Mitigation Measures

Implementation of MM-CUL-1 through MM-CUL-5 (described in Section V, *Cultural Resources*) would reduce potential impacts on TCRs to less-than-significant levels.

- **MM-CUL-1**: Retain a Qualified Archaeologist and Develop Worker Environmental Awareness Program Training to Be Delivered to Construction Crews
- **MM-CUL-2**: Avoid Archaeological Sites through the Establishment of Environmentally Sensitive Areas
- **MM-CUL-3:** Provide Archaeological and Native American Monitoring
- **MM-CUL-4:** Unanticipated Discoveries Protocol
- **MM-CUL-5**: Human Remains and Associated or Unassociated Funerary Objects

MM-TCR-1: Implement Tribal Cultural Resources Protocols and Measures Determined through Consultation

If it is determined that construction activities at the Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead sites would cause a substantial adverse change in the significance of a TCR, the City should develop protocols and mitigation measures with consulting tribes, consistent with PRC Section 21080.3.2(a), to avoid or reduce impacts on TCRs during construction and operation. Mitigation measures may include project redesign or modification to avoid resources. The City shall develop minimization and avoidance methods where possible with Native American tribes participating in AB 52 consultation to develop mitigation measures for TCRs that may experience substantial adverse changes.

In the absence of any specific mitigation measures developed during AB 52 consultation, the City shall implement standard mitigation measures set forth in PRC Section 21084.3 (b), as follows:

1. Avoidance and preservation of the resources in place including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria
2. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource including, but not limited to, the following:
    - Protecting the cultural character and integrity of the resource
    - Protecting the traditional use of the resource
    - Protecting the confidentiality of the resource
    - Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places
    - Protecting the resource

XIX Utilities and Service Systems

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b.	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d.	Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e.	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Affected Environment

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

The City of Riverside established its own water utility, RPU, in 1913. RPU's primary water source is local groundwater basins from the Bunker Hill Basin in San Bernardino and Riverside North and South Basins in Riverside. RPU has the ability to purchase water from Western Municipal Water District to meet peak water demand during summer months or during emergencies. As of 2022, RPU provided water service to over 66,000 customers.

Stormwater flows directly into the City's storm drain system, which then discharges into the Santa Ana River. The Santa Ana River drains a watershed of over 2,700 square miles, which includes Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County (City of Riverside 2007).

The City of Riverside Public Works Department provides for the collection, treatment, and disposal of all wastewater generated within the City, except for a small area south of Van Buren Boulevard, which is served by Western Municipal Water District through its Riverside Regional Water Quality Treatment Plant and complies with state and federal requirements governing the treatment and discharge of wastewater.

The City of Riverside Public Works Department collects trash from approximately 38,500 households (70 percent of all households in the City) largely using automated trash collection trucks. Excessive waste generation is discouraged by the Public Works Department by charging additional fees if a second trash container is required. All non-hazardous solid waste collected is taken to the Robert A. Nelson Transfer Station, which is owned by the County of Riverside and operated under a 20-year franchise by a private company. Waste is then transferred to the Badlands Landfill for disposal. However, local trash haulers may dispose of collected waste at other county landfills in the area, such as the Lamb Canyon Landfill and El Sobrante Landfill. All Riverside County landfills are Class III disposal sites permitted to receive non-hazardous municipal solid waste (City of Riverside 2007).

RPU serves electricity to the entire City (City of Riverside 2007).

Discussion

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. Construction of the proposed project would require some water for dust control to be imported by water trucks. Any wastewater generated during construction of the proposed project would be minimal, consisting of portable toilet waste generated by construction workers. The wastewater generated during construction would be collected within portable toilet facilities and then properly diverted or transferred by a permitted portable toilet waste hauler and appropriately disposed of at an identified liquid-disposal station. Through implementation of state and local laws and proper disposal of wastewater generated during construction, impacts related to construction would be considered less than significant.

During project operation, the proposed project would not require natural gas or telecommunications. The proposed project would introduce new landscaping and a water play arroyo at Martha McLean Anza Narrows Park, which would marginally increase water use compared to existing conditions; however, the water use would not require the construction of a new water facility or stormwater/wastewater drains to serve the proposed project. Although the water play paseo may use electricity to power the water flow, it would use minimal electricity and adhere to Title 24 standards, which would not cause the construction of additional electric facilities to server the project. Project operation at the Jurupa Avenue Trailhead would not include demand for wastewater services because the proposed project would not include a need for wastewater services such that capacity would need to be expanded to support the proposed project. Therefore, impacts would be less than significant, and no mitigation measures are required.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. Table 7-4 of RPU's 2020 Urban Water Management Plan details that RPU would still have a surplus of water during normal, dry, and multiple dry years (RPU 2021). The proposed project would use minimal water for landscaping, water play areas, and other public park improvements and development. The proposed project sites would adhere to the allowable developments under the project site's Public Facilities (PF) and Residential Estate (RE) zoning designations, which means that the City anticipated this and other similar types of development, and they would be adequately served by utilities. The proposed project would not generate substantial new demand for water supply in comparison to the sites' previous uses as a public park and an undeveloped park. Therefore, impacts would be less than significant, and no mitigation measures are required.

c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. As stated above, proposed project construction activities would generate minimal wastewater, which would be collected by a permitted portable toilet waste hauler and appropriately disposed of at an identified liquid-disposal station. Local liquid-disposal facilities have sufficient capacity to serve the proposed project. The proposed project is two public parks that would not generate wastewater through new development. No new wastewater treatment facility would be required due to the proposed project. Therefore, proposed project impacts would be considered less than significant.

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The waste generated during construction of the proposed project would primarily consist of soil disposal as well as general construction debris and worker personal waste. The construction contractor would be required to dispose of solid waste in accordance with local solid waste disposal requirements. In compliance with EPA guidelines Section 01 74 19, Waste Management and Disposal, the proposed project would be required to develop and submit a Construction Waste Management Plan for diverting and implementing procedures to maximize the diversion of demolition and construction waste from landfill disposal. The submitted Construction Waste Management Plan will include calculations on end-of-project recycling rates, salvage rates, and landfill rates itemized by waste material. Construction waste not recycled or salvaged would be taken to a nearby landfill to be determined by the construction contractor. The closest municipal solid waste landfill to the proposed project site is the County of Riverside Badlands Landfill in the city of Moreno Valley, approximately 20 miles east of the proposed project sites. Badlands Landfill

has a permitted throughput of 4,800 tons per day and has a remaining capacity of 7.8 million tons (CalRecycle 2023). The site accepts solid waste. The landfill's cease operation date is anticipated to be January 2059. The landfill would have sufficient capacity to accommodate the proposed project's disposal needs. Therefore, the proposed project's impact on solid waste capacity of local infrastructure or solid waste reduction goals would be considered less than significant.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

Less-than-Significant Impact. The proposed project would comply with all federal, state, and local management and reduction laws and regulations related to the disposal of solid waste. There are no exceptional waste requirements that would require an exception to any statutes and regulations related to solid waste during project construction or operations. The proposed project would not significantly affect a landfill through accommodation of the proposed project's solid waste disposal needs. During site preparation and removal of dirt and other site debris, green waste would be generated and completely removed from the proposed project site and disposed of at the closest acceptable landfill or composting facility in Riverside County. Except for routine maintenance associated with park uses, the proposed project would not generate a substantial amount of waste once operational. Therefore, the proposed project would have a less-than-significant impact related to solid waste.

XX Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Affected Environment

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

The proposed project is not in or directly adjacent to a Fire Hazard Severity Zone (FHSZ), as designated by the California Department of Forestry and Fire Protection (CAL FIRE 2023). The nearest FHSZ is designated as moderate and is across the Santa Ana River and approximately 0.2 mile away from the proposed project sites. The proposed project is also not in or adjacent to a local or state responsibility area where a local government or the State of California, respectively, has financial responsibility for wildland protection.

Discussion

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project sites are not within or adjacent to an FHSZ. The proposed project would not involve modifications to facilities that are critical to emergency response, such as police,

fire, and hospital facilities, and project improvements would not impede access to these facilities in an emergency. Therefore, the proposed project would not affect an adopted emergency response plan or emergency evacuation plan and no impacts would occur.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project is not in an FHSZ and would utilize largely natural and fire-resistant materials, including decomposed granite, gravel, cobblestones, landscaping boulders, reused concrete, and steel, and landscaping would be drought tolerant. The landscape design at the Jurupa Avenue Trailhead would replace most of the currently existing dry grasses with thoughtfully selected shade trees, shrubs, groundcover, and meadow plants, many of which are native to Riverside. The eastern portion of the Jurupa Avenue Trailhead site, which includes ornamental trees and native and nonnative vegetation, contains the biological avoidance zone and would not be developed as part of the project. Because the proposed project is not in an FHSZ and would maintain similar natural, open space as currently exists at the proposed project sites, it would not exacerbate wildfire risk or expose occupants to pollutant concentrations from a wildfire. Therefore, no impacts would occur.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The proposed project does not involve the construction or maintenance of roads, power lines, or other utilities that could potentially exacerbate wildfire risk. Furthermore, the proposed project is not in an FHSZ. As such, no impacts would occur.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead

No Impact. The Martha McLean Anza Narrows Park site is relatively flat and located in Zone X, which is a minimal hazard flood zone. Furthermore, the project would incorporate park amenities to the existing park, which would not substantially alter the existing draining pattern of the Martha McLean Anza Narrows Park project site or increase the rate or amount of surface runoff in a manner that could result in flooding on or off site. While much of the Jurupa Avenue Trailhead site is flat, it does have steeped terraced edges along Hole Lake with slopes as steep as 60 percent within the southern portion. However, the proposed project is not in an FHSZ, proposes only one small bathroom structure to be built on the flat portion of the Martha McLean Anza Narrows Park project site, and would maintain similar natural, open space as currently exists at the project sites. The

proposed project would also not substantially alter the existing draining pattern of the project sites or increase the rate or amount of surface runoff in a manner that could result in flooding on or off site. Therefore, the proposed project would not expose people or structures to significant risks of flooding or landslides, and no impact would occur.

XXI Mandatory Findings of Significance

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated. As discussed in Section IV, if development of the proposed project sites occurred during the bird breeding season, the proposed project could have potential to directly affect nesting birds. Impacts on active nests, eggs, or nestlings would be a violation of state and federal nesting bird protections. However, the proposed project would implement MM-BIO-1 to ensure project compliance with the MSHCP and these state and federal laws to prevent a significant impact on sensitive avian species.

As discussed in Section V, 11 historical and architectural resources were identified within the proposed project study area, and the project has the potential to affect one of these resources. In addition, proposed ground disturbance has the potential to encounter archaeological, tribal cultural, or paleontological resources or human remains. However, implementation of MM-CUL-1 through MM-CUL-5, MM-PAL-1, and MM-TCR-1 would reduce these impacts to less-than-significant levels.

With incorporation of MM-BIO-1, MM-BIO-2, MM-CUL-1 through MM-CUL-4, MM-PAL-1, and MM-TCR-1, implementation of the proposed project would not substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less-than-Significant Impact.

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts individual land use plans and projects pose. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place over a period of time.

As discussed above in Section 1.3, *Riverside Gateway Program*, after completing the 2018 update to the Citywide Parks System Master Plan, PRCSD proposed to complete planning and design for improvements and enhancement to eight existing and proposed park areas along the Santa Ana River (see Appendix A, Figure 2, Local Vicinity Map). The greatest concern for cumulative impacts for the proposed project is that the Jurupa Avenue Trailhead and Martha McLean Anza Narrows Park improvements would be constructed at the same time as the other projects planned for the Riverside Gateway Program, and that the construction impacts could be cumulatively considerable. Even if all of the parks were constructed at the same time, the mitigation measures described in this document and the environmental documents for each of the park sites would be implemented, and the City would support coordination between the construction sites and implementation of mitigation measures to reduce construction impacts. As such, construction impacts would not be expected to be cumulatively considerable.

As stated previously, implementation of mitigation measures for biological resources, cultural resources, paleontological resources, noise, and tribal cultural resources would reduce construction impacts for the Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead park sites. If the proposed project is constructed separately from the other parks, the proposed project would not result in impacts that are individually limited but cumulatively considerable. While a significant cumulative impact would occur within the geographic context, the project's contribution would not be cumulatively considerable with implementation of mitigation measures. No potentially significant impacts resulting from project development have been identified in this IS/Mitigated Negative Declaration, and no other impacts would be deemed cumulatively considerable. All project impacts, whether individual or cumulative, would be less than significant with incorporation of MM-BIO-1, MM-BIO-2, MM-CUL-1 through MM-CUL-5, MM-PAL-1, MM-NOI-1 through MM-NOI-5, and MM-TCR-1.

c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation Incorporated. The proposed project would implement improvements to an existing park and develop a public park that would provide a variety of recreational uses including new bike path alignments, gathering space, educational opportunities, lighting, overlooks, art informal play, and other passive recreational features. A public park is a common suburban use that typically does not cause substantial adverse effects either directly or indirectly on human beings. Park and recreational facilities are generally considered a beneficial impact for a community, and any environmental effects from the proposed project would be mitigated as noted in this IS.

Chapter 4
List of Preparers

4.1 CEQA Lead Agency – City of Riverside

Pamela Galera, Director, Parks, Recreation, and Community Services Department

Randy McDaniel, Parks and Recreation Department Deputy Director (Former)

Alisa Sramala, City of Riverside Principal Park Project Manager

Anthony Zamora, Recreation Services Coordinator

4.2 Project Consultants

Studio MLA (Project Management and Design)

Mia Leher, President

Jan Dyer, Principal

Matt Romero, ASLA, Senior Associate, Project Manager

Eden Ferry, Associate

Young Jun, Project Designer

Alta Planning (Outreach)

Kristin Haukom, Outreach

Devan Gelle, Outreach

James Powell, Outreach

Rick Engineering (Transportation and Hydrology Engineering)

David Mizell, AICP, Senior Transportation Planner

Jason Ritchey, Water Resources Designer

Venkat Gummadi, Water Resources Engineer

Kristen Werksman, PE, QSD, Principal Project Engineer

Leighton Group (Geotechnical)

Gareth Mills, Senior Principal Geologist

Brent Adam, Project Geologist

ICF (Landscape Design and Environmental Analysis)

Nick Deyo, Landscape Architect/Project Manager (Former)

Lance Unverzagt, Environmental Planning Manager/CEQA Lead

Debra Einstein Leight, Environmental Planning Manager/CEQA Lead (Former)

Mabel Chan, Planner

Megan Swanson, Agriculture/Forestry Resources, Mineral Resources

Keith Lay, Air Quality, Energy, Greenhouse Gas Emissions

Ryan Hallman, Air Quality, Energy, Greenhouse Gas Emissions

Dale Ritenour, Biological Resources

Shelly Dayman, Biological Resources

Benjamin Vargas, M.A., RPA, Cultural Resources, Tribal Cultural Resources

Karen Crawford, M.A., RPA, Cultural Resources, Tribal Cultural Resources

Araceli Robles, M.A., Cultural Resources

Lauren Downs, M.A., RPA, Cultural Resources, GIS

Timothy Yates, Ph.D., Cultural Resources, Historic Architecture

Molly Iker-Johnson, Cultural Resources, Historic Architecture

Mario Barrera, Geology/Soils, Hazards and Hazardous Materials

Katrina Sukola, Hydrology/Water Quality

Jonathan Higginson, Noise/Vibration

Trevor Withrow, Planner

Saadia Byram, Editing

Elizabeth Irvin, Editing

Brittany Buscombe, GIS

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XXI Mandatory Findings of Significance

None.

DRAFT

MARTHA MCLEAN ANZA NARROWS PARK AND JURUPA AVENUE TRAILHEAD MASTER PLANS, RIVERSIDE GATEWAY PARKS
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

PREPARED FOR:

City of Riverside Parks, Recreation, and Community Services Department, Planning and Design Division
6927 Magnolia Avenue
Riverside, CA 92506
Contact: Alisa Sramala
(951) 826-2021, ASramala@riversideca.gov

Studio-MLA
251 South Mission Road
Los Angeles, CA 90033-3235
Contact: Matt Romero, ASLA

PREPARED BY:

ICF
Contact: Lance Unverzagt

September 2025

ICF. 2025. *Martha McLean Anza Narrows Park and Jurupa Avenue Trailhead Master Plans Initial Study/Mitigated Negative Declaration*. Draft. May. (ICF 104147) Riverside, CA. Prepared for City of Riverside, Riverside, CA.

Appendix A
Figures

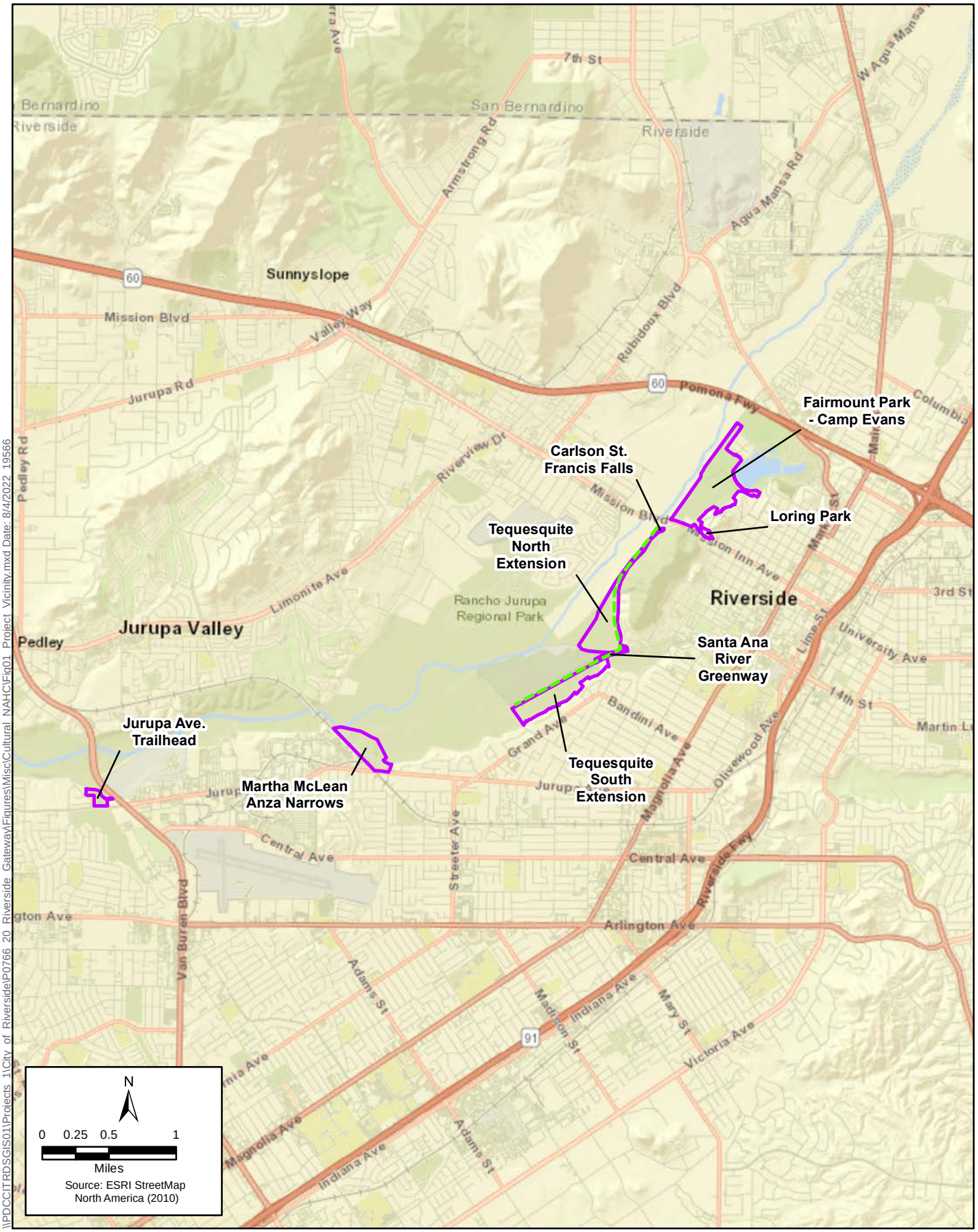

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Figure 1
Regional Vicinity Map Riverside Gateway

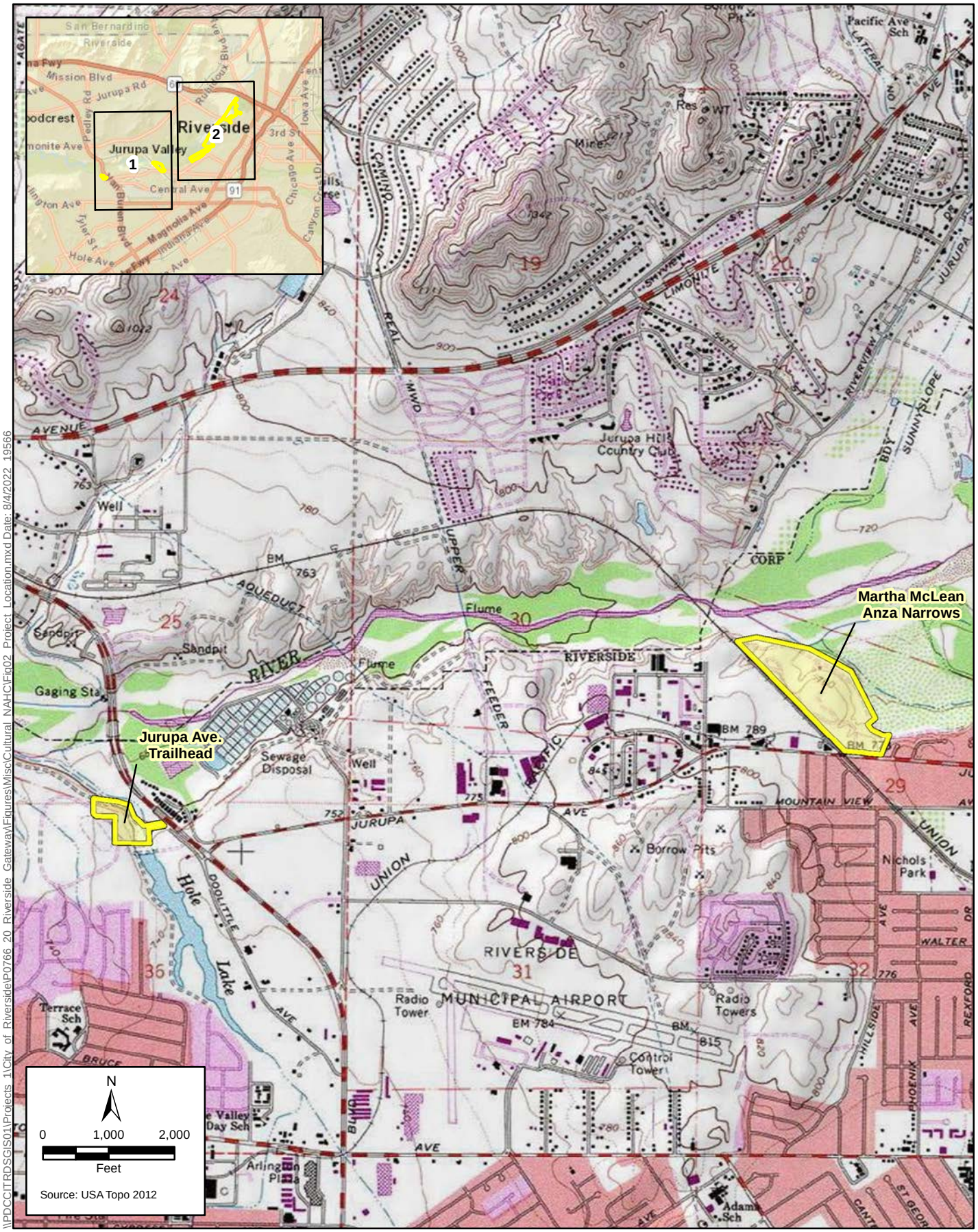

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Figure 2
Local Vicinity Map, Sheet 1 Riverside Gateway

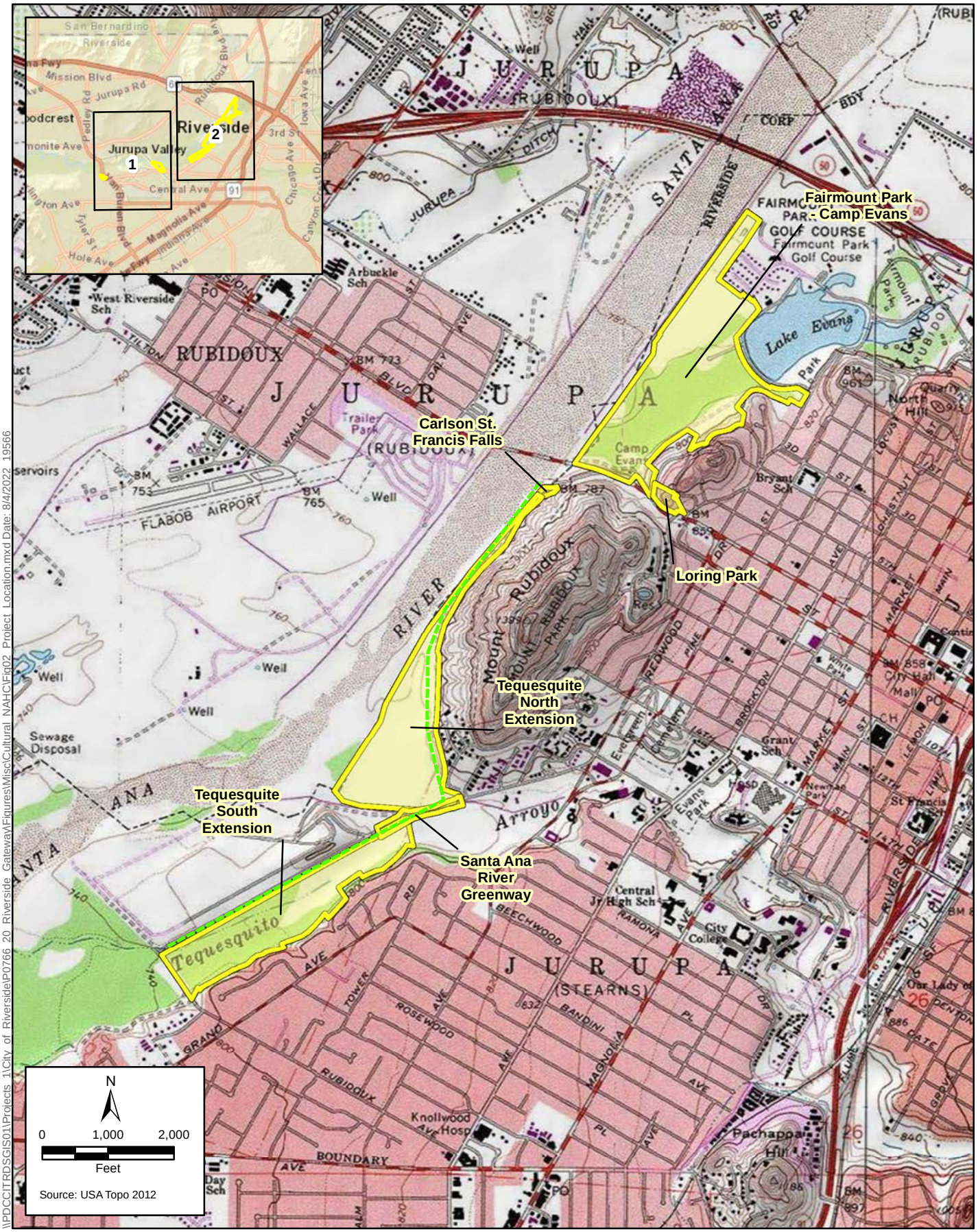

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Figure 2
Local Vicinity Map, Sheet 2 Riverside Gateway



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Figure 3
Site Plan
Martha McLean Anza Narrows Park Master Plan, Riverside Gateway Parks



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Figure 4
Site Plan
Jurupa Avenue Trailhead Master Plan, Riverside Gateway Parks

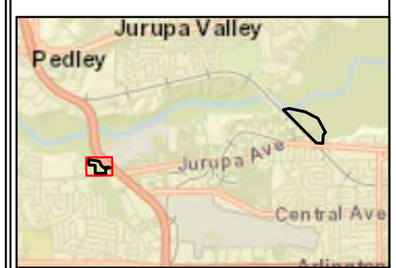


Legend

- Riverside Gateway Project Limits
- Permanent Impact Area

MSHCP Elements

- Narrow Endemic Plants Survey Area
- Public/Quasi-public Conserved Lands
- Criteria Area Cells (labeled with #)
- Burrowing Owl Survey Area



Source: ICF, DUDEK 2022

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1:1,200

Figure 5a
Multiple Species Habitat Conservation Plan (MSHCP) Elements
Riverside Gateway

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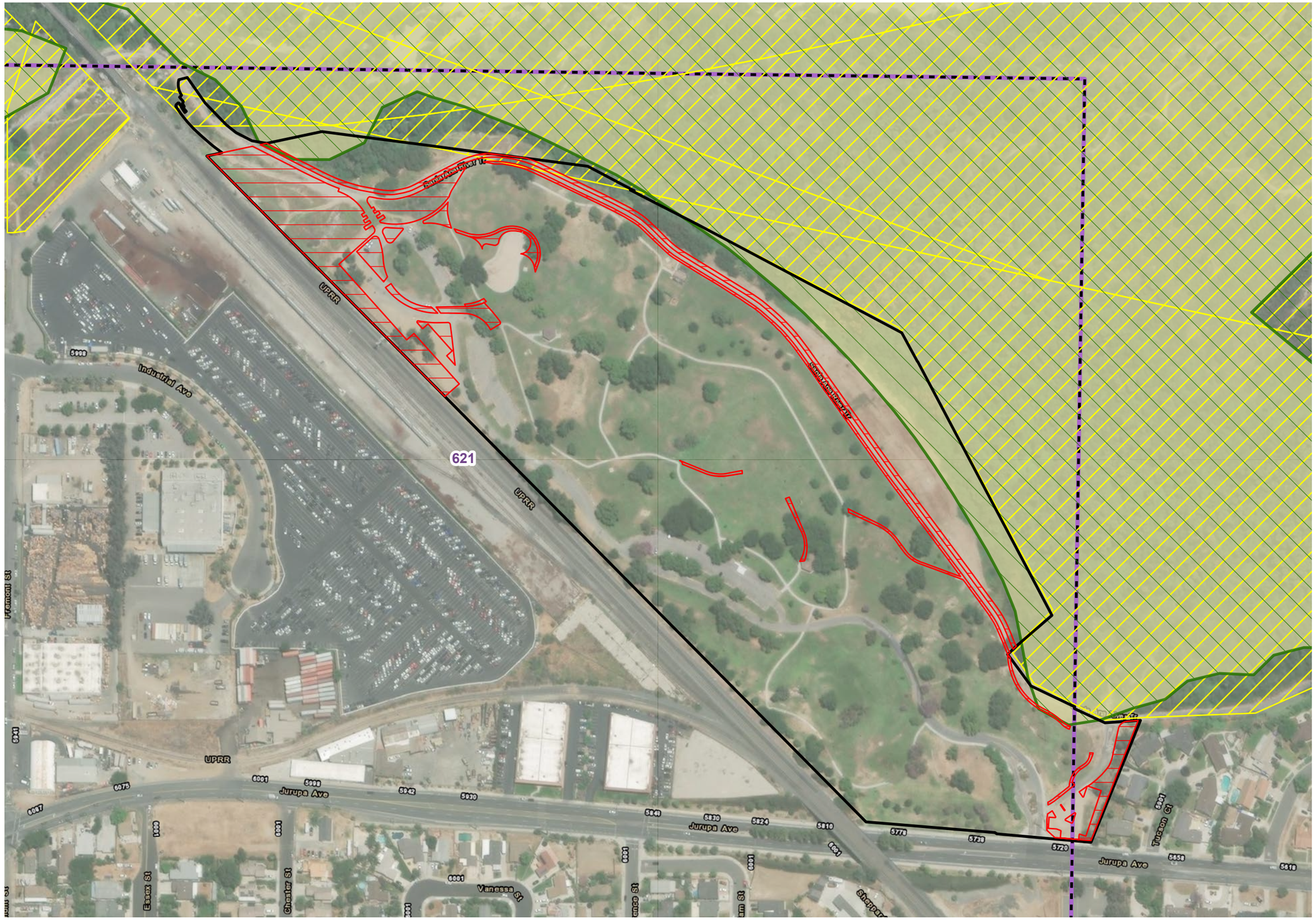
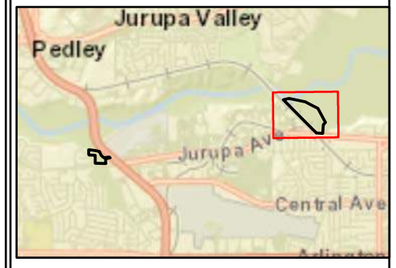


Legend

- Riverside Gateway Project Limits
- Permanent Impact Area

MSHCP Elements

- Narrow Endemic Plants Survey Area
- Public/Quasi-public Conserved Lands
- Criteria Area Cells (labeled with #)
- Burrowing Owl Survey Area



Source: ICF, DUDEK 2022

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Figure 5b
Multiple Species Habitat Conservation Plan (MSHCP) Elements
Riverside Gateway

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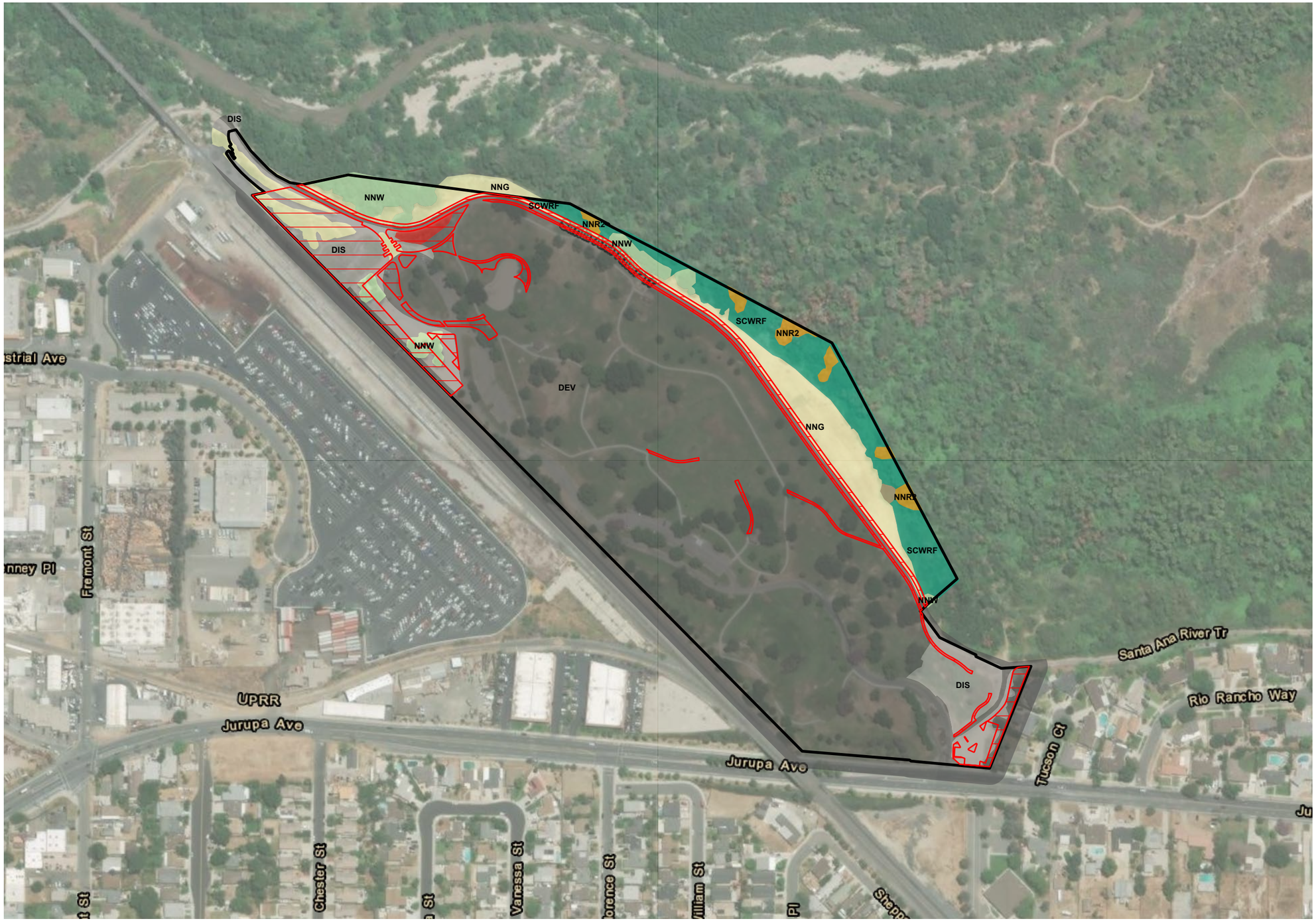

Legend

- Riverside Gateway Project Limits
- Permanent Impact Area

Uplands

- Nonnative Grassland [NNG]
- Nonnative Woodland [NNW]
- Prickly pear (Opuntia) stand
- Riversidian Sage Scrub (Planted)

Riparian

- Non-native Riparian (Mexican Fan Palm Dominated) [NNR2]
- Southern Cottonwood - Willow Riparian Forest (Disturbed) [SCWRF-d]

Other

- Developed (DEV)
- Disturbed (DIS)



Source: ICF, USFWS, USGS; CNDDB 2025

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Figure 6
Vegetation and Land Cover
Riverside Gateway - Martha McLean Anza Narrows Park

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Legend

- Riverside Gateway Project Limits
- Permanent Impact Area
- Biological Avoidance Area

Uplands

- Nonnative Grassland [NNG]
- Riversidean Sage Scrub [RSS]
- Ruderal Upland Mustard and Forbs [RUD]

Riparian

- Mule Fat Scrub [MFS]
- Non-native Riparian (Arundo Dominated) [NNR1]
- Open Water [OW]
- Southern Riparian Woodland
- Tamarisk Scrub [TAM]

Other

- Developed
- Disturbed

WRMSHCP Units

- Criteria Area Cells
- Public/Quasi-public Conserved Lands
- Narrow Endemic Plants Survey Area



Source: ICF, USFWS, USGS; CNDDB 2019

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Figure 7
Vegetation and Land Cover
Riverside Gateway - Jurupa Ave. Trailhead

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Legend

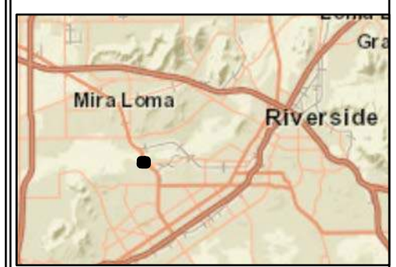
- Permanent Impact Area
- Riverside Gateway Project Limits

Waters of the U.S. and State (USACE/RWQCB)

- Culvert
- Non-Wetland Waters of the U.S.
- Non-wetland Waters of the U.S. with Wetland Conditions

Waters of the State (CDFW)

- Streambed
- Riparian
- Main Channel



Source: ICF, SBVMWD 2018

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Figure 8
Jurisdictional Resources
Riverside Gateway - Jurupa Avenue Trailhead

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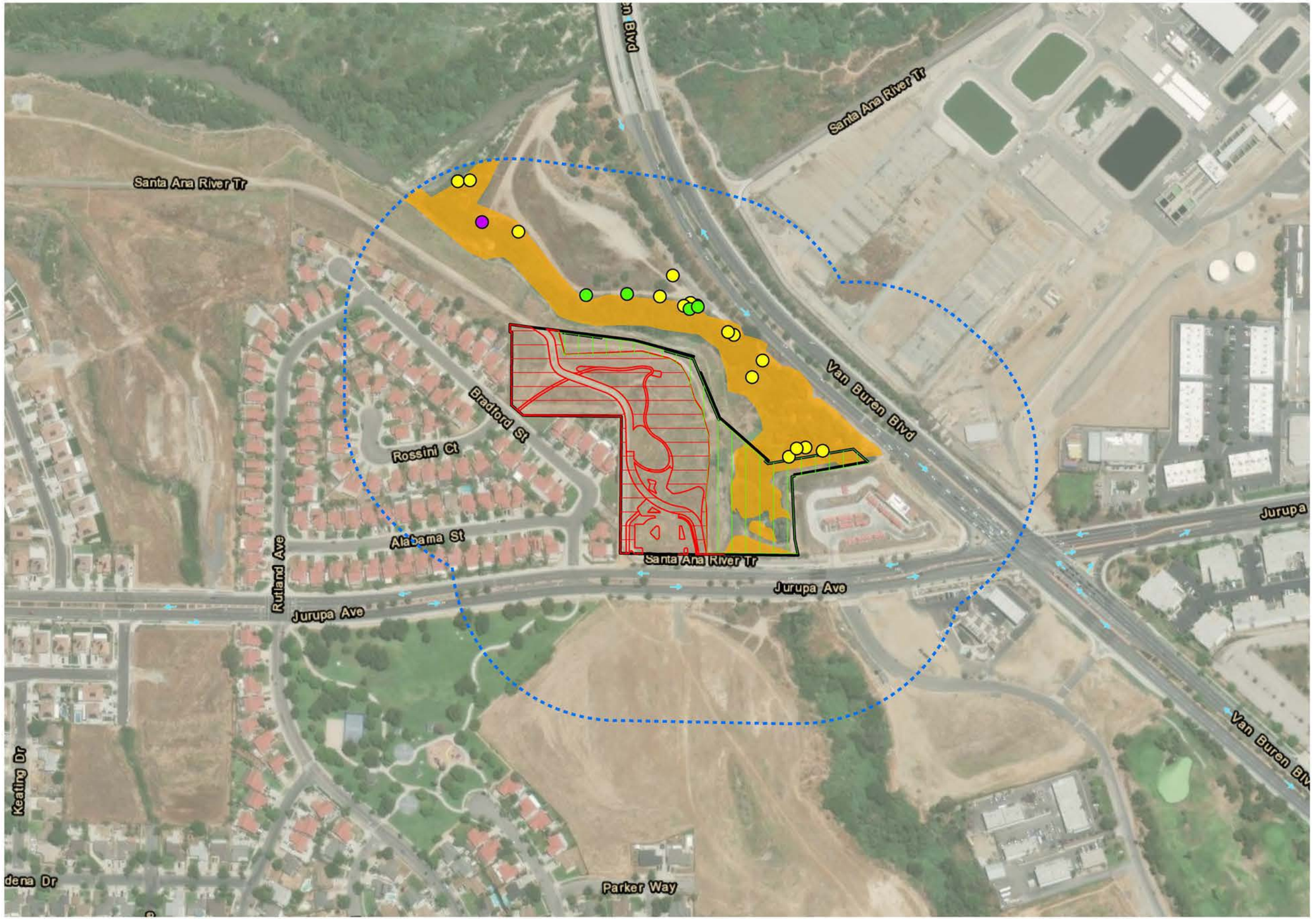
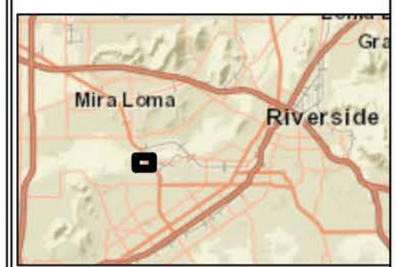


Legend

- Riverside Gateway Project Limits
- Biological Avoidance Area
- Proposed Project
- SWFL Survey Area (500-ft buffer)
- Potentially Suitable SWFL Habitat

Incidental Observations (2022)

- Confirmed Adult LBV
- Confirmed LBV Nest
- Dispersing LBV Juvenile(s)



Source: ICF, USFWS, USGS; CNDDB 2019

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1:3,600

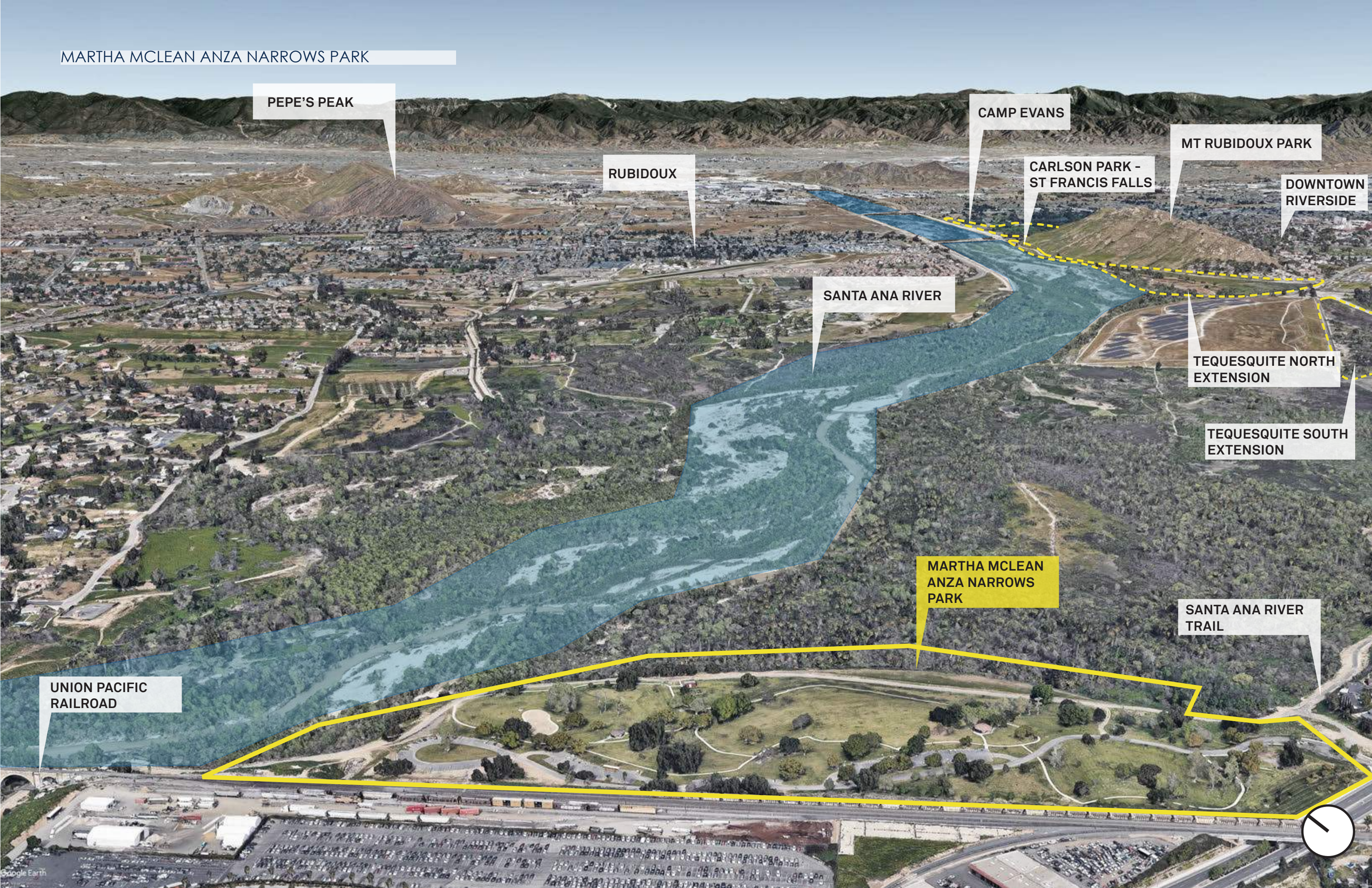
Figure 9
Riparian Bird
Riverside Gateway - Jurupa Ave. Trailhead

Appendix B1

Martha McLean Anza Narrows Park Master Plan

MARTHA MCLEAN ANZA
NARROWS PARK:
CONTEXT AND ANALYSIS, MASTER PLAN

MARTHA MCLEAN ANZA NARROWS PARK



EXISTING CONDITIONS AND OPPORTUNITIES

MARTHA MCLEAN ANZA NARROWS PARK

This site is 39.5 acres of developed city-owned and managed park land and is immediately adjacent to the Santa Ana River Trail. The site is comprised of turf, trees, irrigated plants, walking paths, picnic tables, a disc golf course, and restrooms. The site has direct Santa Ana River access through a large hole cut in a chain-link fence, where there is a mix of native and non-native plants and trees. The path to the river is an informal and uneven mix of stones, sand and river debris.

Opportunities

- 39.5 acres of developed city owned park land.
- Santa Ana River Trail along the northeastern park boundary and railroad on the South-Western side.
- Immediately adjacent to the Santa Ana River with potential for public access to the river.

Park improvement ideas

- River Gateway improvements – river access, playground, parking lot, restroom/storage building, group picnic area, interpretive signage, vista point.
- Circulation and vehicular control throughout park-curbs/ gutters, gates, fencing and signage.
- Remove existing restroom building by the Santa Ana River Trail and replace with a small restroom near front/entry of the vpark for disc golfers and trail users. This restroom is in addition to the restroom proposed in the River Gateway area.
- New monument type sign publicizing Santa Ana River Trail access from Jurupa Ave.
- Landscape and irrigation refurbishment at the front entry and throughout the entire park, preferably using California native plants.
- New recreational decomposed granite trail along the park edge adjacent to the paved Santa Ana River Trail, with large shade trees and landscaping.



MARTHA MCLEAN IS CHARACTERIZED BY IT'S LARGE LAWN AND PICNIC AREA, ACCESS TO THE RIVER AND ADJACENT WILDLIFE AREA, AND VIEWS OF THE UNION PACIFIC RAILROAD BRIDGE.

EXISTING CONDITIONS



Existing Santa Ana River Trail under rail bridge



Native garden buffer along site



Historic marker on site



Santa Ana River Trail



View of the Santa Ana River



Existing open lawn space



Access point to the Santa Ana River

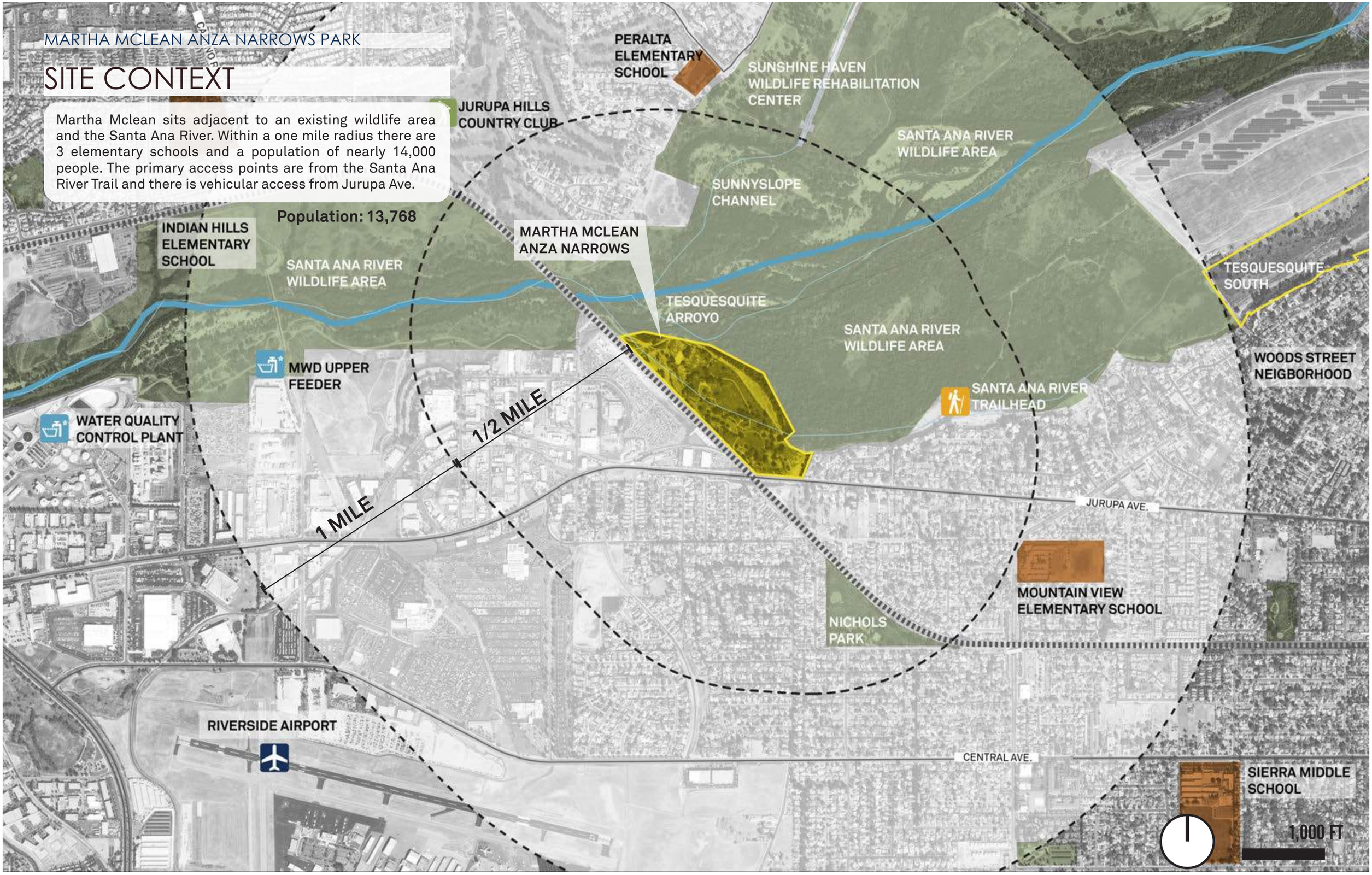


MARTHA MCLEAN ANZA NARROWS PARK

SITE CONTEXT

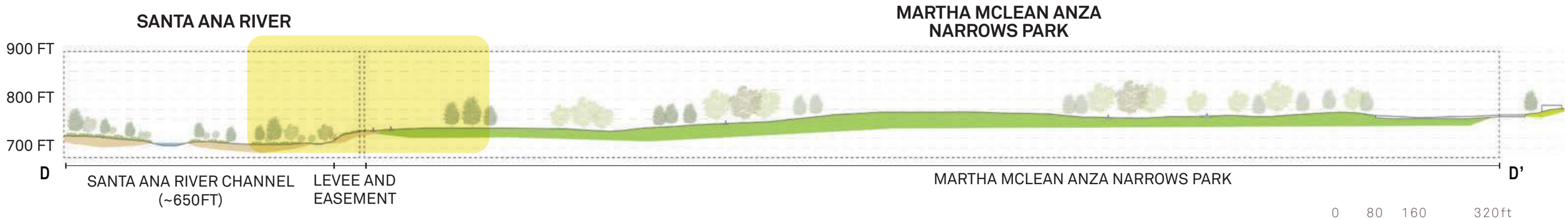
Martha Mclean sits adjacent to an existing wildlife area and the Santa Ana River. Within a one mile radius there are 3 elementary schools and a population of nearly 14,000 people. The primary access points are from the Santa Ana River Trail and there is vehicular access from Jurupa Ave.

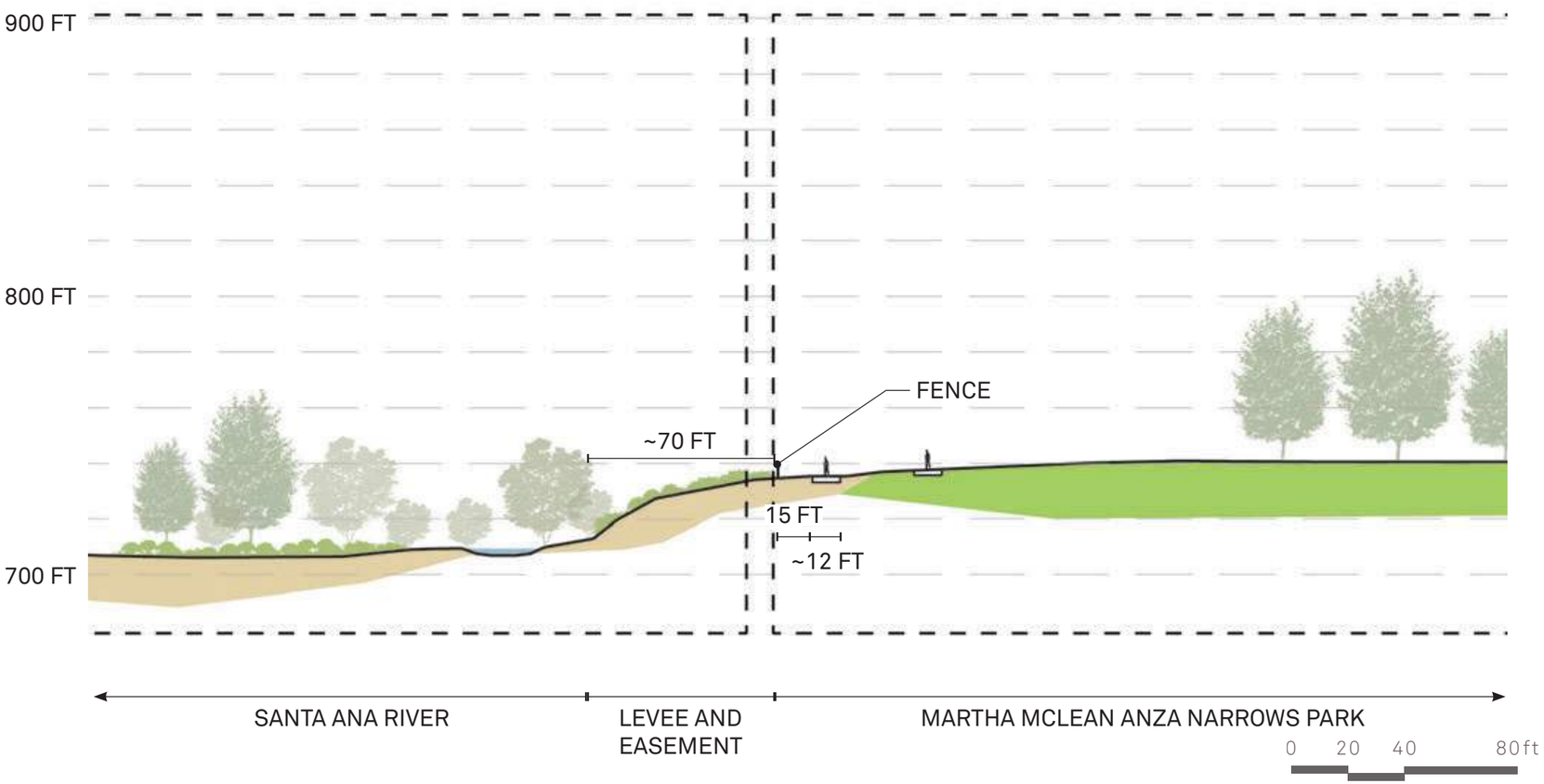
Population: 13,768

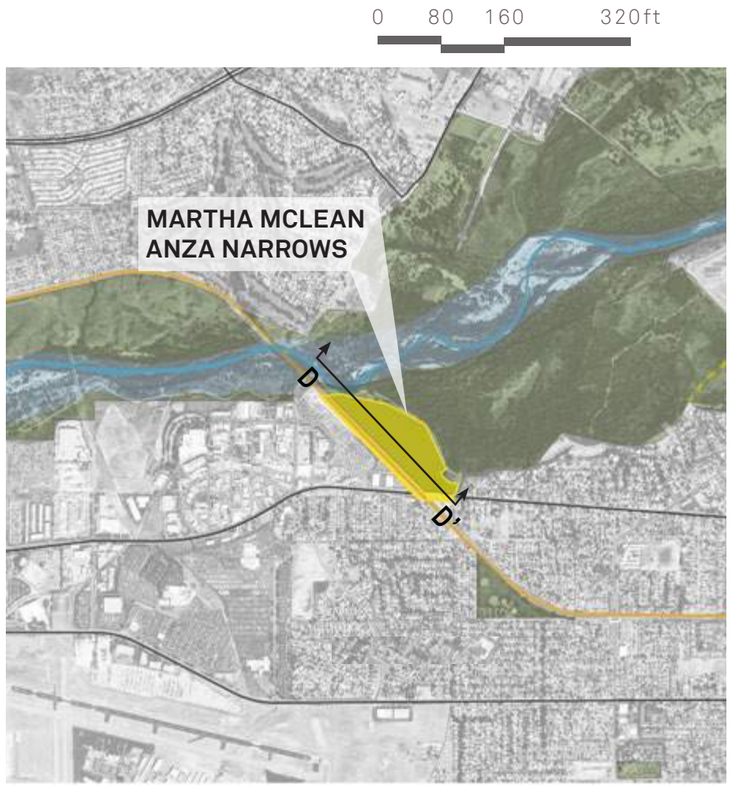


EXISTING SECTION THROUGH PARK AND RIVER

The site sits about 5-20 feet above the River with the existing Santa Ana River along the river embankment.
The majority of the park space is rolling open space.







MARTHA MCLEAN ANZA NARROWS PARK

OPPORTUNITIES AND CONSTRAINTS

The site has several opportunities including outstanding views of the river and the surrounding landscape, access to the river, and large existing shade trees and park amenities. Some site constraints include limited pedestrian access from adjacent neighborhoods.

GOOD ACCESS TO THE RIVER- IT IS CURRENTLY USED INFORMALLY BY VISITORS TO THE PARK

ADJACENT WILDLIFE AREA

SANTA ANA RIVER WILDLIFE AREA

AREA OF FOCUS

OUTSTANDING VIEWS TOWARDS THE SANTA ANA RIVER, JURUPA VALLEY AND SURROUNDING LANDSCAPE

GOOD AMOUNT OF EXISTING PARKING- OPPORTUNITIES TO PARK AND ACCESS THE RIVER TRAIL

EXISTING PARK WITH GOOD FACILITIES, PATHS, CANOPY AND OTHER AMENITIES TO WELCOME USERS

LARGE SHADE TREES

EXISTING PARKING + PICNIC FACILITIES

NEIGHBORHOOD (PROXIMITY)

UNION PACIFIC RAILROAD

INDUSTRIAL USES AND TRAIN TRACKS SEPARATE THE PARK AND RIVER FROM THE CITY GRID AND NEIGHBORHOODS

SANTA ANA RIVER TRAIL

JURUPA AVENUE

LIMITED PEDESTRIAN ENTRY POINTS INTO THE PARK FROM THE CITY SIDE

200 FT

- VEHICULAR ACCESS
- PEDESTRIAN ACCESS
- EXISTING OVERLOOK
- LAKE ACCESS
- BIKE ROUTE
- EXISTING TRAILS
- SITE BOUNDARY
- EXISTING ROADWAY/ PARKING
- STORMDRAIN OUTFALL

OPPORTUNITIES

CONSTRAINTS

TREE INVENTORY

The site has a significant inventory of mature trees. There is a mix of native and non-native species with an opportunity to plant additional native trees to increase habitat.

MARTHA MCLEAN ANZA NARROWS PARK

SANTA ANA RIVER

AREA OF FOCUS

UNION PACIFIC RAILROAD

JURUPA AVE.

- GINKGO BILOBA
- KOELREUTERIA BIPINNATA
- RHUS INTEGRIFOLIA
- WASHINGTONIA ROBUSTA
- SALIX GOODDINGII
- PHOENIX CANARIENSIS
- SEARSIA LANCEA
- LOPHOSTEMON CONFERTUS
- SCHINUS MOLLE
- EUCALYPTUS SIDEROXYLON
- POPULUS FREMONTII
- SCHINUS TEREBINTHIFOLIUS
- TIPUANA TIPU
- QUERCUS AGRIFOLIA
- QUERCUS ILEX
- PLATANUS RACEMOSA
- BAUHINIA BLAKEANA

- ALBIZIA JULIBRISSIN
- VITEX AGUNS-CASTUS
- ARBUTUS UNEDO
- PYRUS KAWAKAMII
- QUERCUS ILEX
- JUNIPERUS SPP.
- LIQUIDAMBAR STYRACIFLUA
- CEARTONIA SILIQUA
- FRAXINUS UHDEI
- CASCABELA THEVETIA
- CINNAMOMUM CAMPHORA
- JACARANDA MIMOSIFOLIA
- ULMUS PARVIFOLIA

200 FT

MARTHA MCLEAN ANZA
NARROWS PARK: MASTERPLAN

SUMMARY OF COMMUNITY FEEDBACK

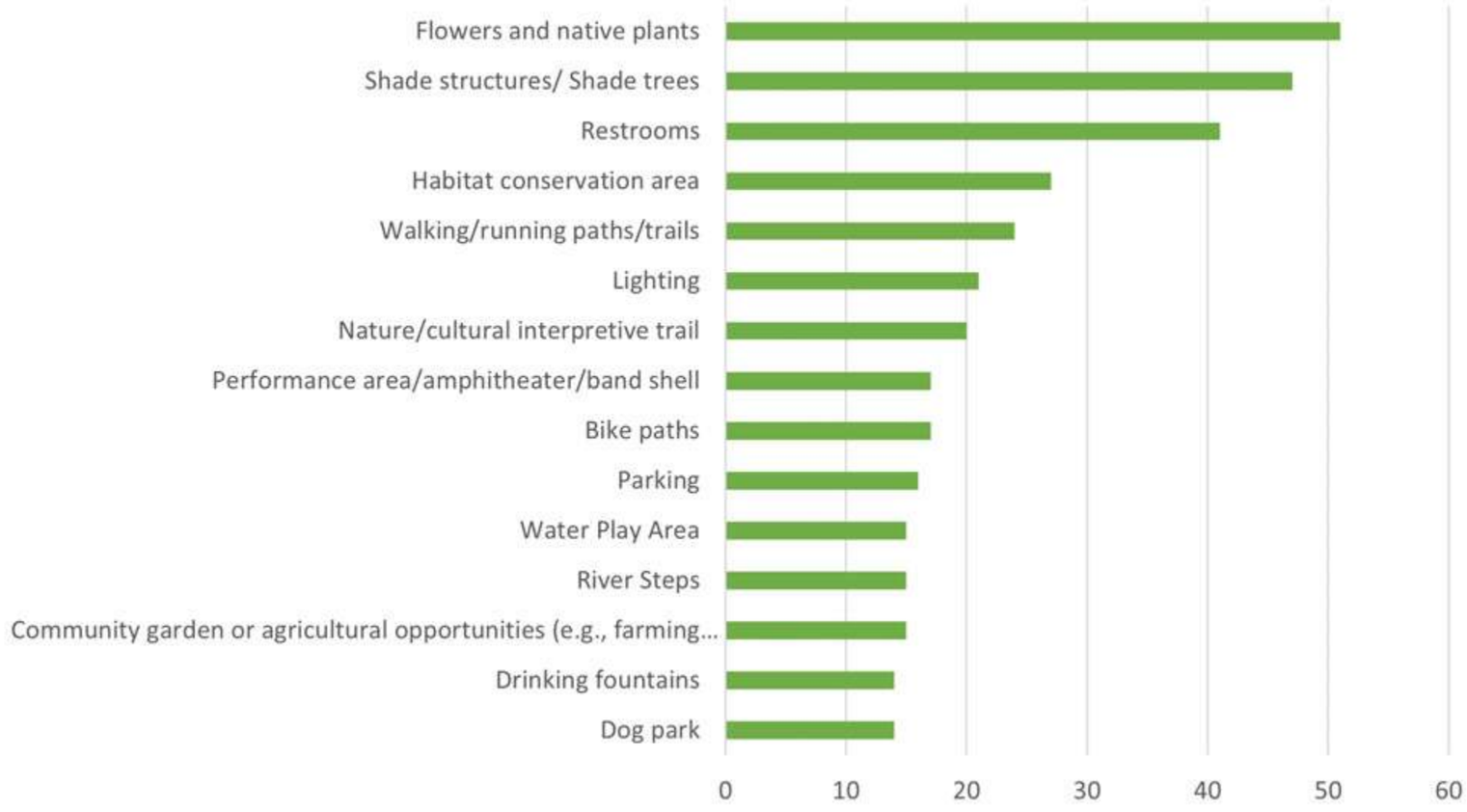






SURVEY SUMMARY

The three most popular improvements that community members would like to see at Martha McLean Park have double the number of requests than any other amenity options at this location. The three most popular improvements are flowers and native plants, shade, and restrooms. Several commenters noted that they use this park to access the Santa Ana River, and that the park is popular for families. Family amenities were some of the other top choices at this park, such as performance areas, water play areas, river steps, and a dog park.



DESIGN NARRATIVE

The proposed improvements to Martha Mclean aim to enhance the site's functionality and features. By realigning the northern parking area along the train line, the design optimizes existing park space, enabling the addition of programs and activities suitable for all age groups.

Native plantings and rest areas along the bike path will offer shade and spaces for visitors to pause as they enjoy the Santa Ana River Trail. Vehicular access to the trail will be restricted through the use of boulders, bioswales, and gates, ensuring a safe and uninterrupted experience for all trail users.

Many of the proposed improvement areas are situated at the northern end of the site, adjacent to the relocated parking area. Visitors will have access to the ridge trail, which leads to an existing river access point just outside the project boundary. The community area at the top of the ridge will feature shaded picnic spaces, educational water play areas, natural play zones, and restrooms. Additionally, a band shell is proposed at another elevated location in the center of the site to host community events. Bike rest stops, equipped with filling stations and exercise equipment, will also be incorporated along the trail.

At the southern portion of the site along Jurupa Avenue, a new parking lot is proposed with 27 new spots and a formalized entrance to the bike path with a trailhead and restrooms as well as a ridge trail with an overlook.



ACTIVITY LOOP


MEADOW


INTERPRETIVE ARROYO


RIVER STEPS


WATER PLAY AREA

MARTHA MCLEAN ANZA NARROWS PARK

MASTERPLAN

SANTA ANA RIVER

TERRACED RIVER STEPS

COMMUNITY MEADOW + GATHERING SPACE

WATER PLAY ARROYO

NATURE PLAY AREA

RESTROOMS, OUTDOOR SHOWERS + STORAGE

RE-ALIGNED PARKING
-36 PARKING SPOTS
(CURRENTLY 45 SPOTS)

STORMWATER MANAGEMENT BIOSWALE

ROAD REHABILITATION-
VEHICLE BARRIER (CURB, FENCING, BOULDERS, ETC)

PROPOSED PARKING -
BOLLARDS OR GATES TO BLOCK VEHICLES FROM ENTERING BIKE PATH
- 26 PARKING SPOTS

RIVERS & LAND CONSERVANCY NATIVE PLANT GARDEN TO REMAIN

EXERCISE STATIONS

NATIVE POLLINATOR GARDEN

BAND SHELL AND COMMUNITY MEADOW

EXISTING SHADE STRUCTURES TO REMAIN

NATIVE POLLINATOR GARDENS

BIKE REST STOP + EXERCISE STATIONS

VEHICULAR BARRIER ALONG PEDESTRIAN WALK

VEHICULAR ACCESS GATE / SART SAFETY CHECK POINT

AREA DESIGNATED FOR CONSERVATION

RIVER OVERLOOK SWINGS

SANTA ANA RIVER BIKE PATH

UNION PACIFIC RAILROAD

JURUPA AVENUE

EXISTING RIVER ACCESS
ADA PATH TO RIVER ACCESS
VEHICULAR ACCESS GATE / SART SAFETY CHECK POINT
PEDESTRIAN ACCESS
EMERGENCY ACCESS
VEHICULAR ACCESS
DISC GOLF COURSE HOLE
DISC GOLF COURSE PATH
DISC GOLF COURSE TEE

200 FT

MASTERPLAN ENLARGEMENT

EXISTING RIVER ACCESS

SHADED SEATING AREA + CROSSWALK TO RIVER ACCESS

VEHICULAR ACCESS GATE /SART SAFETY CHECK POINT

SANTA ANA RIVER

SANTA ANA RIVER TRAIL

NATIVE POLLINATOR PLANTING- SEASONALLY SEEDED

TERRACED BOULDERS WITH PLANTING

TERRACED RIVER STEPS

NATIVE PLANT SEEDED AREA

50 FT



TERRACED BOULDERS WITH PLANTING



TERRACED STEPS TO THE RIVER



NATIVE POLLINATOR GARDENS

MARTHA MCLEAN ANZA NARROWS PARK

MASTERPLAN ENLARGEMENT

SANTA ANA RIVER TRAIL

BIKE REST STOP
- BIKE PARKING, BOTTLE FILLING STATION, REPAIR STATION, SEATING

RIVERS & LAND CONSERVANCY NATIVE PLANT GARDEN TO REMAIN

TERRACED RIVER STEPS

LANDSCAPE BUFFER AND SCREENING

COMMUNITY MEADOW

SHADED OVERLOOK

SHADED SEATING AREA

EDUCATIONAL WATER PLAY ARROYO

WILDLIFE + HABITAT EXPLORATION TRAIL

PLAY SPACE

OUTDOOR CLASSROOM

RESTROOMS (WITH SHOWERS) + STORAGE

RE-ALIGNED PARKING AREA (36 SPOTS)

50 FT



SHADED OVERLOOK



PLAY SPACE



EDUCATIONAL WATER PLAY ARROYO

MASTERPLAN ENLARGEMENT

SEPARATED WALKING PATH

BAND SHELL AND COMMUNITY MEADOW

NATIVE POLLINATOR PLANTING

VEHICULAR BARRIER ALONG PEDESTRIAN WALK

BIKE REST STOP

-BIKE PARKING, BOTTLE FILLING STATION, SIGNAGE, SHADED SEATING, BIKE REPAIR STATION, EXERCISE EQUIPMENT

SANTA ANA RIVER TRAIL

730

750

755

765

770

775

50 FT



BAND SHELL



COMMUNITY MEADOW



BIKE REST STOP FILLING STATION

MARTHA MCLEAN ANZA NARROWS PARK

MASTERPLAN ENLARGEMENT

VEHICULAR ACCESS GATE /SART SAFETY CHECK POINT

VEHICULAR BARRIER ALONG PEDESTRIAN WALK

SANTA ANA RIVER TRAIL

STORMWATER RAIN GARDEN

NATIVE PLANTING BUFFER ALONG ROAD

RIVER SWINGS AND OVERLOOK

TRAILHEAD + RESTROOM

VEHICULAR ACCESS GATE /SART SAFETY CHECK POINT

PROPOSED PARKING AREA WITH CONTROLLED VEHICULAR ENTRANCE TO BIKE PATH

(26 NEW SPOTS)

50 FT



RIVER SWINGS



SHADED PARKING



STORMWATER MANAGEMENT RAIN GARDEN

VEHICULAR BARRIER ELEMENTS

The site currently has an issue with vehicles entering the Santa Ana River Trail which leads to dangerous conflicts with bicyclists and pedestrians on the trail. The proposed site improvements utilize natural boulders and rain gardens as a physical barrier to limit vehicular access to the trail as well as additional bollards where the trail connects to the road and parking.

SANTA ANA RIVER

UNION PACIFIC RAILROAD

SANTA ANA RIVER BIKE PATH

JURUPA AVENUE

SANTA ANA RIVER BIKE PATH

EXISTING UNAUTHORIZED VEHICULAR ACCESS

BIOSWALE

EXTENDED FENCE LINE

200 FT

STAIRS WITH TERRACED LANDINGS INTRODUCED AT SLOPE TO LIMIT VEHICLE ACCESS



EXTEND FENCE AND ADD BIOSWALE WITH BOULDERS



VEHICLE BARRIER AT ROAD



OPINION OF PROBABLE COST

HARD COSTS

NATURE & CULTURE

Overlook and Shaded Plaza to River	$452,250
Ridge trail and Terraced steps	$216,000
Wildlife and Habitat Exploration Trail	$34,000
Outdoor Classroom	$105,000
Community Meadow	$467,475
Bandshell and Community Lawn	$1,095,875
Planting Areas	$4,500,000

ACTIVE

Bike rest stop	$60,000
Water Play Area	$468,375
Play Area	$791,375
Separated Walking Path	$326,040

FACILITIES

Realigned Parking	$544,950
Restrooms w/ Showers + Storage	$200,000
Shaded seating areas and overlook	$728,625
Vehicle Barriers	$432,250
River Overlook and Swings	$312,975
Restrooms at Traihead	$200,000
Parking at Entrance	$192,975

TOTAL HARD COSTS = $6,628,165.00

+

SOFT COSTS

Design Drawings 8%	$530,253.20
General Conditions 15%	$994,224.75
Annual Escalation 7%	$463,971.55
Design Contingency 10%	$662,816.50
Prevailing Wage 12%	$795,379.80
General Contractor Fee 10%	$662,816.50
Construction Management 20%	$1,325,633.00

TOTAL SOFT COSTS = $5,408,095.30

=

$12,036,260.30

Appendix B2

Jurupa Avenue Trailhead Master Plan

JURUPA AVE TRAILHEAD:

CONTEXT AND ANALYSIS

MASTER PLAN

JURUPA AVE TRAILHEAD

CARLSON PARK -
ST FRANCIS FALLS

CAMP EVANS

MT RUBIDOUX PARK

DOWNTOWN RIVERSIDE

TEQUESQUITE SITES

JURUPA VALLEY

MARTHA MCLEAN
ANZA NARROWS PARK

SANTA ANA RIVER

RIVERSIDE WASTEWATER
TREATMENT PLANT

VAN BUREN BOULEVARD

HOLE LAKE

JURUPA AVE
TRAILHEAD

JURUPA AVE TRAILHEAD

SANTA ANA
RIVER TRAIL

JURUPA AVENUE

EXISTING CONDITIONS AND OPPORTUNITIES

JURUPA AVENUE TRAILHEAD

This site is 7.7 acres of undeveloped city-owned and managed park land immediately adjacent to the Santa Ana River Trail. It is also located near a residential neighborhood and near what will soon be a retail development that will include establishments where food and beverages can be purchased to support trail users. Much of the site is disturbed land that is mowed annually for weed abatement. A vegetated drainage with a mix of native and invasive plants runs through the eastern edge of the site.

Opportunities

- 7.7 acres of undeveloped City owned park land.
- Immediately adjacent to the existing Santa Ana River Trail.
- Close proximity to future commercial/retail developments.

Park improvement ideas

- Drinking water
- Shaded resting areas
- Parking for cars and trailers
- Equestrian facilities (water, hitching, etc)
- Bike lockers/racks (to encourage active transportation)
- Bicycle repair stations



JURUPA AVE TRAILHEAD IS CHARACTERIZED BY IT'S ADJACENCY TO THE SANTA ANA RIVER TRAIL, HOLE LAKE, RUTLAND PARK, AND A RESIDENTIAL NEIGHBORHOOD.

EXISTING CONDITIONS



Informal neighborhood access and boundary



View of Hole lake outfall



View north towards Van Buren Blvd.



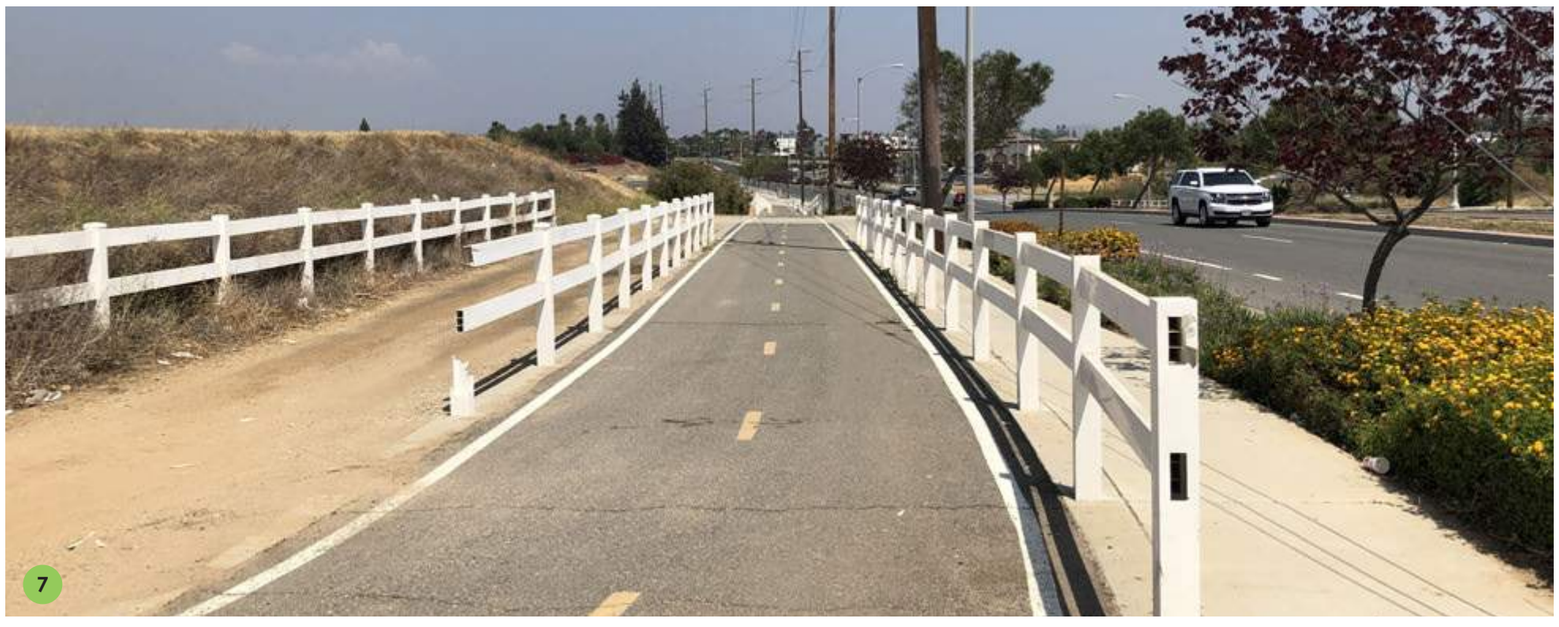
Views of Santa Ana River



Existing Santa Ana River Trail



Existing Santa Ana River Trail



Existing Santa Ana River Trail and fencing along Jurupa Ave.



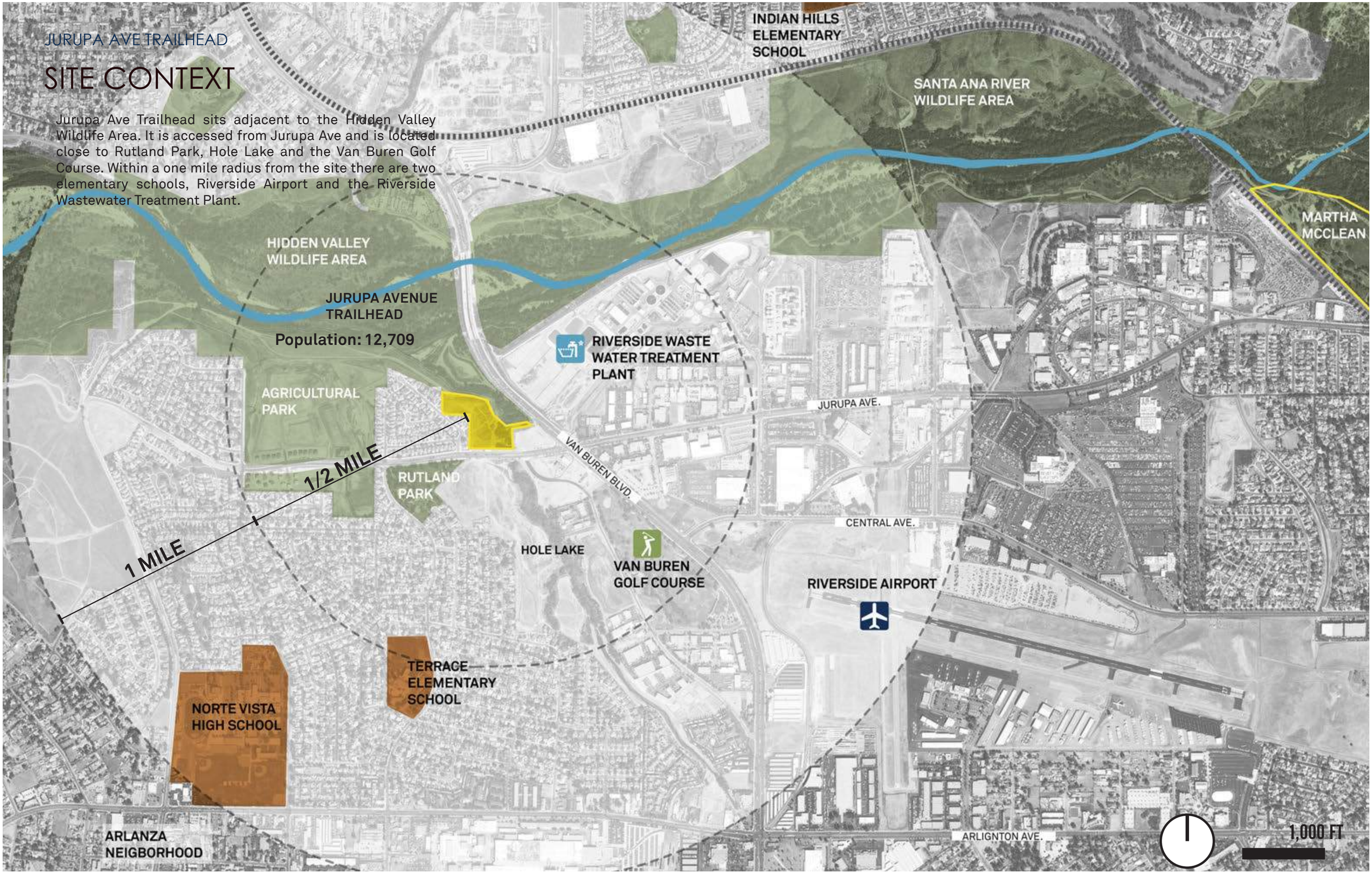
Existing Santa Ana River Trail



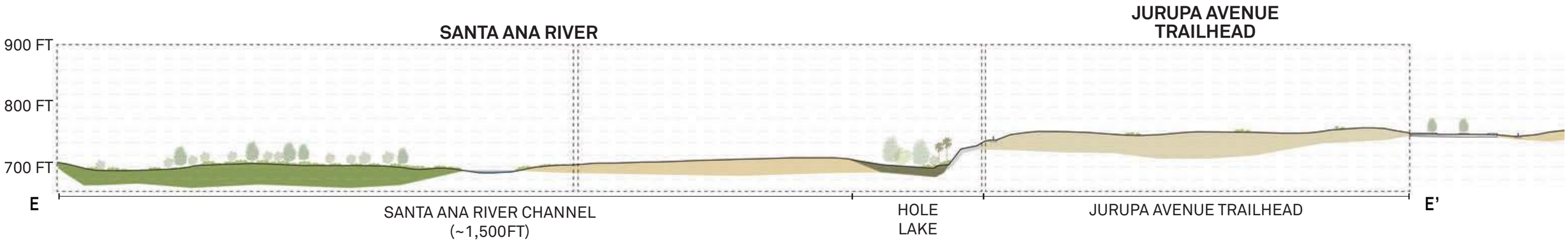
JURUPA AVE TRAILHEAD

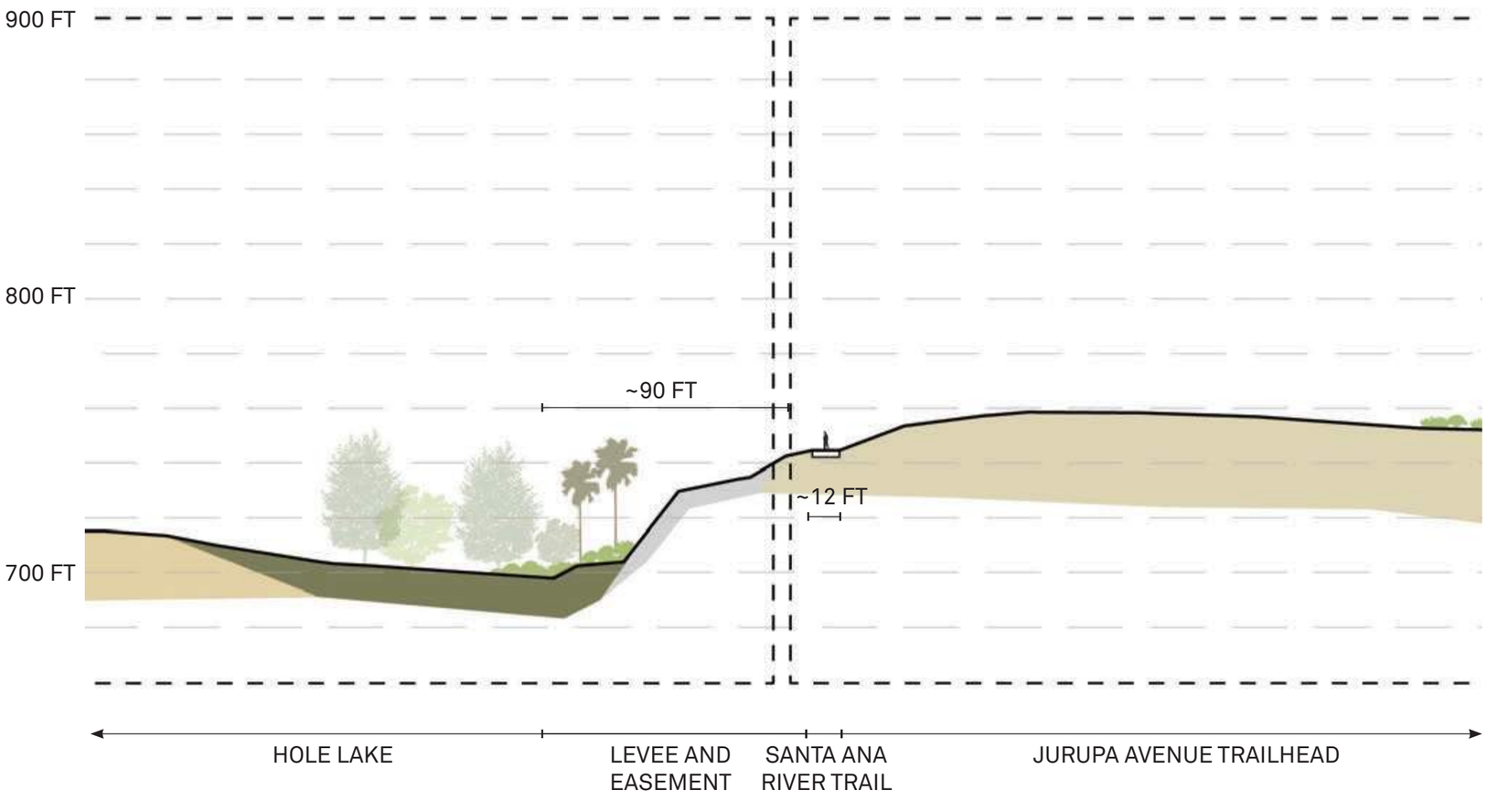
SITE CONTEXT

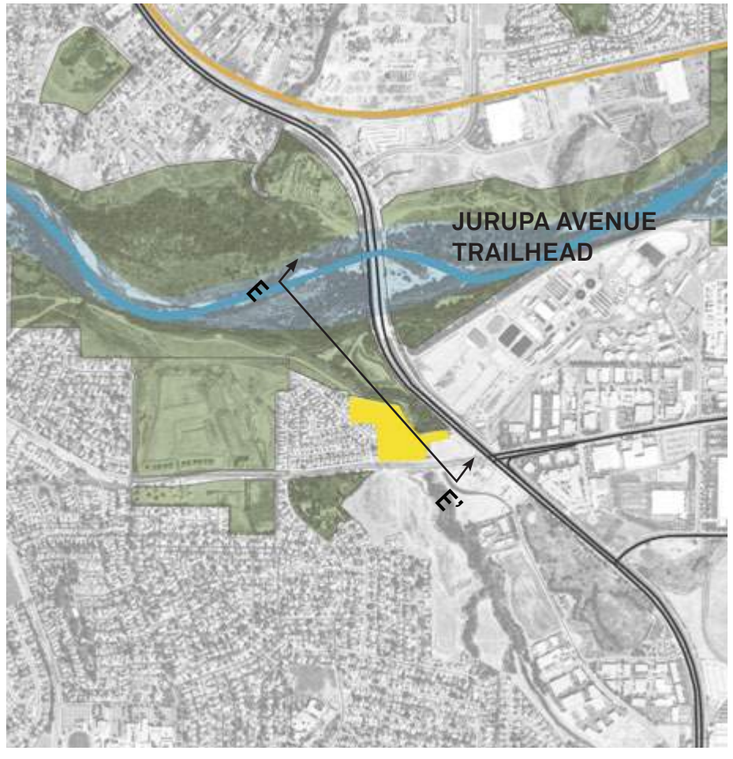
Jurupa Ave Trailhead sits adjacent to the Hidden Valley Wildlife Area. It is accessed from Jurupa Ave and is located close to Rutland Park, Hole Lake and the Van Buren Golf Course. Within a one mile radius from the site there are two elementary schools, Riverside Airport and the Riverside Wastewater Treatment Plant.



EXISTING SECTION THROUGH PARK AND RIVER







JURUPA AVE TRAILHEAD

OPPORTUNITIES AND CONSTRAINTS

Jurupa trailhead provides a series of opportunities including proximity to existing neighborhoods and other open spaces like Rutland Park. The area of focus sits on an existing vista that provides good views to the surrounding valley. Constraints include the steep grades along the edges and heavy traffic on Van Buren Blvd and Jurupa Ave leading to excessive noise and limited access.

VAN BURN BLVD.

HOLE LAKE

ELEVATED HIGH-LAND CONDITION WITH GOOD VIEWS OUT TO JURUPA VALLEY

OPPORTUNITY TO EXPAND EXISTING VEGETATION/ENHANCE NATIVE HABITAT

STEEP GRADE ALONG SOME EDGES

EXISTING INFRASTRUCTURE MIGHT CONSTRAIN PROPOSED IMPROVEMENTS AND FOOTPRINT

AREA OF FOCUS

NEIGHBORHOOD (PROXIMITY)

RUTLAND PARK (PROXIMITY)

NO PEDESTRIAN CROSSING

BUSY STREETS, FAST MOVING TRAFFIC IMPACTS CONNECTIVITY WITH THE NEIGHBORHOOD AND WALKABILITY

SANTA ANA RIVER TRAIL

JURUPA AVE.

VEHICULAR ACCESS

PEDESTRIAN ACCESS

EXISTING OVERLOOK

BIKE ROUTE

EXISTING TRAILS

SITE BOUNDARY

PROJECT PARK ADJACENCY

OPPORTUNITIES

CONSTRAINTS

80 FT

TREE INVENTORY

The site's area of focus is primarily devoid of trees and provides the opportunity to plant native species for shade and habitat. All existing trees are within the biological avoidance zone along the Hole Lake outfall and are a mix of native and non-native species.

JURUPA AVE TRAILHEAD

RIVERSIDE WASTEWATER TREATMENT PLANT

VAN BURN BLVD.

HOLE LAKE

BRADFORD ST.

AREA OF FOCUS

BIOLOGICAL AVOIDANCE AREA

FRAXINUS UHDEI

SALIX GOODDINGII

SALIX LAISIOLEPIS

SALIX LAEVIGATA

PARKINSONIA ACLEATA

WASHINGTONIA ROBUSTA

JURUPA AVE.

80 FT

JURUPA AVE TRAILHEAD:
MASTER PLAN

SUMMARY OF COMMUNITY FEEDBACK







SURVEY SUMMARY

Community members felt most favorably towards seeing flowers and native plants and shade structures or shade trees at the trailhead. They would also like to see restrooms, lighting, and drinking fountains to use before heading onto the trail. Some respondents stated they were unfamiliar with the trailhead, or did not use the trailhead because of its lack of amenities, or because they felt unsafe in the area.



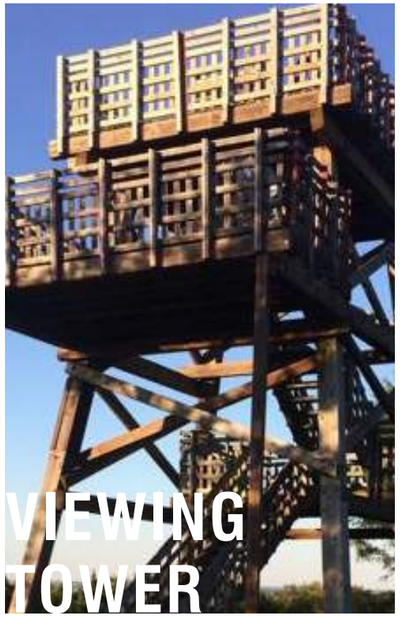
DESIGN NARRATIVE

The proposed improvements to the area of focus include a new parking lot that will provide 31 new parking spots and accommodate equestrian trailors.

The existing Santa Ana River Trail will be slightly rerouted to take visitors to a nature play area, demonstration garden and great lawn.

A secondary path system allows the visitors to meander along the ridge to an outlook overlooking the Santa Ana River. Additional connections are proposed to improve access to Rutland Park just south of the site as well as the adjacent neighborhood on the western edge of the side.













JURUPA AVE TRAILHEAD

JURUPA AVENUE TRAILHEAD - MASTERPLAN



OPINION OF PROBABLE COST

HARD COSTS

PRODUCTIVE

Demonstration Gardens	$27,000

NATURE & CULTURE

Great Lawn	$122,220
Music Play Area	$90,000
Planting Areas	$2,558,700

ACTIVE

Arroyo plaza and Play Area	$263,375
Nature play area	$75,250
New bike path alignment	$75,000

FACILITIES

Parking	$273,000
Overlook w/signage and benches	$40,000
Decomposed granite path	$65,000
Bike Hub with restrooms and plaza	$262,500
Park Gateway and Pedestrian connection	$75,000
Interpretive Signage	$75,000
Large shade structures	$300,000

TOTAL HARD COSTS = $4,302,045.00

+

SOFT COSTS

Design Drawings 10%	$344,163.60
General Conditions 15%	$645,306.75
Annual Escalation 7%	$301,143.15
Design Contingency 10%	$430,204.50
Prevailing Wage 12%	$516,245.40
General Contractor Fee 10%	$430,204.50
Construction Management 20%	$860,409.00

TOTAL SOFT COSTS = $3,527,676.90

=

$7,829,721.90

Appendix C1

Martha McLean Anza Narrows Park Air Quality, Greenhouse Gas, and Energy Data

Riverside Gateway -- Martha McLean Anza Narrows Park Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Riverside Gateway -- Martha McLean Anza Narrows Park
Construction Start Date	1/1/2024
Operational Year	2024
Lead Agency	City of Riverside
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	18.0
Location	33.965459997320934, -117.43062454640523
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5413
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.7

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

City Park	4.00	Acre	4.00	0.00	73,000	73,000	—	Programmed City Park area; programmed total landscape area; Recreational Building Area of two restrooms, band area, shade structures, playground areas, signage, bike maintenance/rest stations, and exercise stations.
Parking Lot	36.0	Space	0.32	0.00	0.00	—	—	Realigned NW Parking
Parking Lot	26.0	Space	0.23	0.00	0.00	—	—	Proposed SE Parking
Other Asphalt Surfaces	25.0	1000sqft	0.57	0.00	0.00	—	—	Other paved areas

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads
Transportation	T-33*	Locate Project near Bike Path/Bike Lane
Transportation	T-34*	Provide Bike Parking

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.51	1.27	11.3	14.2	0.02	0.50	0.17	0.67	0.46	0.04	0.50	—	2,608	2,608	0.11	0.03	0.81	2,620
Mit.	1.51	1.27	11.3	14.2	0.02	0.50	0.17	0.67	0.46	0.04	0.50	—	2,608	2,608	0.11	0.03	0.81	2,620
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.43	3.73	36.1	34.0	0.05	1.60	5.34	6.94	1.47	2.68	4.15	—	5,527	5,527	0.23	0.08	0.04	5,548
Mit.	4.43	3.73	36.1	34.0	0.05	1.60	5.34	6.94	1.47	2.68	4.15	—	5,527	5,527	0.23	0.08	0.04	5,548
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.29	1.08	9.87	11.3	0.02	0.43	0.38	0.82	0.40	0.15	0.55	—	2,029	2,029	0.08	0.02	0.27	2,039
Mit.	1.29	1.08	9.87	11.3	0.02	0.43	0.38	0.82	0.40	0.15	0.55	—	2,029	2,029	0.08	0.02	0.27	2,039
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.20	1.80	2.06	< 0.005	0.08	0.07	0.15	0.07	0.03	0.10	—	336	336	0.01	< 0.005	0.04	338
Mit.	0.24	0.20	1.80	2.06	< 0.005	0.08	0.07	0.15	0.07	0.03	0.10	—	336	336	0.01	< 0.005	0.04	338
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.51	1.27	11.3	14.2	0.02	0.50	0.17	0.67	0.46	0.04	0.50	—	2,608	2,608	0.11	0.03	0.81	2,620
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.43	3.73	36.1	34.0	0.05	1.60	5.34	6.94	1.47	2.68	4.15	—	5,527	5,527	0.23	0.08	0.04	5,548
2025	1.41	3.22	10.5	13.8	0.02	0.43	0.20	0.61	0.40	0.05	0.44	—	2,589	2,589	0.11	0.03	0.02	2,601
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.29	1.08	9.87	11.3	0.02	0.43	0.38	0.82	0.40	0.15	0.55	—	2,029	2,029	0.08	0.02	0.27	2,039
2025	0.15	0.30	1.08	1.48	< 0.005	0.05	0.02	0.07	0.04	0.01	0.05	—	256	256	0.01	< 0.005	0.04	257
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.24	0.20	1.80	2.06	< 0.005	0.08	0.07	0.15	0.07	0.03	0.10	—	336	336	0.01	< 0.005	0.04	338
2025	0.03	0.05	0.20	0.27	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	42.3	42.3	< 0.005	< 0.005	0.01	42.5

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.51	1.27	11.3	14.2	0.02	0.50	0.17	0.67	0.46	0.04	0.50	—	2,608	2,608	0.11	0.03	0.81	2,620
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	4.43	3.73	36.1	34.0	0.05	1.60	5.34	6.94	1.47	2.68	4.15	—	5,527	5,527	0.23	0.08	0.04	5,548
2025	1.41	3.22	10.5	13.8	0.02	0.43	0.20	0.61	0.40	0.05	0.44	—	2,589	2,589	0.11	0.03	0.02	2,601
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.29	1.08	9.87	11.3	0.02	0.43	0.38	0.82	0.40	0.15	0.55	—	2,029	2,029	0.08	0.02	0.27	2,039
2025	0.15	0.30	1.08	1.48	< 0.005	0.05	0.02	0.07	0.04	0.01	0.05	—	256	256	0.01	< 0.005	0.04	257
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.24	0.20	1.80	2.06	< 0.005	0.08	0.07	0.15	0.07	0.03	0.10	—	336	336	0.01	< 0.005	0.04	338
2025	0.03	0.05	0.20	0.27	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	42.3	42.3	< 0.005	< 0.005	0.01	42.5

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.36	0.50	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	831	831	0.05	0.03	3.06	845
Mit.	0.36	0.50	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	831	831	0.05	0.03	3.06	845
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34	0.48	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	784	784	0.05	0.03	0.08	796
Mit.	0.34	0.48	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	784	784	0.05	0.03	0.08	796
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.33	0.47	0.37	2.62	0.01	0.01	0.23	0.24	0.01	0.04	0.05	0.19	769	769	0.05	0.03	1.28	782
Mit.	0.33	0.47	0.37	2.62	0.01	0.01	0.23	0.24	0.01	0.04	0.05	0.19	769	769	0.05	0.03	1.28	782
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.09	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.03	127	127	0.01	0.01	0.21	129
Mit.	0.06	0.09	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.03	127	127	0.01	0.01	0.21	129
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.36	0.33	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	755	755	0.03	0.03	3.06	769
Area	0.00	0.17	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.36	0.50	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	831	831	0.05	0.03	3.06	845
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.34	0.31	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	709	709	0.03	0.03	0.08	720
Area	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	45.9	45.9	< 0.005	< 0.005	—	46.0

Water	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.34	0.48	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	784	784	0.05	0.03	0.08	796
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.30	0.37	2.62	0.01	0.01	0.23	0.24	0.01	0.04	0.05	—	694	694	0.03	0.03	1.28	706
Area	0.00	0.17	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.33	0.47	0.37	2.62	0.01	0.01	0.23	0.24	0.01	0.04	0.05	0.19	769	769	0.05	0.03	1.28	782
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.05	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	115	115	< 0.005	0.01	0.21	117
Area	0.00	0.03	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	7.60	7.60	< 0.005	< 0.005	—	7.62
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.87	4.87	< 0.005	< 0.005	—	4.88
Waste	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.11
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.06	0.09	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.03	127	127	0.01	0.01	0.21	129

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.36	0.33	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	755	755	0.03	0.03	3.06	769
Area	0.00	0.17	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.36	0.50	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	831	831	0.05	0.03	3.06	845
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.34	0.31	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	709	709	0.03	0.03	0.08	720
Area	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.34	0.48	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	0.19	784	784	0.05	0.03	0.08	796
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.30	0.37	2.62	0.01	0.01	0.23	0.24	0.01	0.04	0.05	—	694	694	0.03	0.03	1.28	706
Area	0.00	0.17	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Waste	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.33	0.47	0.37	2.62	0.01	0.01	0.23	0.24	0.01	0.04	0.05	0.19	769	769	0.05	0.03	1.28	782
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.05	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	115	115	< 0.005	0.01	0.21	117
Area	0.00	0.03	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	7.60	7.60	< 0.005	< 0.005	—	7.62
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.87	4.87	< 0.005	< 0.005	—	4.88
Waste	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.11
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.06	0.09	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.03	127	127	0.01	0.01	0.21	129

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.12	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.21	0.21	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.36	1.19	< 0.005	0.06	—	0.06	0.05	—	0.05	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	0.95	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.31	0.07	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	263	263	< 0.005	0.04	0.01	276
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.01	15.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.50

3.2. Demolition (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.12	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.21	0.21	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.36	1.19	< 0.005	0.06	—	0.06	0.05	—	0.05	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	0.95	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.31	0.07	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	263	263	< 0.005	0.04	0.01	276
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.01	15.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.50

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314

Dust From Material Movemen	—	—	—	—	—	—	5.11	5.11	—	2.63	2.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	0.90	< 0.005	0.04	—	0.04	0.04	—	0.04	—	145	145	0.01	< 0.005	—	146
Dust From Material Movemen	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.10	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	231	231	0.01	0.01	0.03	234
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.42	6.42	< 0.005	< 0.005	0.01	6.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	5.11	5.11	—	2.63	2.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	0.90	< 0.005	0.04	—	0.04	0.04	—	0.04	—	145	145	0.01	< 0.005	—	146

Dust From Material Movemen	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.10	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	231	231	0.01	0.01	0.03	234
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.42	6.42	< 0.005	< 0.005	0.01	6.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.26	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movemen	—	—	—	—	—	—	1.84	1.84	—	0.89	0.89	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.00	1.03	< 0.005	0.05	—	0.05	0.04	—	0.04	—	162	162	0.01	< 0.005	—	163
Dust From Material Movemen	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9

Dust From Material Movemen	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	0.95	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.6	59.6	< 0.005	0.01	< 0.005	62.5
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.42
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

3.6. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.26	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	—	1.84	1.84	—	0.89	0.89	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.00	1.03	< 0.005	0.05	—	0.05	0.04	—	0.04	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	0.95	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.6	59.6	< 0.005	0.01	< 0.005	62.5
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.42
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.43	7.52	0.01	0.29	—	0.29	0.26	—	0.26	—	1,375	1,375	0.06	0.01	—	1,379
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.37	< 0.005	0.05	—	0.05	0.05	—	0.05	—	228	228	0.01	< 0.005	—	228
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.07	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	185	185	0.01	0.01	0.73	188
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	0.07	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.81	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	170	170	0.01	0.01	0.02	172
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	< 0.005	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	98.7	98.7	< 0.005	< 0.005	0.18	100
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.02	15.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.03	16.6
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.43	7.52	0.01	0.29	—	0.29	0.26	—	0.26	—	1,375	1,375	0.06	0.01	—	1,379

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.17	1.37	< 0.005	0.05	—	0.05	0.05	—	0.05	—	228	228	0.01	< 0.005	—	228
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.07	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	185	185	0.01	0.01	0.73	188
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	0.07	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.81	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	170	170	0.01	0.01	0.02	172
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.3	25.3	< 0.005	< 0.005	< 0.005	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.49	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	98.7	98.7	< 0.005	< 0.005	0.18	100
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.02	15.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.03	16.6
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.61	0.77	< 0.005	0.03	—	0.03	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.05	0.06	0.75	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	166	166	0.01	0.01	0.02	169
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.0	25.0	< 0.005	< 0.005	< 0.005	26.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.90	9.90	< 0.005	< 0.005	0.02	10.0
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.46	1.46	< 0.005	< 0.005	< 0.005	1.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.66
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.24	0.24	< 0.005	< 0.005	< 0.005	0.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.07	0.61	0.77	< 0.005	0.03	—	0.03	0.02	—	0.02	—	141	141	0.01	< 0.005	—	141
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.75	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	166	166	0.01	0.01	0.02	169
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.0	25.0	< 0.005	< 0.005	< 0.005	26.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.90	9.90	< 0.005	< 0.005	0.02	10.0
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.46	1.46	< 0.005	< 0.005	< 0.005	1.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.66
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.24	0.24	< 0.005	< 0.005	< 0.005	0.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	194	194	0.01	0.01	0.02	197
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	< 0.005	26.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	10.9
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	194	194	0.01	0.01	0.02	197
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	< 0.005	26.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	10.9
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.37	1.37	< 0.005	< 0.005	< 0.005	1.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.81

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22

Architect Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	< 0.005	20.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.13	1.13	< 0.005	< 0.005	< 0.005	1.14
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	3.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	< 0.005	20.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.13	1.13	< 0.005	< 0.005	< 0.005	1.14
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.36	0.33	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	755	755	0.03	0.03	3.06	769
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.36	0.33	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	755	755	0.03	0.03	3.06	769
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.34	0.31	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	709	709	0.03	0.03	0.08	720
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.34	0.31	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	709	709	0.03	0.03	0.08	720
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.06	0.05	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	115	115	< 0.005	0.01	0.21	117
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.06	0.05	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	115	115	< 0.005	0.01	0.21	117

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.36	0.33	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	755	755	0.03	0.03	3.06	769

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.36	0.33	0.34	3.12	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	755	755	0.03	0.03	3.06	769
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.34	0.31	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	709	709	0.03	0.03	0.08	720
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.34	0.31	0.37	2.60	0.01	0.01	0.24	0.25	0.01	0.04	0.05	—	709	709	0.03	0.03	0.08	720
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.06	0.05	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	115	115	< 0.005	0.01	0.21	117
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.06	0.05	0.07	0.48	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	115	115	< 0.005	0.01	0.21	117

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	7.60	7.60	< 0.005	< 0.005	—	7.62
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	7.60	7.60	< 0.005	< 0.005	—	7.62

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	45.9	45.9	< 0.005	< 0.005	—	46.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	7.60	7.60	< 0.005	< 0.005	—	7.62
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	7.60	7.60	< 0.005	< 0.005	—	7.62

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.17	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.03	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.17	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.03	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	4.87	4.87	< 0.005	< 0.005	—	4.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.87	4.87	< 0.005	< 0.005	—	4.88

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	29.4	29.4	< 0.005	< 0.005	—	29.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	4.87	4.87	< 0.005	< 0.005	—	4.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.87	4.87	< 0.005	< 0.005	—	4.88

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.11
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.11

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.19	0.00	0.19	0.02	0.00	—	0.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.11
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.03	0.00	0.03	< 0.005	0.00	—	0.11

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2024	2/13/2024	5.00	10.0	—
Grading	Grading	2/14/2024	3/13/2024	5.00	20.0	—
Building Construction	Building Construction	3/14/2024	1/30/2025	5.00	230	—
Paving	Paving	1/31/2025	2/28/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	3/1/2025	3/29/2025	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37

Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	3.75	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.85	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	12.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.81	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.82	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.57	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	3.75	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.85	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	12.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.81	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.82	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.57	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	7,755	2,585	2,958

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	300	—
Site Preparation	—	—	15.0	0.00	—
Grading	135	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.13

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
City Park	0.00	0%
Parking Lot	0.32	100%
Parking Lot	0.23	100%
Other Asphalt Surfaces	0.57	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	873	0.03	< 0.005
2025	0.00	873	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	70.6	63.0	63.0	24,988	870	776	776	307,838
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	70.6	63.0	63.0	24,988	870	776	776	307,838
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

0	0.00	7,755	2,585	2,958

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	787	0.0330	0.0040	0.00
Parking Lot	12,363	787	0.0330	0.0040	0.00
Parking Lot	8,929	787	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	787	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	787	0.0330	0.0040	0.00

Parking Lot	12,363	787	0.0330	0.0040	0.00
Parking Lot	8,929	787	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	787	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	2,572,149
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	2,572,149
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.34	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00

Other Asphalt Surfaces	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.34	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	25.6	annual days of extreme heat

Extreme Precipitation	2.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	1.19	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	95.3
AQ-PM	93.2
AQ-DPM	54.9
Drinking Water	76.7
Lead Risk Housing	67.1
Pesticides	0.00

Toxic Releases	60.5
Traffic	11.2
Effect Indicators	—
CleanUp Sites	2.59
Groundwater	36.2
Haz Waste Facilities/Generators	47.6
Impaired Water Bodies	33.2
Solid Waste	59.2
Sensitive Population	—
Asthma	43.8
Cardio-vascular	34.8
Low Birth Weights	33.4
Socioeconomic Factor Indicators	—
Education	46.8
Housing	32.3
Linguistic	15.6
Poverty	54.5
Unemployment	39.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	47.67098678
Employed	10.49659951
Median HI	61.17028102
Education	—

Bachelor's or higher	44.41165148
High school enrollment	4.311561658
Preschool enrollment	18.04183241
Transportation	—
Auto Access	78.96830489
Active commuting	43.3465931
Social	—
2-parent households	64.32696009
Voting	42.52534326
Neighborhood	—
Alcohol availability	70.48633389
Park access	55.4471962
Retail density	21.21134351
Supermarket access	21.13435134
Tree canopy	59.2839728
Housing	—
Homeownership	70.46066983
Housing habitability	46.64442448
Low-inc homeowner severe housing cost burden	50.40420891
Low-inc renter severe housing cost burden	34.7747979
Uncrowded housing	38.91954318
Health Outcomes	—
Insured adults	70.78147055
Arthritis	20.9
Asthma ER Admissions	53.8
High Blood Pressure	23.1
Cancer (excluding skin)	29.3

Asthma	32.2
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	55.5
Life Expectancy at Birth	37.3
Cognitively Disabled	72.6
Physically Disabled	34.8
Heart Attack ER Admissions	68.9
Mental Health Not Good	40.6
Chronic Kidney Disease	35.4
Obesity	31.1
Pedestrian Injuries	42.0
Physical Health Not Good	42.2
Stroke	39.4
Health Risk Behaviors	—
Binge Drinking	29.5
Current Smoker	34.8
No Leisure Time for Physical Activity	44.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	47.4
Elderly	50.2
English Speaking	86.3
Foreign-born	14.4
Outdoor Workers	58.8
Climate Change Adaptive Capacity	—

Impervious Surface Cover	76.1
Traffic Density	16.9
Traffic Access	46.8
Other Indices	—
Hardship	68.7
Other Decision Support	—
2016 Voting	57.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	46.0
Healthy Places Index Score for Project Location (b)	31.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification

Land Use	Per Martha McLean Anza Narrows Park Master Plan
Operations: Vehicle Data	Trip rates per Rick Engineering (2023) Traffic Memorandum and maintenance trips
Construction: Dust From Material Movement	Material export per applicant
Construction: Trips and VMT	Per CalEEMod defaults

Martha McLean Southeast Activities Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Martha McLean Southeast Activities
Construction Start Date	1/1/2024
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	18.0
Location	33.962922116318666, -117.42737535909706
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5413
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.7

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Parking Lot	26.0	Space	0.23	0.00	0.00	—	—	—
City Park	0.50	Acre	0.50	0.00	20,000	20,000	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.73	1.45	5.60	6.98	0.01	0.26	0.23	0.44	0.23	0.05	0.25	—	1,305	1,305	0.05	0.02	1.00	1,309
Mit.	0.73	1.45	5.60	6.98	0.01	0.26	0.23	0.44	0.23	0.05	0.25	—	1,305	1,305	0.05	0.02	1.00	1,309
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.48	1.23	12.1	11.4	0.02	0.55	1.63	2.18	0.50	0.73	1.24	—	2,408	2,408	0.08	0.11	0.04	2,444
Mit.	1.48	1.23	12.1	11.4	0.02	0.55	1.63	2.18	0.50	0.73	1.24	—	2,408	2,408	0.08	0.11	0.04	2,444
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.22	0.21	1.82	2.27	< 0.005	0.08	0.02	0.10	0.08	0.01	0.08	—	417	417	0.02	< 0.005	0.02	418
Mit.	0.22	0.21	1.82	2.27	< 0.005	0.08	0.02	0.10	0.08	0.01	0.08	—	417	417	0.02	< 0.005	0.02	418
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	0.04	0.33	0.41	< 0.005	0.01	< 0.005	0.02	0.01	< 0.005	0.01	—	69.0	69.0	< 0.005	< 0.005	< 0.005	69.2
Mit.	0.04	0.04	0.33	0.41	< 0.005	0.01	< 0.005	0.02	0.01	< 0.005	0.01	—	69.0	69.0	< 0.005	< 0.005	< 0.005	69.2
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.73	1.45	5.60	6.98	0.01	0.26	0.23	0.44	0.23	0.05	0.25	—	1,305	1,305	0.05	0.02	1.00	1,309
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.48	1.23	12.1	11.4	0.02	0.55	1.63	2.18	0.50	0.73	1.24	—	2,408	2,408	0.08	0.11	0.04	2,444
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.22	0.21	1.82	2.27	< 0.005	0.08	0.02	0.10	0.08	0.01	0.08	—	417	417	0.02	< 0.005	0.02	418
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.04	0.04	0.33	0.41	< 0.005	0.01	< 0.005	0.02	0.01	< 0.005	0.01	—	69.0	69.0	< 0.005	< 0.005	< 0.005	69.2

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.73	1.45	5.60	6.98	0.01	0.26	0.23	0.44	0.23	0.05	0.25	—	1,305	1,305	0.05	0.02	1.00	1,309
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.48	1.23	12.1	11.4	0.02	0.55	1.63	2.18	0.50	0.73	1.24	—	2,408	2,408	0.08	0.11	0.04	2,444
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.22	0.21	1.82	2.27	< 0.005	0.08	0.02	0.10	0.08	0.01	0.08	—	417	417	0.02	< 0.005	0.02	418
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.04	0.04	0.33	0.41	< 0.005	0.01	< 0.005	0.02	0.01	< 0.005	0.01	—	69.0	69.0	< 0.005	< 0.005	< 0.005	69.2

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	< 0.005	5.02	5.02	< 0.005	< 0.005	0.00	5.04

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	3.54	3.54	< 0.005	< 0.005	—	3.54
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	1.48	1.48	< 0.005	< 0.005	—	1.48
Waste	—	—	—	—	—	—	—	—	—	—	—	< 0.005	0.00	< 0.005	< 0.005	0.00	—	0.01
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	< 0.005	5.02	5.02	< 0.005	< 0.005	0.00	5.04

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Waste	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.02	30.3	30.3	< 0.005	< 0.005	0.00	30.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	3.54	3.54	< 0.005	< 0.005	—	3.54
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	1.48	1.48	< 0.005	< 0.005	—	1.48
Waste	—	—	—	—	—	—	—	—	—	—	—	< 0.005	0.00	< 0.005	< 0.005	0.00	—	0.01
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	< 0.005	5.02	5.02	< 0.005	< 0.005	0.00	5.04

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.69	5.79	0.01	0.19	—	0.19	0.17	—	0.17	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.87	3.87	< 0.005	< 0.005	—	3.88
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.05	0.06	0.63	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	132	132	0.01	< 0.005	0.01	134
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.67	3.67	< 0.005	< 0.005	0.01	3.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Demolition (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.69	5.79	0.01	0.19	—	0.19	0.17	—	0.17	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.87	3.87	< 0.005	< 0.005	—	3.88
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.63	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	132	132	0.01	< 0.005	0.01	134
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.67	3.67	< 0.005	< 0.005	0.01	3.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.60	5.56	0.01	0.24	—	0.24	0.22	—	0.22	—	858	858	0.03	0.01	—	861
Dust From Material Movemen	—	—	—	—	—	—	0.14	0.14	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movemen:	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.32	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.1	66.1	< 0.005	< 0.005	0.01	67.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.60	5.56	0.01	0.24	—	0.24	0.22	—	0.22	—	858	858	0.03	0.01	—	861
Dust From Material Movemen	—	—	—	—	—	—	0.14	0.14	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.32	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.1	66.1	< 0.005	< 0.005	0.01	67.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.19	11.4	10.7	0.02	0.53	—	0.53	0.49	—	0.49	—	1,713	1,713	0.07	0.01	—	1,719

Dust From Material Movemen	—	—	—	—	—	—	1.38	1.38	—	0.67	0.67	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.39	9.39	< 0.005	< 0.005	—	9.42
Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	99.2	99.2	< 0.005	< 0.005	0.01	100
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.70	0.16	< 0.005	0.01	0.15	0.17	0.01	0.04	0.05	—	596	596	0.01	0.10	0.03	625

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.42
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

3.6. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.19	11.4	10.7	0.02	0.53	—	0.53	0.49	—	0.49	—	1,713	1,713	0.07	0.01	—	1,719
Dust From Material Movement	—	—	—	—	—	—	1.38	1.38	—	0.67	0.67	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.39	9.39	< 0.005	< 0.005	—	9.42

Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	99.2	99.2	< 0.005	< 0.005	0.01	100
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.70	0.16	< 0.005	0.01	0.15	0.17	0.01	0.04	0.05	—	596	596	0.01	0.10	0.03	625
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.42
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.53	1.91	< 0.005	0.07	—	0.07	0.06	—	0.06	—	357	357	0.01	< 0.005	—	359
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.28	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.2	59.2	< 0.005	< 0.005	—	59.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.67	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.53	1.91	< 0.005	0.07	—	0.07	0.06	—	0.06	—	357	357	0.01	< 0.005	—	359
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.28	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.2	59.2	< 0.005	< 0.005	—	59.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	4.52	5.32	0.01	0.21	—	0.21	0.19	—	0.19	—	823	823	0.03	0.01	—	826
Paving	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.87
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	1.46	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	252	252	0.01	0.01	1.00	256
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.21	3.21	< 0.005	< 0.005	0.01	3.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	4.52	5.32	0.01	0.21	—	0.21	0.19	—	0.19	—	823	823	0.03	0.01	—	826
Paving	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.87
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.10	0.09	0.08	1.46	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	252	252	0.01	0.01	1.00	256
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.21	3.21	< 0.005	< 0.005	0.01	3.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	1.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.83	1.83	< 0.005	< 0.005	—	1.84
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.30	0.30	< 0.005	< 0.005	—	0.30
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	1.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.83	1.83	< 0.005	< 0.005	—	1.84
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.30	0.30	< 0.005	< 0.005	—	0.30
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	3.54	3.54	< 0.005	< 0.005	—	3.54
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	3.54	3.54	< 0.005	< 0.005	—	3.54

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	3.54	3.54	< 0.005	< 0.005	—	3.54
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	3.54	3.54	< 0.005	< 0.005	—	3.54

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.02	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	1.48	1.48	< 0.005	< 0.005	—	1.48
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	1.48	1.48	< 0.005	< 0.005	—	1.48

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	8.95	8.95	< 0.005	< 0.005	—	8.97
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	1.48	1.48	< 0.005	< 0.005	—	1.48
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	1.48	1.48	< 0.005	< 0.005	—	1.48

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

City Park	—	—	—	—	—	—	—	—	—	—	—	< 0.005	0.00	< 0.005	< 0.005	0.00	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	< 0.005	0.00	< 0.005	< 0.005	0.00	—	0.01

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	—	0.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
City Park	—	—	—	—	—	—	—	—	—	—	—	< 0.005	0.00	< 0.005	< 0.005	0.00	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	< 0.005	0.00	< 0.005	< 0.005	0.00	—	0.01

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/15/2024	5.00	10.0	—
Site Preparation	Site Preparation	1/16/2024	1/17/2024	5.00	1.00	—
Grading	Grading	1/18/2024	1/20/2024	5.00	2.00	—
Building Construction	Building Construction	1/21/2024	6/9/2024	5.00	100	—
Paving	Paving	6/10/2024	6/17/2024	5.00	5.00	—
Architectural Coating	Architectural Coating	6/18/2024	6/25/2024	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29

Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	8.50	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—

Building Construction	Worker	0.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	8.50	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	600	200	612

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	—	—	0.50	0.00	—
Grading	135	—	1.50	0.00	—
Paving	0.00	0.00	0.00	0.00	0.23

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Parking Lot	0.23	100%
City Park	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	873	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	0.39	0.98	1.09	210	4.80	12.1	13.5	2,586

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	0.39	0.98	1.09	210	4.80	12.1	13.5	2,586

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	600	200	612

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00

Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Parking Lot	8,929	873	0.0330	0.0040	0.00
City Park	0.00	873	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Parking Lot	8,929	873	0.0330	0.0040	0.00
City Park	0.00	873	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Parking Lot	0.00	0.00
City Park	0.00	704,698

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Parking Lot	0.00	0.00
City Park	0.00	704,698

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Parking Lot	0.00	0.00
City Park	0.04	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Parking Lot	0.00	0.00
City Park	0.04	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	25.6	annual days of extreme heat
Extreme Precipitation	2.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	1.19	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	95.3
AQ-PM	93.2
AQ-DPM	54.9
Drinking Water	76.7
Lead Risk Housing	67.1
Pesticides	0.00
Toxic Releases	60.5
Traffic	11.2
Effect Indicators	—
CleanUp Sites	2.59
Groundwater	36.2
Haz Waste Facilities/Generators	47.6
Impaired Water Bodies	33.2
Solid Waste	59.2
Sensitive Population	—
Asthma	43.8
Cardio-vascular	34.8
Low Birth Weights	33.4
Socioeconomic Factor Indicators	—
Education	46.8
Housing	32.3
Linguistic	15.6
Poverty	54.5
Unemployment	39.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	47.67098678
Employed	10.49659951
Median HI	61.17028102
Education	—
Bachelor's or higher	44.41165148
High school enrollment	4.311561658
Preschool enrollment	18.04183241
Transportation	—
Auto Access	78.96830489
Active commuting	43.3465931
Social	—
2-parent households	64.32696009
Voting	42.52534326
Neighborhood	—
Alcohol availability	70.48633389
Park access	55.4471962
Retail density	21.21134351
Supermarket access	21.13435134
Tree canopy	59.2839728
Housing	—
Homeownership	70.46066983
Housing habitability	46.64442448
Low-inc homeowner severe housing cost burden	50.40420891
Low-inc renter severe housing cost burden	34.7747979
Uncrowded housing	38.91954318

Health Outcomes	—
Insured adults	70.78147055
Arthritis	20.9
Asthma ER Admissions	53.8
High Blood Pressure	23.1
Cancer (excluding skin)	29.3
Asthma	32.2
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	55.5
Life Expectancy at Birth	37.3
Cognitively Disabled	72.6
Physically Disabled	34.8
Heart Attack ER Admissions	68.9
Mental Health Not Good	40.6
Chronic Kidney Disease	35.4
Obesity	31.1
Pedestrian Injuries	42.0
Physical Health Not Good	42.2
Stroke	39.4
Health Risk Behaviors	—
Binge Drinking	29.5
Current Smoker	34.8
No Leisure Time for Physical Activity	44.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	47.4
Elderly	50.2
English Speaking	86.3
Foreign-born	14.4
Outdoor Workers	58.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	76.1
Traffic Density	16.9
Traffic Access	46.8
Other Indices	—
Hardship	68.7
Other Decision Support	—
2016 Voting	57.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	46.0
Healthy Places Index Score for Project Location (b)	31.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Recreation building area for new restroom (adjacent to SE parking lot) and River Swings
Construction: Trips and VMT	Per CalEEMod defaults

Project Construction Fuel Consumption Summary

Source Category	Fuel Consumption (gal)	
	Diesel	Gasoline
Offroad Equipment	36,343	--
Haul Trucks	326	--
Vendor Trucks	327	--
Workers	--	2,848
Total Fuel Consumption	**36,996**	**2,848**

Construction Duration (years):	1.2
Average Annual Diesel (gal):	29,809
Average Annual Gasoline (gal):	2,848

County Fuel Consumption (2021) [1]

County: Riverside

Source	Fuel Type	Gallons (Retail + Non-Retail	Percent of Project Compared to County
Workers	Gas	981,000,000	0.0003%
Off-Road/Haul & Vendor Trucks	Diesel	290,258,449	0.0103%

Notes:

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2021
https://www.energy.ca.gov/sites/default/files/2022-10/2010-2021_CEC-A15_Results_and_Analysis_ADA.xlsx
Accessed December 2022. Diesel is adjusted to account for retail (50.3%) and non-retail (49.7%) diesel sales.

Offroad Equipment

Fuel Consumption: Equipment ≤ 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.408
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0574
Total HP-HR <100	367,858
Total Diesel Fuel (gal)	**21,112**

Fuel Consumption: Equipment > 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.367
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0516
Total HP-HR >100	295,034
Total Diesel Fuel (gal)	**15,231**

Total diesel gallons (off-road equipment): 36,343

Phase Name	Equipment	# of Equipment	Hours/Day	HP	Load Factor	Days	Total HP-HR
Demolition	Concrete/Industrial Saws	1	8	33	0.73	21	4047.12
Demolition	Excavators	3	8	36	0.38	21	6894.72
Demolition	Rubber Tired Dozers	2	8	367	0.4	21	49324.8
Site Preparation	Rubber Tired Dozers	3	8	367	0.4	11	38755.2
Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37	11	10940.16
Grading	Excavators	1	8	36	0.38	21	2298.24
Grading	Graders	1	8	148	0.41	21	10194.24
Grading	Rubber Tired Dozers	1	8	367	0.4	21	24662.4
Grading	Tractors/Loaders/Backhoes	3	8	84	0.37	21	15664.32
Building Construction	Cranes	1	7	367	0.29	231	172097.31
Building Construction	Forklifts	3	8	82	0.2	231	90921.6
Building Construction	Generator Sets	1	8	14	0.74	231	19145.28
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37	231	150769.08
Building Construction	Welders	1	8	46	0.45	231	38253.6
Paving	Pavers	2	8	81	0.42	21	11430.72
Paving	Paving Equipment	2	8	89	0.36	21	10765.44
Paving	Rollers	2	8	36	0.38	21	4596.48
Architectural Coating	Air Compressors	1	6	37	0.48	20	2131.2
						Total >100HP	295,033.95
						Total <100HP	367,857.96

Notes:
1. CARB, 2017 Off-road Diesel Emission Factors
https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

Haul Trucks

Onroad Travel Consumption	Value
EMFAC2021 Diesel Fuel Consumption Factor (gal/mi):[1]	0.165
Total VMT (mi):	1,940
Total diesel gallons	**320**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.6400
Total Idle-Hours per Year:	8
Total diesel gallons	**5**

Total diesel gallons: 326

Phase	Total Truck Trips (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Idle Hours	Onroad Travel Consumption (gal)	Idling Consumption (gal)	Total Fuel Consumption (gal)
Demolition	79	20.00	HHDT	1580	6.58	260.98	4.21	265.20
Site Preparation	0	20.00	HHDT	-	-	-	-	-
Grading	18	20.00	HHDT	360	1.50	59.46	0.96	60.42
Building Construction	0	20.00	HHDT	-	-	-	-	-
Paving	0	20.00	HHDT	-	-	-	-	-
Architectural Coating	0	20.00	HHDT	-	-	-	-	-
			Total VMT:	**1,940**		**320.45**	**5.17**	**325.62**
			Total Idle-Hours:		**8**			

1. CARB, EMFAC2021 (BAAQMD; HHDT; Annual; CY 2022; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
   https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Vendor Trucks

Onroad Travel Consumption	Value
EMFAC2021 Diesel Fuel Consumption Factor (gal/mi):[1]	0.151
Total VMT (mi):	2,096
Total diesel gallons	**316**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.6400
Total Idle-Hours per Year:	17
Total diesel gallons	**11**

Total diesel gallons: 327

Phase	Days/year	Truck Trips per Day (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Idle Hours	Onroad Travel Consumption (gal)	Idling Consumption (gal)	Total Fuel Consumption (gal)
Demolition	21	0	10.20	HHDT/MHDT	0	0	-	-	-
Site Preparation	11	0	10.20	HHDT/MHDT	0	0	-	-	-
Grading	21	0	10.20	HHDT/MHDT	0	0	-	-	-
Building Construction	231	1	10.20	HHDT/MHDT	1,920	16	289.41	10.04	299.45
Paving	21	1	10.20	HHDT/MHDT	176	1	26.46	0.92	27.37
Architectural Coating	20	0	10.20	HHDT/MHDT	0	0	-	-	-
				Total VMT:	**2,096**		**315.86**	**10.96**	**326.82**
				Total Idle-Hours:		**17**			

1. CARB, EMFAC2021 (BAAQMD; HHDT/MHDT; Annual; CY 2022; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
   https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Worker Vehicles

Onroad Travel Consumption	Value
EMFAC2021 Gasoline Fuel Consumption Factor (gal/mi):[1]	0.037
Total VMT (mi):	76,539
Total gasoline gallons	**2,848**

Phase	Days/year	Vehicle Trips per day (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Onroad Travel Consumption (gal)
Demolition	21	15.0	18.50	LD Fleet Mix	5,828	217
Site Preparation	11	17.5	18.50	LD Fleet Mix	3,561	133
Grading	21	15.0	18.50	LD Fleet Mix	5,828	217
Building Construction	231	12.9	18.50	LD Fleet Mix	54,914	2,044
Paving	21	15.0	18.50	LD Fleet Mix	5,828	217
Architectural Coating	20	1.6	18.50	LD Fleet Mix	581	22
				Total VMT:	**76,539**	**2,848**

CARB, EMFAC2021 (BAAQMD; LDA/LDT1/LDT2; Annual; CY 2022; Aggregate MY; Aggregate Speed,GAS)

Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.

https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

1.

2.

Idling Fuel Consumption Factors

VEHICLE TYPE	FUEL TYPE	ENGINE SIZE (LITER)	GROSS VEHICLE WEIGHT (GVW) (LBS)	IDLING FUEL USE (GAL/HR WITH NO LOAD)
Compact Sedan	Gas	2	-	0.16
Large Sedan	Gas	4.6	-	0.39
Compact Sedan	Diesel	2	-	0.17
Medium Heavy Truck	Gas	7-May	19,700-26,000	0.84
Delivery Truck	Diesel	-	19,500	0.84
Tow Truck	Diesel	-	26,000	0.59
Medium Heavy Truck	Diesel	10-Jun	23,000-33,000	0.44
Transit Bus	Diesel	-	30,000	0.97
Combination Truck	Diesel	-	32,000	0.49
Bucket Truck	Diesel	-	37,000	0.9
Tractor-Semitrailer	Diesel	-	80,000	0.64

Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

This tool provides a quick estimation of the fuel use and emissions for your equipment in a specific year. The results may slightly differ from those from the official inventory model.

Instructions:

Enter the horsepwer, model year, and other details about your equipment in the Input box.

Make sure to update the ***load factor*** for your equipment using the lookup table.

The ***Output*** box gives a quick estimation of the fuel use, NOx, PM, and THC emission for your equipment.

Input	Input Engine Here
Horsepower (hp)	70
Model year	2011
Calendar year	2015
Activity (annual hours)	250
Accumulated hours on equipment (estimate using annual-hours*age if you only know the age of the equipment)	1000
Load factor (check the lookup table)	0.2

Intermediate steps	
HPbin	75
NOx_EF0	2.90
NOx_DR	3.8E-05
NOx_FCF	0.950
PM_EF0	0.16
PM_DR	1.2E-05
PM_FCF	0.90
THC_EF0	0.10
THC_DR	2.5E-05
THC_FCF	0.90
NOx_EF (g/hp-hr)	2.79
PM_EF (g/hp-hr)	0.15
THC_EF (g/hp-hr)	0.11
CO2_EF (kg/gallon-diesel)*	10.21
BSFC (lb/hp-hr)	0.408
Unit conversion (lb/gallon)	7.109

*Reference: www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf

Results	
Fuel Used (gallon)	201
NOx Emissions (kg)	9.8
PM Emissions (kg)	0.5
THC Emissions (kg)	0.4
CO2 Emissions (kg)	2050.9
NOx Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	2.79
PM Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	0.15
THC Emission Factor (including deterioration and fuel correction factor): gram/ bhp-hr	0.11

Loac Factor Lookup Table

Equipment Category	Equipment Type	Details	Load Factor
Agriculture equipment	Agricultural tractors		0.48
	Combine harvesters		0.44
	Forage & silage harvesters		0.44
	Cotton pickers		0.44
	Nut harvester		0.44
	Other harvesters		0.44
	Balers (self propelled)		0.50
	Bale wagons (self propelled)		0.50
	Swathers/windrowers/hay conditioners		0.48
	Hay Squeeze/Stack retriever		0.42
	Sprayers/Spray rigs		0.42
	Construction equipment		0.40
	Other non-mobile		0.48
	Forklifts		0.40
	Atvs		0.40
	Others		0.40
Portable equipment	All portable equipment		0.31
Cargo Handling Equipment	Construction equipment		0.55
	Container handling equipment		0.59
	Forklift		0.30
	Other general industrial equipment		0.51
	Rtg crane		0.20
	Yard tractor		0.39
Transport Refrigeration Units (TRU)	TRU on trailers	25 HP and over, MY2012 and Older	0.46
	TRU on trailers	25 HP and over, MY2013 and Newer	0.38
	TRU on trailers	23 HP and Over, below 25 HP, All years	0.46
	TRU on trucks	Below 23 HP, All Model years	0.56
	TRU on railcars	25 HP and over, MY2012 and Older	0.33
	TRU on railcars	25 HP and over, MY2013 and Newer	0.27
	TRU on railcars	Below 25 HP, All Model years	0.33
	TRU with generators	25 HP and over, MY2012 and Older	0.46
	TRU with generators	25 HP and Over, MY2013 and Newer	0.38
	TRU with generators	23 HP and Over, below 25 HP, All Model Years	0.46
Ground Support Equipment	Passenger Stand		0.40
	A/C Tug Narrow Body		0.54
	A/C Tug Wide Body		0.54
	Baggage Tug		0.37
	Belt Loader		0.34
	Bobtail		0.37
	Cargo Loader		0.34
	Cargo Tractor		0.36
	Forklift (GSE)		0.20
	Lift (GSE)		0.34
	Other GSE		0.34
	Cranes		0.29
	Crawler Tractors		0.43
	Excavators		0.38
	Graders		0.41
	Off-Highway Tractors		0.44

	Construction and Industrial Equipment	Off-Highway Trucks		0.38
		Other Construction Equipment		0.42
		Pavers		0.42
		Paving Equipment		0.36
		Rollers		0.38
		Rough Terrain Forklifts		0.40
		Rubber Tired Dozers		0.40
		Rubber Tired Loaders		0.36
		Scrapers		0.48
		Skid Steer Loaders		0.37
		Surfacing Equipment		0.30
		Tractors/Loaders/Backhoes		0.37
		Trenchers		0.50
		Aerial Lifts		0.31
		Forklifts		0.20
		Other General Industrial Equipment		0.34
		Other Material Handling Equipment		0.40
		Sweepers/Scrubbers		0.46
	Oil and Drill Rigs	Drill Rig (Mobile)		0.50
		Workover Rig (Mobile)		0.50
		Bore/Drill Rigs		0.50

Worker Fuel Consumption Factor **Year: 2024**

Vehicle Category	VMT (mi/day)	Fuel Consumption (1000gal/day)	Fuel Consumption Factor (gal/mi)	Fuel Economy (mi/gal)	Fleet Mix	Fuel Consumption Factor (gal/mi)
LDA	218661478.4	7518.83	0.034	29.08	64%	0.037
LDT1	18293108.56	753.63	0.041	24.27	5%	
LDT2	105566684.3	4474.43	0.042	23.59	31%	

Source: EMFAC2021, **Output:** Onroad Emissions, **Model Version:** EMFAC2021 v1.0.0, **Air District:** SCAQMD, **Vehicle Categories:** EMFAC2007, **Model Year:** Aggregate, **Speed:** Aggregate, **Fuel:** All, **Output Unit:** tons/operation day

2024

Vehicle Category	VMT (miles/day)	Fuel Consumption (1000 gal/day)	Fuel Consumption Factor (gal/mi)	Fuel Economy (mi/gal)	Fleet Mix	Fuel Consumption Factor (gal/mi)
HHDT	13368763.56	2208.3	0.165	6.05	73%	0.151
MHDT	5002001.319	560.4	0.112	8.93	27%	

Source: EMFAC2021, **Output:** Onroad Emissions, **Model Version:** EMFAC2021 v1.0.0, **Air District:** SCAQMD, **Vehicle Categories:** EMFAC2007, **Model Year:** Aggregate, **Speed:** Aggregate, **Fuel:** All, **Output Unit:** tons/operation day

PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
Demolition	Demolition	1/1/2024	1/29/2024	5	21
Site Preparation	Site Preparation	1/30/2024	2/13/2024	5	11
Grading	Grading	2/14/2024	3/13/2024	5	21
Building Construction	Building Construction	3/14/2024	1/30/2025	5	231
Paving	Paving	1/31/2025	2/28/2025	5	21
Architectural Coating	Architectural Coating	3/1/2025	3/29/2025	5	20

	Start	End		
Construction Duration (years)	1/1/2024	3/29/2025	453	1.24

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)	2021[A] Survey Responses (Millions of Gallons)	2021[A] Estimated Totals (Millions of Gallons)
Alameda	456	551	476	548	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442	393	492
Amador	12	15	12	14	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13	11	14
Butte	66	81	70	81	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68	58	74
Calaveras	11	14	12	14	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15	11	13
Colusa	13	17	9	11	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15	11	16
Contra Costa	332	403	344	395	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336	304	374
Del Norte	6	8	6	7	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5	4	5
El Dorado	55	68	57	67	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62	52	65
Fresno	285	342	290	335	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347	294	387
Glenn	12	14	12	14	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15	14	17
Humboldt	44	54	46	54	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56	47	52
Imperial	56	69	51	60	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64	56	74
Inyo	16	19	16	18	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16	14	15
Kern	293	362	309	359	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364	331	406
Kings	42	51	41	48	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52	42	58
Lake	20	25	18	22	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20	17	20
Lassen	6	7	6	7	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6	7	7
Los Angeles	3,005	3,658	3,069	3,554	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770	2,700	3,061
Madera	47	57	54	61	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63	53	71
Marin	78	94	91	103	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77	66	88
Mariposa	6	7	6	7	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5	6	7
Mendocino	33	41	34	40	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37	33	39
Merced	86	106	81	95	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106	90	122
Mono	6	7	5	6	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7	5	6
Monterey	124	152	134	155	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141	116	162
Napa	42	52	42	47	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44	42	47
Nevada	34	42	30	35	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36	28	35
Orange	1,162	1,406	1,162	1,338	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029	1,037	1,159
Placer	154	190	162	189	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163	160	178
Plumas	6	7	7	8	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6	4	7
Riverside	781	952	792	916	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876	847	981
Sacramento	467	566	482	553	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689	448	557
San Benito	15	18	14	16	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18	11	17
San Bernardino	747	902	761	871	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823	786	926
San Diego	1,094	1,320	1,122	1,291	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055	964	1,165
San Francisco	112	138	129	151	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91	82	99
San Joaquin	248	303	260	301	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292	265	321
San Luis Obispo	121	147	123	144	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115	101	125
San Mateo	232	275	272	310	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238	217	269
Santa Barbara	141	174	140	164	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146	148	168
Santa Clara	514	621	600	691	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511	488	599
Santa Cruz	84	103	91	106	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74	64	88
Shasta	72	88	73	85	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76	67	79
Siskiyou	20	25	17	19	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25	19	28
Solano	158	190	191	218	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180	161	196
Sonoma	157	189	155	178	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167	159	181
Stanislaus	191	230	184	212	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197	205	243
Sutter	30	37	31	37	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30	30	34
Tehama	27	33	24	28	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26	25	30
Trinity	3	4	3	4	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4	3	4
Tulare	109	132	121	139	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149	138	181
Tuolumne	14	17	13	16	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20	17	19
Ventura	285	345	290	335	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262	255	294
Yolo	82	100	76	87	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91	83	101
Yuba	24	29	26	30	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35	28	40
Other Counties*	2	3	2	2	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2
Total	**12,238**	**14,860**	**12,644**	**14,596**	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**	**11,618**	**13,818**

[A] 2012 to 2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc and Sierra.

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County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Calaveras	2	2	2	2	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3
Colusa	3	3	2	3	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11
Contra Costa	15	18	19	21	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23
Del Norte	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2
El Dorado	6	8	6	7	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8
Fresno	30	33	35	38	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66
Glenn	5	5	4	4	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18
Humboldt	10	12	10	12	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6
Imperial	9	10	8	9	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24
Inyo	3	4	3	4	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4
Kern	111	117	125	129	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116
Kings	7	7	7	8	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7
Lake	3	3	3	3	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4
Lassen	1	1	1	2	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1
Los Angeles	212	235	221	239	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299
Madera	23	24	23	24	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32
Marin	3	4	2	3	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4
Mariposa	1	1	1	1	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Mendocino	6	7	7	8	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9
Merced	44	45	37	38	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30
Mono	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	21	23	24	26	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22
Napa	2	2	2	2	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6
Nevada	5	5	5	5	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8
Orange	38	47	36	42	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53
Placer	13	16	13	15	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35
Plumas	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Riverside	84	93	87	94	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144
Sacramento	33	37	32	35	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44
San Bernardino	141	149	136	142	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159
San Diego	69	80	64	72	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94
San Francisco	3	3	3	3	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4
San Joaquin	73	75	85	87	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93
San Luis Obispo	12	14	16	18	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20
San Mateo	10	12	8	10	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13
Santa Barbara	13	14	16	17	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Santa Clara	23	26	26	28	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35
Santa Cruz	4	5	5	6	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8
Shasta	20	23	19	21	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14
Siskiyou	5	6	11	11	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18
Solano	14	17	18	20	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27
Sonoma	14	16	18	19	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30
Stanislaus	33	36	27	29	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39
Sutter	4	5	2	3	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5
Tehama	31	32	38	39	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8
Tulare	23	25	33	35	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51
Tuolumne	2	2	2	2	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3
Ventura	20	23	32	34	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32
Yolo	33	34	26	27	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22
Yuba	4	4	4	5	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4
Other Counties*	1	2	2	2	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2
Total	**1,285**	**1,414**	**1,346**	**1,447**	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**

[A] - 2012-2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 49.7% of all diesel sales, are not reported in this chart.

Operations Energy Consumption Summary - 2024 Ops year.

Transportation Fuel

Fuel Type	Gallons/Year
GAS	11,854
DSL	2,224

County: Riverside

Fuel Type	Gallons (Retail + Non-Retail)[1]	Percent of Project Compared to County
Gas	981,000,000	0.0012083%
Diesel	290,258,449	0.0007662%

Electricity

Comparison	GWh/year
Riverside County (2020)[2]	8,256.71
Project Electricity	0.02
Project % of Sales	0.0003%

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2021
https://www.energy.ca.gov/media/3874
Accessed March 2022.Non-Retail diesel sales, which comprise approximately 49.7% of all diesel sales, are not reported in this total.
2.California Energy Commission, *Electricity Consumption By County - Riverside 2021 Non-Residential*
http://www.ecdms.energy.ca.gov/elecbycounty.aspx?msclkid=c6576070a71211ec90029fbdf184242d

Utility Consumption

Electricity[3]

Land Use	kWh/year	GWh/year
Parking Lot	12,363	0.012
Parking Lot	8,929	0.009
Total	**21,292**	**0.021**

Comparison	GWh/year
Riverside County Non-Residential Electricity Consumption	8,256.71
Project Electricity	0.02
Project % of Sales	0.0003%

Notes:

1 California Energy Commission, *Electricity Consumption By County - Riverside 2021 Non-Residential*
http://www.ecdms.energy.ca.gov/elecbycounty.aspx?msclkid=c6576070a71211ec90029fbdf184242d

Annual Miles
307,837.76

Fuel Consumption - 2024

	Gal/mi		Fuel Distribution			Miles/Vehicle	Gallons of Fuel	
Vehicle Category	DSL	GAS	DSL	GAS	Fleet Mix	Category	DSL	GAS
HHDT	0.17	0.25	100.0%	0.0%	3.00%	9,245.30	1,526.64	0.76
LDA	0.02	0.03	0.2%	99.8%	49.21%	151,484.77	7.71	5,198.00
LDT1	0.04	0.04	0.0%	99.98%	4.11%	12,649.01	0.10	521.01
LDT2	0.03	0.04	0.3%	99.7%	23.79%	73,233.70	8.05	3,093.31
LHDT1	0.05	0.07	35.8%	64.2%	2.83%	8,726.28	152.23	410.64
LHDT2	0.06	0.08	62.4%	37.6%	0.71%	2,198.21	79.51	69.17
MCY	0.00	0.02	0.0%	100.0%	0.36%	1,101.25	0.00	26.51
MDV	0.04	0.05	1.3%	98.7%	14.29%	43,986.26	23.89	2,259.85
MH	0.10	0.21	29.6%	70.4%	0.09%	283.13	8.28	41.04
MHDT	0.11	0.19	78.4%	21.6%	1.43%	4,408.22	387.42	184.05
OBUS	0.14	0.20	52.0%	48.0%	0.10%	316.01	23.45	29.88
SBUS	0.14	0.11	35.2%	64.8%	0.04%	137.40	6.59	9.97
UBUS	0.15	0.14	1.7%	98.3%	0.02%	68.22	0.18	9.61
					Project	**307,837.76**	**2,224.06**	**11,853.80**
* 4,651 trips/year for a total of 65,023 VMT							14,077.86	0.84

1	2.0	3.0	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

iesel Sales by County

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Calaveras	2	2	2	2	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3
Colusa	3	3	2	3	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11
Contra Costa	15	18	19	21	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23
Del Norte	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2
El Dorado	6	8	6	7	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8
Fresno	30	33	35	38	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66
Glenn	5	5	4	4	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18
Humboldt	10	12	10	12	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6
Imperial	9	10	8	9	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24
Inyo	3	4	3	4	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4
Kern	111	117	125	129	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116
Kings	7	7	7	8	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7
Lake	3	3	3	3	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4
Lassen	1	1	1	2	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1
Los Angeles	212	235	221	239	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299
Madera	23	24	23	24	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32
Marin	3	4	2	3	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4
Mariposa	1	1	1	1	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Mendocino	6	7	7	8	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9
Merced	44	45	37	38	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30
Mono	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	21	23	24	26	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22
Napa	2	2	2	2	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6
Nevada	5	5	5	5	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8
Orange	38	47	36	42	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53
Placer	13	16	13	15	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35
Plumas	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Riverside	84	93	87	94	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144
Sacramento	33	37	32	35	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44
San Bernardino	141	149	136	142	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159
San Diego	69	80	64	72	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94
San Francisco	3	3	3	3	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4
San Joaquin	73	75	85	87	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93
San Luis Obispo	12	14	16	18	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20
San Mateo	10	12	8	10	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13
Santa Barbara	13	14	16	17	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17

Santa Clara	23	26	26	28	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35
Santa Cruz	4	5	5	6	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8
Shasta	20	23	19	21	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14
Siskiyou	5	6	11	11	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18
Solano	14	17	18	20	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27
Sonoma	14	16	18	19	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30
Stanislaus	33	36	27	29	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39
Sutter	4	5	2	3	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5
Tehama	31	32	38	39	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8
Tulare	23	25	33	35	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51
Tuolumne	2	2	2	2	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3
Ventura	20	23	32	34	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32
Yolo	33	34	26	27	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22
Yuba	4	4	4	5	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4
Other Counties*	1	2	2	2	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2
Total	**1,285**	**1,414**	**1,346**	**1,447**	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**

[A] - 2012-2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 49.7% of all diesel sales, are not reported in this chart.

Appendix C2

Jurupa Avenue Trailhead Air Quality, Greenhouse Gas, and Energy Data

Jurupa Ave Trailhead 032723 Detailed Report

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5.3. Construction Vehicles

5.3.1. Unmitigated

5.3.2. Mitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.9.2. Mitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.13.2. Mitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.14.2. Mitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Jurupa Ave Trailhead 032723
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	18.0
Location	33.9590588344432, -117.46494566956498
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5453
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
City Park	8.00	Acre	8.00	0.00	27,400	8,975	—	—
Parking Lot	19.0	1000sqft	0.44	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Transportation	T-33*	Locate Project near Bike Path/Bike Lane
Transportation	T-34*	Provide Bike Parking

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.21	1.85	17.6	18.1	0.03	0.79	2.12	2.91	0.73	0.96	1.69	—	3,282	3,282	0.12	0.10	1.63	3,316
Mit.	2.21	1.85	17.6	18.1	0.03	0.79	2.12	2.91	0.73	0.96	1.69	—	3,282	3,282	0.12	0.10	1.63	3,316
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.34	1.25	9.80	13.6	0.02	0.46	0.32	0.78	0.43	0.08	0.50	—	2,340	2,340	0.09	0.06	0.05	2,360
Mit.	1.34	1.25	9.80	13.6	0.02	0.46	0.32	0.78	0.43	0.08	0.50	—	2,340	2,340	0.09	0.06	0.05	2,360
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.52	0.46	3.98	4.64	0.01	0.18	0.21	0.39	0.16	0.09	0.25	—	857	857	0.03	0.01	0.14	862

Mit.	0.52	0.46	3.98	4.64	0.01	0.18	0.21	0.39	0.16	0.09	0.25	—	857	857	0.03	0.01	0.14	862
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.08	0.73	0.85	< 0.005	0.03	0.04	0.07	0.03	0.02	0.05	—	142	142	0.01	< 0.005	0.02	143
Mit.	0.09	0.08	0.73	0.85	< 0.005	0.03	0.04	0.07	0.03	0.02	0.05	—	142	142	0.01	< 0.005	0.02	143
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.21	1.85	17.6	18.1	0.03	0.79	2.12	2.91	0.73	0.96	1.69	—	3,282	3,282	0.12	0.10	1.63	3,316
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.34	1.25	9.80	13.6	0.02	0.46	0.32	0.78	0.43	0.08	0.50	—	2,340	2,340	0.09	0.06	0.05	2,360
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.52	0.46	3.98	4.64	0.01	0.18	0.21	0.39	0.16	0.09	0.25	—	857	857	0.03	0.01	0.14	862
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.08	0.73	0.85	< 0.005	0.03	0.04	0.07	0.03	0.02	0.05	—	142	142	0.01	< 0.005	0.02	143

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.21	1.85	17.6	18.1	0.03	0.79	2.12	2.91	0.73	0.96	1.69	—	3,282	3,282	0.12	0.10	1.63	3,316
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.34	1.25	9.80	13.6	0.02	0.46	0.32	0.78	0.43	0.08	0.50	—	2,340	2,340	0.09	0.06	0.05	2,360
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.52	0.46	3.98	4.64	0.01	0.18	0.21	0.39	0.16	0.09	0.25	—	857	857	0.03	0.01	0.14	862
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.08	0.73	0.85	< 0.005	0.03	0.04	0.07	0.03	0.02	0.05	—	142	142	0.01	< 0.005	0.02	143

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.50	0.53	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,195	1,195	0.08	0.05	4.41	1,217
Mit.	0.50	0.53	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,195	1,195	0.08	0.05	4.41	1,217
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.47	0.50	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,124	1,124	0.08	0.05	0.11	1,142
Mit.	0.47	0.50	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,124	1,124	0.08	0.05	0.11	1,142
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45	0.49	0.53	3.83	0.01	0.01	0.37	0.38	0.01	0.07	0.07	0.37	1,108	1,108	0.08	0.05	1.86	1,127
Mit.	0.45	0.49	0.53	3.83	0.01	0.01	0.37	0.38	0.01	0.07	0.07	0.37	1,108	1,108	0.08	0.05	1.86	1,127
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.09	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	0.06	183	184	0.01	0.01	0.31	187
Mit.	0.08	0.09	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	0.06	183	184	0.01	0.01	0.31	187
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.50	0.45	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,162	1,162	0.04	0.05	4.41	1,183
Area	0.00	0.08	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Waste	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.50	0.53	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,195	1,195	0.08	0.05	4.41	1,217
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.47	0.42	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,091	1,091	0.04	0.05	0.11	1,108
Area	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Waste	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.47	0.50	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,124	1,124	0.08	0.05	0.11	1,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.45	0.41	0.53	3.83	0.01	0.01	0.37	0.38	0.01	0.07	0.07	—	1,075	1,075	0.04	0.05	1.86	1,093
Area	0.00	0.08	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Waste	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.45	0.49	0.53	3.83	0.01	0.01	0.37	0.38	0.01	0.07	0.07	0.37	1,108	1,108	0.08	0.05	1.86	1,127
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	178	178	0.01	0.01	0.31	181
Area	0.00	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	4.53	4.53	< 0.005	< 0.005	—	4.54
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.88	0.88	< 0.005	< 0.005	—	0.88
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.08	0.09	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	0.06	183	184	0.01	0.01	0.31	187

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.50	0.45	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,162	1,162	0.04	0.05	4.41	1,183
Area	0.00	0.08	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Waste	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.50	0.53	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,195	1,195	0.08	0.05	4.41	1,217
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	0.42	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,091	1,091	0.04	0.05	0.11	1,108
Area	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Waste	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.47	0.50	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	0.37	1,124	1,124	0.08	0.05	0.11	1,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.45	0.41	0.53	3.83	0.01	0.01	0.37	0.38	0.01	0.07	0.07	—	1,075	1,075	0.04	0.05	1.86	1,093
Area	0.00	0.08	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Waste	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

Total	0.45	0.49	0.53	3.83	0.01	0.01	0.37	0.38	0.01	0.07	0.07	0.37	1,108	1,108	0.08	0.05	1.86	1,127
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	178	178	0.01	0.01	0.31	181
Area	0.00	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	4.53	4.53	< 0.005	< 0.005	—	4.54
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.88	0.88	< 0.005	< 0.005	—	0.88
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	0.08	0.09	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	0.06	183	184	0.01	0.01	0.31	187

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.18	11.6	10.3	0.02	0.52	—	0.52	0.47	—	0.47	—	1,668	1,668	0.07	0.01	—	1,674
Dust From Material Movement	—	—	—	—	—	—	1.70	1.70	—	0.88	0.88	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.7	45.7	< 0.005	< 0.005	—	45.9
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.57	7.57	< 0.005	< 0.005	—	7.59
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.0	72.0	< 0.005	< 0.005	0.29	73.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.18	11.6	10.3	0.02	0.52	—	0.52	0.47	—	0.47	—	1,668	1,668	0.07	0.01	—	1,674
Dust From Material Movement	—	—	—	—	—	—	1.70	1.70	—	0.88	0.88	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.7	45.7	< 0.005	< 0.005	—	45.9
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.57	7.57	< 0.005	< 0.005	—	7.59
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.0	72.0	< 0.005	< 0.005	0.29	73.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.0	16.9	0.02	0.79	—	0.79	0.72	—	0.72	—	2,668	2,668	0.11	0.02	—	2,677
Dust From Material Movemen	—	—	—	—	—	—	1.84	1.84	—	0.89	0.89	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	146	146	0.01	< 0.005	—	147
Dust From Material Movemen	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.2	24.2	< 0.005	< 0.005	—	24.3

Dust From Material Movemen	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.04	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	180	180	0.01	0.01	0.71	183
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.49	0.12	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	434	434	0.01	0.07	0.92	456
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.18	9.18	< 0.005	< 0.005	0.02	9.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.8	23.8	< 0.005	< 0.005	0.02	25.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13

3.4. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.0	16.9	0.02	0.79	—	0.79	0.72	—	0.72	—	2,668	2,668	0.11	0.02	—	2,677
Dust From Material Movemen	—	—	—	—	—	—	1.84	1.84	—	0.89	0.89	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	146	146	0.01	< 0.005	—	147
Dust From Material Movemen	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.2	24.2	< 0.005	< 0.005	—	24.3
Dust From Material Movemen	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.04	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	180	180	0.01	0.01	0.71	183
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.49	0.12	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	434	434	0.01	0.07	0.92	456
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.18	9.18	< 0.005	< 0.005	0.02	9.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.8	23.8	< 0.005	< 0.005	0.02	25.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.93	8.71	10.0	0.02	0.38	—	0.38	0.35	—	0.35	—	1,913	1,913	0.08	0.02	—	1,920
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.93	8.71	10.0	0.02	0.38	—	0.38	0.35	—	0.35	—	1,913	1,913	0.08	0.02	—	1,920
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.15	2.48	< 0.005	0.09	—	0.09	0.09	—	0.09	—	472	472	0.02	< 0.005	—	473
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.45	< 0.005	0.02	—	0.02	0.02	—	0.02	—	78.1	78.1	< 0.005	< 0.005	—	78.4
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.75	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	130	130	0.01	< 0.005	0.51	132

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.57	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	< 0.005	0.01	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.7	29.7	< 0.005	< 0.005	0.05	30.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.92	4.92	< 0.005	< 0.005	0.01	4.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.93	8.71	10.0	0.02	0.38	—	0.38	0.35	—	0.35	—	1,913	1,913	0.08	0.02	—	1,920
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.93	8.71	10.0	0.02	0.38	—	0.38	0.35	—	0.35	—	1,913	1,913	0.08	0.02	—	1,920
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.15	2.48	< 0.005	0.09	—	0.09	0.09	—	0.09	—	472	472	0.02	< 0.005	—	473
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.45	< 0.005	0.02	—	0.02	0.02	—	0.02	—	78.1	78.1	< 0.005	< 0.005	—	78.4
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.75	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	130	130	0.01	< 0.005	0.51	132

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.57	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	< 0.005	0.01	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.7	29.7	< 0.005	< 0.005	0.05	30.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.92	4.92	< 0.005	< 0.005	0.01	4.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.02	9.43	12.3	0.02	0.46	—	0.46	0.42	—	0.42	—	1,858	1,858	0.08	0.02	—	1,865

Paving	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	102	102	< 0.005	< 0.005	—	102
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.9	16.9	< 0.005	< 0.005	—	16.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.26	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	265	265	0.01	0.01	0.03	268
Vendor	0.01	0.01	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	217	217	< 0.005	0.03	0.02	227
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.7	14.7	< 0.005	< 0.005	0.03	14.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.9	11.9	< 0.005	< 0.005	0.01	12.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.43	2.43	< 0.005	< 0.005	< 0.005	2.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.06
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.02	9.43	12.3	0.02	0.46	—	0.46	0.42	—	0.42	—	1,858	1,858	0.08	0.02	—	1,865
Paving	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	102	102	< 0.005	< 0.005	—	102
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.9	16.9	< 0.005	< 0.005	—	16.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.26	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	265	265	0.01	0.01	0.03	268
Vendor	0.01	0.01	0.26	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	217	217	< 0.005	0.03	0.02	227
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.7	14.7	< 0.005	< 0.005	0.03	14.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.9	11.9	< 0.005	< 0.005	0.01	12.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.43	2.43	< 0.005	< 0.005	< 0.005	2.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.06
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.50	0.45	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,162	1,162	0.04	0.05	4.41	1,183
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.50	0.45	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,162	1,162	0.04	0.05	4.41	1,183
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.47	0.42	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,091	1,091	0.04	0.05	0.11	1,108
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.47	0.42	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,091	1,091	0.04	0.05	0.11	1,108
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.08	0.07	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	178	178	0.01	0.01	0.31	181
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.08	0.07	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	178	178	0.01	0.01	0.31	181

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.50	0.45	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,162	1,162	0.04	0.05	4.41	1,183
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.50	0.45	0.49	4.56	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,162	1,162	0.04	0.05	4.41	1,183

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.47	0.42	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,091	1,091	0.04	0.05	0.11	1,108
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.47	0.42	0.53	3.77	0.01	0.01	0.38	0.39	0.01	0.07	0.08	—	1,091	1,091	0.04	0.05	0.11	1,108
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.08	0.07	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	178	178	0.01	0.01	0.31	181
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.08	0.07	0.10	0.70	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	178	178	0.01	0.01	0.31	181

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4

Total	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	4.53	4.53	< 0.005	< 0.005	—	4.54
Total	—	—	—	—	—	—	—	—	—	—	—	—	4.53	4.53	< 0.005	< 0.005	—	4.54

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	27.4	27.4	< 0.005	< 0.005	—	27.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	4.53	4.53	< 0.005	< 0.005	—	4.54
Total	—	—	—	—	—	—	—	—	—	—	—	—	4.53	4.53	< 0.005	< 0.005	—	4.54

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.08	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.08	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.88	0.88	< 0.005	< 0.005	—	0.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.88	0.88	< 0.005	< 0.005	—	0.88

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	5.31	5.31	< 0.005	< 0.005	—	5.32
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.88	0.88	< 0.005	< 0.005	—	0.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.88	0.88	< 0.005	< 0.005	—	0.88

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	0.37	0.00	0.37	0.04	0.00	—	1.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	6/3/2024	6/14/2024	5.00	10.0	—
Grading	Grading	6/15/2024	7/12/2024	5.00	20.0	—
Building Construction	Building Construction	7/13/2024	11/15/2024	5.00	90.0	—
Paving/Concrete Pouring	Paving	11/16/2024	12/14/2024	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Grading	Tractors/Loaders/Backh	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Tractors/Loaders/Backh oes	Diesel	Average	2.00	7.00	84.0	0.37
Site Preparation	Tractors/Loaders/Backh oes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	89.0	0.20
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving/Concrete Pouring	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving/Concrete Pouring	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving/Concrete Pouring	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving/Concrete Pouring	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving/Concrete Pouring	Tractors/Loaders/Backh oes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backh oes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Tractors/Loaders/Backh oes	Diesel	Average	2.00	7.00	84.0	0.37
Site Preparation	Tractors/Loaders/Backh oes	Diesel	Average	1.00	8.00	84.0	0.37

Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	89.0	0.20
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving/Concrete Pouring	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving/Concrete Pouring	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving/Concrete Pouring	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving/Concrete Pouring	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving/Concrete Pouring	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	12.5	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	6.20	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	9.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving/Concrete Pouring	—	—	—	—
Paving/Concrete Pouring	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving/Concrete Pouring	Vendor	7.00	10.2	HHDT,MHDT
Paving/Concrete Pouring	Hauling	0.00	20.0	HHDT
Paving/Concrete Pouring	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	12.5	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	6.20	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	9.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving/Concrete Pouring	—	—	—	—
Paving/Concrete Pouring	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving/Concrete Pouring	Vendor	7.00	10.2	HHDT,MHDT
Paving/Concrete Pouring	Hauling	0.00	20.0	HHDT
Paving/Concrete Pouring	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Building Construction	0.00	0.00	0.00	0.00	1,140

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	15.0	0.00	—
Grading	0.00	985	20.0	0.00	—
Paving/Concrete Pouring	0.00	0.00	0.00	0.00	0.93

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
City Park	0.49	100%
Parking Lot	0.44	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	787	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	98.2	90.0	90.0	34,975	1,372	1,258	1,258	488,955
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	98.2	90.0	90.0	34,975	1,372	1,258	1,258	488,955
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	660	220	1,140

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

City Park	0.00	600	0.0330	0.0040	0.00
Parking Lot	16,644	600	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	600	0.0330	0.0040	0.00
Parking Lot	16,644	600	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	608,375
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	608,375
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.69	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.69	0.00
Parking Lot	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	25.5	annual days of extreme heat
Extreme Precipitation	2.35	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	2.10	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	91.1
AQ-PM	93.9
AQ-DPM	20.0
Drinking Water	99.2
Lead Risk Housing	55.8
Pesticides	71.9
Toxic Releases	67.8
Traffic	77.9
Effect Indicators	—

CleanUp Sites	74.0
Groundwater	53.1
Haz Waste Facilities/Generators	93.8
Impaired Water Bodies	33.2
Solid Waste	13.0
Sensitive Population	—
Asthma	41.9
Cardio-vascular	54.7
Low Birth Weights	63.3
Socioeconomic Factor Indicators	—
Education	72.1
Housing	59.3
Linguistic	66.6
Poverty	69.6
Unemployment	28.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	24.13704607
Employed	35.14692673
Median HI	29.41100988
Education	—
Bachelor's or higher	22.99499551
High school enrollment	100
Preschool enrollment	4.414217888

Transportation	—
Auto Access	69.12613884
Active commuting	55.6268446
Social	—
2-parent households	42.47401514
Voting	15.89888361
Neighborhood	—
Alcohol availability	97.0101373
Park access	42.16604645
Retail density	12.498396
Supermarket access	22.90517131
Tree canopy	7.262928269
Housing	—
Homeownership	32.58052098
Housing habitability	13.46079815
Low-inc homeowner severe housing cost burden	14.16655973
Low-inc renter severe housing cost burden	2.75888618
Uncrowded housing	21.62196843
Health Outcomes	—
Insured adults	11.85679456
Arthritis	53.0
Asthma ER Admissions	74.9
High Blood Pressure	50.4
Cancer (excluding skin)	82.6
Asthma	9.8
Coronary Heart Disease	57.7
Chronic Obstructive Pulmonary Disease	17.9

Diagnosed Diabetes	41.8
Life Expectancy at Birth	90.2
Cognitively Disabled	60.3
Physically Disabled	88.8
Heart Attack ER Admissions	79.9
Mental Health Not Good	10.1
Chronic Kidney Disease	45.1
Obesity	11.3
Pedestrian Injuries	19.6
Physical Health Not Good	17.6
Stroke	39.4
Health Risk Behaviors	—
Binge Drinking	47.1
Current Smoker	6.7
No Leisure Time for Physical Activity	15.9
Climate Change Exposures	—
Wildfire Risk	0.3
SLR Inundation Area	0.0
Children	17.1
Elderly	93.7
English Speaking	41.1
Foreign-born	63.2
Outdoor Workers	31.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	83.2
Traffic Density	51.7
Traffic Access	23.0

Other Indices	—
Hardship	74.3
Other Decision Support	—
2016 Voting	25.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	84.0
Healthy Places Index Score for Project Location (b)	19.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Per project applicant
Construction: Off-Road Equipment	Per project applicant
Construction: Paving	Calculated using Jurupa Ave Master Plan

Construction: Dust From Material Movement	Per project applicant
Construction: Architectural Coatings	Per SCAQMD Rule 1113
Land Use	Landscape areas calculated using Jurupa Ave Trailhead Masterplan
Construction: Trips and VMT	Per project assumptions
Operations: Vehicle Data	Per 2023 Rick Engineering Traffic Report, in addition to 161 weekday trips per year for maintenance purposes, per project applicant.

Project Construction Fuel Consumption Summary

Source Category	Fuel Consumption (gal)	
	Diesel	Gasoline
Offroad Equipment	12,996	--
Haul Trucks	416	--
Vendor Trucks	223	--
Workers	--	1,040
Total Fuel Consumption	**13,635**	**1,040**

Construction Duration (years):	0.5
Average Annual Diesel (gal):	13,635
Average Annual Gasoline (gal):	1,040

County Fuel Consumption (2021) [1]

County: Riverside

Source	Fuel Type	Gallons (Retail + Non-Retail	Percent of Project Compared to County
Workers	Gas	981,000,000	0.0001%
Off-Road/Haul & Vendor Trucks	Diesel	290,258,449	0.0047%

Notes:

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2021
https://www.energy.ca.gov/sites/default/files/2022-10/2010-2021_CEC-A15_Results_and_Analysis_ADA.xlsx
Accessed December 2022. Diesel is adjusted to account for retail (50.3%) and non-retail (49.7%) diesel sales.

Offroad Equipment

Fuel Consumption: Equipment ≤ 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.408
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0574
Total HP-HR <100	125,703
Total Diesel Fuel (gal)	**7,214**

Fuel Consumption: Equipment > 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.367
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0516
Total HP-HR >100	111,992
Total Diesel Fuel (gal)	**5,782**

Total diesel gallons (off-road equipment): 12,996

Phase Name	Equipment	# of Equipment	Hours/Day	HP	Load Factor	Days	Total HP-HR
Site Preparation	Rubber Tired Dozers	1	8	367	0.400	10	11744
Site Preparation	Tractors/Loaders/Backhoes	1	8	84	0.370	10	2486.400
Grading	Rubber Tired Dozers	1	8	367	0.400	20	23488
Grading	Tractors/Loaders/Backhoes	2	8	84	0.370	20	9945.6
Grading	Excavators	1	8	36	0.380	20	2188.8
Grading	Graders	1	8	148	0.410	20	9708.8
Building Construction	Tractors/Loaders/Backhoes	2	7	84	0.370	90	39160.8
Building Construction	Cranes	1	7	367	0.290	90	67050.9
Building Construction	Forklifts	2	8	89	0.200	90	25632
Building Construction	Welders	1	8	46	0.450	90	14904
Paving/Concrete Pouring	Pavers	2	8	81	0.420	20	10886.4
Paving/Concrete Pouring	Paving Equipment	2	8	89	0.360	20	10252.8
Paving/Concrete Pouring	Rollers	2	8	36	0.380	20	4377.6
Paving/Concrete Pouring	Cement and Mortar Mixers	1	8	10	0.560	20	896
Paving/Concrete Pouring	Tractors/Loaders/Backhoes	1	8	84	0.370	20	4972.8
						Total >100HP	111,991.70
						Total <100HP	125,703.20

Notes:
1. CARB, 2017 Off-road Diesel Emission Factors
https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

Haul Trucks

Onroad Travel Consumption	Value
EMFAC2021 Diesel Fuel Consumption Factor (gal/mi):[1]	0.165
Total VMT (mi):	2,480
Total diesel gallons	**410**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.6400
Total Idle-Hours per Year:	10
Total diesel gallons	**7**

Total diesel gallons: 416

Phase	Total Truck Trips (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Idle Hours	Onroad Travel Consumption (gal)	Idling Consumption (gal)	Total Fuel Consumption (gal)
Site Preparation	0	20.00	HHDT	-	-	-	-	-
Grading	124	20.00	HHDT	2480	10.33	409.65	6.61	416.26
Building Construction	0	20.00	HHDT	-	-	-	-	-
Paving/Concrete Pouring	0	20.00	HHDT	-	-	-	-	-
			Total VMT:	**2,480**		**409.65**	**6.61**	**416.26**
			Total Idle-Hours:		**10**			

1. CARB, EMFAC2021 (BAAQMD; HHDT; Annual; CY 2022; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
   https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Vendor Trucks

Onroad Travel Consumption	Value
EMFAC2021 Diesel Fuel Consumption Factor (gal/mi):[1]	0.151
Total VMT (mi):	1,428
Total diesel gallons	**215**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.6400
Total Idle-Hours per Year:	12
Total diesel gallons	**7**

Total diesel gallons: 223

Phase	Days/year	Truck Trips per Day (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Idle Hours	Onroad Travel Consumption (gal)	Idling Consumption (gal)	Total Fuel Consumption (gal)
Site Preparation	10	0	10.20	HHDT/MHDT	0	0	-	-	-
Grading	20	0	10.20	HHDT/MHDT	0	0	-	-	-
Building Construction	90	0	10.20	HHDT/MHDT	0	0	-	-	-
Paving/Concrete Pouring	20	7	10.20	HHDT/MHDT	1,428	12	215.21	7.47	222.68
				Total VMT:	**1,428**		**215.21**	**7.47**	**222.68**
				Total Idle-Hours:		**12**			

1. CARB, EMFAC2021 (BAAQMD; HHDT/MHDT; Annual; CY 2022; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
   https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Worker Vehicles

Onroad Travel Consumption	Value
EMFAC2021 Gasoline Fuel Consumption Factor (gal/mi):[1]	0.037
Total VMT (mi):	27,935
Total gasoline gallons	**1,040**

Phase	Days/year	Vehicle Trips per day (In/Out)	Trip Length (miles)	Vehicle Category	VMT	Onroad Travel Consumption (gal)
Site Preparation	10	5.0	18.50	LD Fleet Mix	925	34
Grading	20	12.5	18.50	LD Fleet Mix	4,625	172
Building Construction	90	9.0	18.50	LD Fleet Mix	14,985	558
Paving/Concrete Pouring	20	20.0	18.50	LD Fleet Mix	7,400	275
				Total VMT:	**27,935**	**1,040**

CARB, EMFAC2021 (BAAQMD; LDA/LDT1/LDT2; Annual; CY 2022; Aggregate MY; Aggregate Speed,GAS)

Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.

https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

1.

2.

Idling Fuel Consumption Factors

VEHICLE TYPE	FUEL TYPE	ENGINE SIZE (LITER)	GROSS VEHICLE WEIGHT (GVW) (LBS)	IDLING FUEL USE (GAL/HR WITH NO LOAD)
Compact Sedan	Gas	2	-	0.16
Large Sedan	Gas	4.6	-	0.39
Compact Sedan	Diesel	2	-	0.17
Medium Heavy Truck	Gas	7-May	19,700-26,000	0.84
Delivery Truck	Diesel	-	19,500	0.84
Tow Truck	Diesel	-	26,000	0.59
Medium Heavy Truck	Diesel	10-Jun	23,000-33,000	0.44
Transit Bus	Diesel	-	30,000	0.97
Combination Truck	Diesel	-	32,000	0.49
Bucket Truck	Diesel	-	37,000	0.9
Tractor-Semitrailer	Diesel	-	80,000	0.64

Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015.
https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

This tool provides a quick estimation of the fuel use and emissions for your equipment in a specific year. The results may slightly differ from those from the official inventory model.

Instructions:

Enter the horsepwer, model year, and other details about your equipment in the Input box

Make sure to update the ***load factor*** for your equipment using the lookup table.

The ***Output*** box gives a quick estimation of the fuel use, NOx, PM, and THC emission for your equipment.

Input	Input Engine Here
Horsepower (hp)	70
Model year	2011
Calendar year	2015
Activity (annual hours)	250
Accumulated hours on equipment (estimate using annual-hours*age if you only know the age of the equipment)	1000
Load factor (check the lookup table)	0.2

Intermediate steps	
HPbin	75
NOx_EF0	2.90
NOx_DR	3.8E-05
NOx_FCF	0.950
PM_EF0	0.16
PM_DR	1.2E-05
PM_FCF	0.90
THC_EF0	0.10
THC_DR	2.5E-05
THC_FCF	0.90
NOx_EF (g/hp-hr)	2.79
PM_EF (g/hp-hr)	0.15
THC_EF (g/hp-hr)	0.11
CO2_EF (kg/gallon-diesel)*	10.21
BSFC (lb/hp-hr)	0.408
Unit conversion (lb/gallon)	7.109

*Reference: www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf

Results	
Fuel Used (gallon)	201
NOx Emissions (kg)	9.8
PM Emissions (kg)	0.5
THC Emissions (kg)	0.4
CO2 Emissions (kg)	2050.9
NOx Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	2.79
PM Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	0.15
THC Emission Factor (including deterioration and fuel correction factor): gram/ bhp-hr	0.11

Loac Factor Lookup Table

Equipment Category	Equipment Type	Details	Load Factor
Agriculture equipment	Agricultural tractors		0.48
	Combine harvesters		0.44
	Forage & silage harvesters		0.44
	Cotton pickers		0.44
	Nut harvester		0.44
	Other harvesters		0.44
	Balers (self propelled)		0.50
	Bale wagons (self propelled)		0.50
	Swathers/windrowers/hay conditioners		0.48
	Hay Squeeze/Stack retriever		0.42
	Sprayers/Spray rigs		0.42
	Construction equipment		0.40
	Other non-mobile		0.48
	Forklifts		0.40
	Atvs		0.40
	Others		0.40
Portable equipment	All portable equipment		0.31
Cargo Handling Equipment	Construction equipment		0.55
	Container handling equipment		0.59
	Forklift		0.30
	Other general industrial equipment		0.51
	Rtg crane		0.20
	Yard tractor		0.39
Transport Refrigeration Units (TRU)	TRU on trailers	25 HP and over, MY2012 and Older	0.46
	TRU on trailers	25 HP and over, MY2013 and Newer	0.38
	TRU on trailers	23 HP and Over, below 25 HP, All years	0.46
	TRU on trucks	Below 23 HP, All Model years	0.56
	TRU on railcars	25 HP and over, MY2012 and Older	0.33
	TRU on railcars	25 HP and over, MY2013 and Newer	0.27
	TRU on railcars	Below 25 HP, All Model years	0.33
	TRU with generators	25 HP and over, MY2012 and Older	0.46
	TRU with generators	25 HP and Over, MY2013 and Newer	0.38
	TRU with generators	23 HP and Over, below 25 HP, All Model Years	0.46
Ground Support Equipment	Passenger Stand		0.40
	A/C Tug Narrow Body		0.54
	A/C Tug Wide Body		0.54
	Baggage Tug		0.37
	Belt Loader		0.34
	Bobtail		0.37
	Cargo Loader		0.34
	Cargo Tractor		0.36
	Forklift (GSE)		0.20
	Lift (GSE)		0.34
	Other GSE		0.34
	Cranes		0.29
	Crawler Tractors		0.43
	Excavators		0.38
	Graders		0.41
	Off-Highway Tractors		0.44

[redacted]

Construction and Industrial Equipment	Off-Highway Trucks		0.38
	Other Construction Equipment		0.42
	Pavers		0.42
	Paving Equipment		0.36
	Rollers		0.38
	Rough Terrain Forklifts		0.40
	Rubber Tired Dozers		0.40
	Rubber Tired Loaders		0.36
	Scrapers		0.48
	Skid Steer Loaders		0.37
	Surfacing Equipment		0.30
	Tractors/Loaders/Backhoes		0.37
	Trenchers		0.50
	Aerial Lifts		0.31
	Forklifts		0.20
	Other General Industrial Equipment		0.34
	Other Material Handling Equipment		0.40
	Sweepers/Scrubbers		0.46
Oil and Drill Rigs	Drill Rig (Mobile)		0.50
	Workover Rig (Mobile)		0.50
	Bore/Drill Rigs		0.50

[redacted]

Worker Fuel Consumption Factor **Year: 2024**

Vehicle Category	VMT (mi/day)	Fuel Consumption (1000gal/day)	Fuel Consumption Factor (gal/mi)	Fuel Economy (mi/gal)	Fleet Mix	Fuel Consumption Factor (gal/mi)
LDA	218661478.4	7518.83	0.034	29.08	64%	0.037
LDT1	18293108.56	753.63	0.041	24.27	5%	
LDT2	105566684.3	4474.43	0.042	23.59	31%	

Source: EMFAC2021, **Output:** Onroad Emissions, **Model Version:** EMFAC2021 v1.0.0, **Air District:** SCAQMD, **Vehicle Categories:** EMFAC2007, **Model Year:** Aggregate, **Speed:** Aggregate, **Fuel:** All, **Output Unit:** tons/operation day

2024

Vehicle Category	VMT (miles/day)	Fuel Consumption (1000 gal/day)	Fuel Consumption Factor (gal/mi)	Fuel Economy (mi/gal)	Fleet Mix	Fuel Consumption Factor (gal/mi)
HHDT	13368763.56	2208.3	0.165	6.05	73%	0.151
MHDT	5002001.319	560.4	0.112	8.93	27%	

Source: EMFAC2021, **Output:** Onroad Emissions, **Model Version:** EMFAC2021 v1.0.0, **Air District:** SCAQMD, **Vehicle Categories:** EMFAC2007, **Model Year:** Aggregate, **Speed:** Aggregate, **Fuel:** All, **Output Unit:** tons/operation day

PhaseName	PhaseType	PhaseStartDate	PhaseEndDate	NumDaysWeek	NumDays
Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10
Grading	Grading	6/15/2024	7/12/2024	5	20
Building Construction	Building Construction	7/13/2024	11/15/2024	5	90
Paving/Concrete Pouring	Paving	11/16/2024	12/14/2024	5	20

	Start	End		
Construction Duration (years)	2024/06/03	2024/12/14	194	0.53

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)	2021[A] Survey Responses (Millions of Gallons)	2021[A] Estimated Totals (Millions of Gallons)
Alameda	456	551	476	548	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442	393	492
Amador	12	15	12	14	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13	11	14
Butte	66	81	70	81	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68	58	74
Calaveras	11	14	12	14	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15	11	13
Colusa	13	17	9	11	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15	11	16
Contra Costa	332	403	344	395	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336	304	374
Del Norte	6	8	6	7	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5	4	5
El Dorado	55	68	57	67	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62	52	65
Fresno	285	342	290	335	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347	294	387
Glenn	12	14	12	14	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15	14	17
Humboldt	44	54	46	54	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56	47	52
Imperial	56	69	51	60	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64	56	74
Inyo	16	19	16	18	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16	14	15
Kern	293	362	309	359	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364	331	406
Kings	42	51	41	48	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52	42	58
Lake	20	25	18	22	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20	17	20
Lassen	6	7	6	7	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6	7	7
Los Angeles	3,005	3,658	3,069	3,554	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770	2,700	3,061
Madera	47	57	54	61	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63	53	71
Marin	78	94	91	103	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77	66	88
Mariposa	6	7	6	7	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5	6	7
Mendocino	33	41	34	40	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37	33	39
Merced	86	106	81	95	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106	90	122
Mono	6	7	5	6	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7	5	6
Monterey	124	152	134	155	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141	116	162
Napa	42	52	42	47	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44	42	47
Nevada	34	42	30	35	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36	28	35
Orange	1,162	1,406	1,162	1,338	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029	1,037	1,159
Placer	154	190	162	189	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163	160	178
Plumas	6	7	7	8	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6	4	7
Riverside	781	952	792	916	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876	847	981
Sacramento	467	566	482	553	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689	448	557
San Benito	15	18	14	16	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18	11	17
San Bernardino	747	902	761	871	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823	786	926
San Diego	1,094	1,320	1,122	1,291	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055	964	1,165
San Francisco	112	138	129	151	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91	82	99
San Joaquin	248	303	260	301	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292	265	321
San Luis Obispo	121	147	123	144	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115	101	125
San Mateo	232	275	272	310	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238	217	269
Santa Barbara	141	174	140	164	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146	148	168
Santa Clara	514	621	600	691	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511	488	599
Santa Cruz	84	103	91	106	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74	64	88
Shasta	72	88	73	85	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76	67	79
Siskiyou	20	25	17	19	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25	19	28
Solano	158	190	191	218	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180	161	196
Sonoma	157	189	155	178	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167	159	181
Stanislaus	191	230	184	212	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197	205	243
Sutter	30	37	31	37	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30	30	34
Tehama	27	33	24	28	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26	25	30
Trinity	3	4	3	4	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4	3	4
Tulare	109	132	121	139	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149	138	181
Tuolumne	14	17	13	16	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20	17	19
Ventura	285	345	290	335	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262	255	294
Yolo	82	100	76	87	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91	83	101
Yuba	24	29	26	30	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35	28	40
Other Counties*	2	3	2	2	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2
Total	**12,238**	**14,860**	**12,644**	**14,596**	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**	**11,618**	**13,818**

[A] 2012 to 2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc and Sierra.

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County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Calaveras	2	2	2	2	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3
Colusa	3	3	2	3	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11
Contra Costa	15	18	19	21	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23
Del Norte	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2
El Dorado	6	8	6	7	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8
Fresno	30	33	35	38	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66
Glenn	5	5	4	4	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18
Humboldt	10	12	10	12	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6
Imperial	9	10	8	9	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24
Inyo	3	4	3	4	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4
Kern	111	117	125	129	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116
Kings	7	7	7	8	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7
Lake	3	3	3	3	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4
Lassen	1	1	1	2	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1
Los Angeles	212	235	221	239	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299
Madera	23	24	23	24	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32
Marin	3	4	2	3	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4
Mariposa	1	1	1	1	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Mendocino	6	7	7	8	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9
Merced	44	45	37	38	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30
Mono	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	21	23	24	26	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22
Napa	2	2	2	2	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6
Nevada	5	5	5	5	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8
Orange	38	47	36	42	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53
Placer	13	16	13	15	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35
Plumas	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Riverside	84	93	87	94	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144
Sacramento	33	37	32	35	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44
San Bernardino	141	149	136	142	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159
San Diego	69	80	64	72	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94
San Francisco	3	3	3	3	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4
San Joaquin	73	75	85	87	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93
San Luis Obispo	12	14	16	18	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20
San Mateo	10	12	8	10	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13
Santa Barbara	13	14	16	17	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Santa Clara	23	26	26	28	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35
Santa Cruz	4	5	5	6	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8
Shasta	20	23	19	21	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14
Siskiyou	5	6	11	11	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18
Solano	14	17	18	20	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27
Sonoma	14	16	18	19	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30
Stanislaus	33	36	27	29	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39
Sutter	4	5	2	3	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5
Tehama	31	32	38	39	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8
Tulare	23	25	33	35	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51
Tuolumne	2	2	2	2	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3
Ventura	20	23	32	34	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32
Yolo	33	34	26	27	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22
Yuba	4	4	4	5	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4
Other Counties*	1	2	2	2	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2
Total	**1,285**	**1,414**	**1,346**	**1,447**	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**

[A] - 2012-2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 49.7% of all diesel sales, are not reported in this chart.

Operations Energy Consumption Summary - 2024 Ops year.

Transportation Fuel

Fuel Type	Gallons/Year
GAS	18,828
DSL	3,533

County: Riverside

Fuel Type	Gallons (Retail + Non-Retail)[1]	Percent of Project Compared to County
Gas	981,000,000	0.0019193%
Diesel	290,258,449	0.0012171%

Electricity

Comparison	GWh/year
Riverside County (2020)[2]	8,256.71
Project Electricity	0.02
Project % of Sales	0.0002%

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2021
https://www.energy.ca.gov/media/3874
Accessed March 2022.Non-Retail diesel sales, which comprise approximately 49.7% of all diesel sales, are not reported in this total.
2.California Energy Commission, *Electricity Consumption By County - Riverside 2021 Non-Residential*
http://www.ecdms.energy.ca.gov/elecbycounty.aspx?msclkid=c6576070a71211ec90029fbdf184242d

Utility Consumption

Electricity[3]

Land Use	kWh/year	GWh/year
City Park	16,644	0.017
Total	**16,644**	**0.017**

Comparison	GWh/year
Riverside County Non-Residential Electricity Consumption	8,256.71
Project Electricity	0.02
Project % of Sales	0.0002%

Notes:

1 California Energy Commission, *Electricity Consumption By County - Riverside 2021 Non-Residential*
http://www.ecdms.energy.ca.gov/elecbycounty.aspx?msclkid=c6576070a71211ec90029fbdf184242d

Annual Miles
488,955.00

Fuel Consumption - 2024

Vehicle Category	Gal/mi		Fuel Distribution		Fleet Mix	Miles/Vehicle Category	Gallons of Fuel	
	DSL	GAS	DSL	GAS			DSL	GAS
HHDT	0.17	0.25	100.0%	0.0%	3.00%	14,684.79	2,424.84	1.21
LDA	0.02	0.03	0.2%	99.8%	49.21%	240,611.28	12.25	8,256.26
LDT1	0.04	0.04	0.0%	99.98%	4.11%	20,091.10	0.16	827.55
LDT2	0.03	0.04	0.3%	99.7%	23.79%	116,320.97	12.78	4,913.27
LHDT1	0.05	0.07	35.8%	64.2%	2.83%	13,860.42	241.80	652.23
LHDT2	0.06	0.08	62.4%	37.6%	0.71%	3,491.53	126.29	109.87
MCY	0.00	0.02	0.0%	100.0%	0.36%	1,749.17	0.00	42.11
MDV	0.04	0.05	1.3%	98.7%	14.29%	69,865.70	37.94	3,589.44
MH	0.10	0.21	29.6%	70.4%	0.09%	449.70	13.15	65.18
MHDT	0.11	0.19	78.4%	21.6%	1.43%	7,001.81	615.36	292.33
OBUS	0.14	0.20	52.0%	48.0%	0.10%	501.93	37.25	47.47
SBUS	0.14	0.11	35.2%	64.8%	0.04%	218.25	10.47	15.84
UBUS	0.15	0.14	1.7%	98.3%	0.02%	108.35	0.29	15.26
					Project	**488,955.00**	**3,532.60**	**18,828.01**
							22,360.61	0.84

* 4,651 trips/year for a total of 65,023 VMT

	1	2.0	3.0	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
											(Millions of Gallons)												
County		2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda		456	551	476	548	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442
Amador		12	15	12	14	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13
Butte		66	81	70	81	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68
Calaveras		11	14	12	14	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15
Colusa		13	17	9	11	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15
Contra Costa		332	403	344	395	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336
Del Norte		6	8	6	7	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5
El Dorado		55	68	57	67	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62
Fresno		285	342	290	335	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347
Glenn		12	14	12	14	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15
Humboldt		44	54	46	54	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56
Imperial		56	69	51	60	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64
Inyo		16	19	16	18	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16
Kern		293	362	309	359	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364
Kings		42	51	41	48	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52
Lake		20	25	18	22	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20
Lassen		6	7	6	7	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6
Los Angeles		3,005	3,658	3,069	3,554	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770
Madera		47	57	54	61	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63
Marin		78	94	91	103	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77
Mariposa		6	7	6	7	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5
Mendocino		33	41	34	40	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37
Merced		86	106	81	95	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106
Mono		6	7	5	6	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7
Monterey		124	152	134	155	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141
Napa		42	52	42	47	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44
Nevada		34	42	30	35	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36
Orange		1,162	1,406	1,162	1,338	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029
Placer		154	190	162	189	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163
Plumas		6	7	7	8	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6
Riverside		781	952	792	916	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876
Sacramento		467	566	482	553	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689
San Benito		15	18	14	16	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18
San Bernardino		747	902	761	871	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823
San Diego		1,094	1,320	1,122	1,291	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055
San Francisco		112	138	129	151	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91
San Joaquin		248	303	260	301	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292
San Luis Obispo		121	147	123	144	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115
San Mateo		232	275	272	310	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238
Santa Barbara		141	174	140	164	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146
Santa Clara		514	621	600	691	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511
Santa Cruz		84	103	91	106	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74
Shasta		72	88	73	85	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76
Siskiyou		20	25	17	19	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25
Solano		158	190	191	218	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180
Sonoma		157	189	155	178	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167
Stanislaus		191	230	184	212	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197
Sutter		30	37	31	37	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30
Tehama		27	33	24	28	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26
Trinity		3	4	3	4	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4
Tulare		109	132	121	139	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149
Tuolumne		14	17	13	16	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20
Ventura		285	345	290	335	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262
Yolo		82	100	76	87	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91
Yuba		24	29	26	30	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35
Other Counties[*]		2	3	2	2	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
Total		**12,238**	**14,860**	**12,644**	**14,596**	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**

[A] 2012 to 2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

[*] Other Counties include Alpine, Modoc and Sierra.

iesel Sales by County

(Millions of Gallons)

County	2010 Survey Responses (Millions of Gallons)	2010 Estimated Totals (Millions of Gallons)	2011 Survey Responses (Millions of Gallons)	2011 Estimated Totals (Millions of Gallons)	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)
Alameda	29	32	26	28	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51
Amador	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2
Butte	9	10	9	10	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11
Calaveras	2	2	2	2	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3
Colusa	3	3	2	3	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11
Contra Costa	15	18	19	21	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23
Del Norte	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2
El Dorado	6	8	6	7	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8
Fresno	30	33	35	38	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66
Glenn	5	5	4	4	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18
Humboldt	10	12	10	12	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6
Imperial	9	10	8	9	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24
Inyo	3	4	3	4	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4
Kern	111	117	125	129	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116
Kings	7	7	7	8	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7
Lake	3	3	3	3	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4
Lassen	1	1	1	2	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1
Los Angeles	212	235	221	239	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299
Madera	23	24	23	24	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32
Marin	3	4	2	3	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4
Mariposa	1	1	1	1	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Mendocino	6	7	7	8	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9
Merced	44	45	37	38	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30
Mono	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	21	23	24	26	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22
Napa	2	2	2	2	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6
Nevada	5	5	5	5	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8
Orange	38	47	36	42	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53
Placer	13	16	13	15	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35
Plumas	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Riverside	84	93	87	94	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144
Sacramento	33	37	32	35	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44
San Bernardino	141	149	136	142	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159
San Diego	69	80	64	72	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94
San Francisco	3	3	3	3	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4
San Joaquin	73	75	85	87	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93
San Luis Obispo	12	14	16	18	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20
San Mateo	10	12	8	10	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13
Santa Barbara	13	14	16	17	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17

Santa Clara	23	26	26	28	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35
Santa Cruz	4	5	5	6	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8
Shasta	20	23	19	21	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14
Siskiyou	5	6	11	11	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18
Solano	14	17	18	20	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27
Sonoma	14	16	18	19	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30
Stanislaus	33	36	27	29	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39
Sutter	4	5	2	3	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5
Tehama	31	32	38	39	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8
Tulare	23	25	33	35	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51
Tuolumne	2	2	2	2	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3
Ventura	20	23	32	34	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32
Yolo	33	34	26	27	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22
Yuba	4	4	4	5	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4
Other Counties*	1	2	2	2	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2
Total	**1,285**	**1,414**	**1,346**	**1,447**	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**

[A] - 2012-2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 49.7% of all diesel sales, are not reported in this chart.

Appendix D

Aquatic Resources Delineation Report

AQUATIC RESOURCES DELINEATION REPORT (STATE AND FEDERAL AGENCIES) RIVERSIDE GATEWAY PROJECT

PREPARED FOR:

City of Riverside Parks, Recreation, and Community Services Department
6927 Magnolia Avenue #2
Riverside, CA 92506

PREPARED BY:

ICF
49 Discovery Way, Suite 250
Irvine, CA 92618
Contact: Kristen Klinefelter
Kristen.Klinefelter@icf.com

May 2022



ICF. 2022. *Aquatic Resource Delineation Report, Riverside Gateway Project, Riverside, Riverside County, California*. May. (ICF 104147) Irvine, CA. Prepared for City of Riverside Parks, Recreation, and Community Services Department, Riverside, California.

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Acronyms and Abbreviations

amsl	above mean sea level
CDFW	California Department of Fish and Wildlife
CFG Code	California Fish and Game Code
CFR	Code of Federal Regulations
City	City of Riverside
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FEMA	Federal Emergency Management Agency
GIS	geographic information system
GPS	global positioning system
HUC	hydrologic unit code
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
OHWM Datasheet	Arid West Ephemeral and Intermittent Streams OHWM Datasheets
Porter-Cologne Act	Porter-Cologne Water Quality Act
Procedures	State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State
proposed project	Riverside Gateway Project
RWQCB	Regional Water Quality Control Board
SSURGO	Soil Survey Geographic
SWRCB	State Water Resources Control Board
UPL	upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WoS	waters of the State
WoUS	waters of the U.S.

Executive Summary

On December 2 and 3, 2021, ICF conducted a routine-level delineation of jurisdictional waters and wetlands of the Riverside Gateway Project (proposed project).

The purpose of this delineation was to identify the extent of potentially jurisdictional wetland and non-wetland waters of the U.S. (WoUS) and waters of the State (WoS) ("aquatic resources") within and adjacent to the project site to support federal and state regulatory permitting processes. The project limits of disturbance of five different sites within the project are collectively referred to as the "study area." Relevant jurisdictions include:

- Federal jurisdiction regulated by the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) as WoUS under Section 404 of the Clean Water Act (CWA)
- State jurisdiction regulated by the State Water Resources Control Board (SWRCB)/Regional Water Quality Control Board (RWQCB) as WoUS under Section 401 of the CWA
- SWRCB/RWQCB surface WoS regulated under Section 13260 of the Porter-Cologne Water Quality Act (Porter-Cologne Act)
- California Department of Fish and Wildlife (CDFW) aquatic resources regulated under Section 1600 of the California Fish and Game Code (CFG Code)

Based on the investigation and analysis documented in this report, potential CWA Section 404/401 aquatic resources within the study area are determined to be 0.40 acre (615 linear feet) of non-wetland WoUS and 0.09 acre (369 linear) of non-wetland WoUS with wetland conditions subject to regulation by USACE and RWQCB. Lastly, approximately 13.07 acre (3,240 linear feet) of streambed and 19.35 acre (3,731 linear feet) of associated riparian vegetation subject to CDFW jurisdiction were mapped within the study area.

Jurisdictional delineation maps are included as Appendix A. Ordinary high water mark (OHWM) data sheets and wetland determination forms are included as Appendices B and C, respectively. Lastly, Site photographs are included as Appendix D. The Santa Ana River Restoration Projects, Early Implementation Services for the Upper Santa Ana River Habitat Conservation Plan Jurisdictional Delineation Report is included as Appendix E.

Chapter 1
Introduction

On December 2 and 3, 2021, ICF conducted a routine-level aquatic resource delineation of potential WoUS, WoS, and CDFW jurisdiction for the Riverside Gateway Project (proposed project) as part of the federal and state regulatory permitting process for the City of Riverside Parks, Recreation, and Community Services Department in the City of Riverside (City) in Riverside County, California (Appendix A, Figure 1). The study area is composed of the proposed project limits.

The purpose of this delineation is to identify the extent of potentially jurisdictional federal and state aquatic resources within and adjacent to the project site to support federal and state regulatory permitting processes pursuant to Sections 401 and 404 of the CWA (33 U.S. Code §1251 et seq. [1972]), as well as Section 13260 of the Porter-Cologne Act, Section 1600 et seq. of the CFG Code. Section 404 of the CWA is administered by USACE with oversight from EPA and regulates the discharge of dredge or fill material within WoUS, including wetland and non-wetland WoUS. Section 401 of the CWA is administered by the SWRCB/RWQCB and regulates at the state level all Section 404 activities that are regulated by USACE. The SWRCB/RWQCB may also regulate activities affecting non-federal wetland and non-wetland WoS (e.g., surface waters and isolated features) under the Porter-Cologne Act. Section 1600 et seq. of the CFG Code is administered by CDFW and regulates activities that may affect lakes, streams with a defined bed and bank, and/or associated riparian vegetation. If a proposed project has the potential to affect waters, wetlands, lakes, streams, and associated riparian vegetation, then the project site must be evaluated to determine the presence, type, and extent of aquatic resources. Details regarding each of these agencies and their regulatory authority, jurisdiction, permitting, and delineation methodologies are provided in Chapter 2, *Regulatory Background and Methodology*.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional delineations should be considered preliminary until reviewed and approved by the regulatory agencies.

1.1 Project Description

The project proposed by the City of Riverside Parks, Recreation, and Community Services Department involves a multidisciplinary effort for the planning, design, engineering, and associated community outreach and environmental compliance for California Environmental Quality Act (CEQA) review for nine identified park sites in the City of Riverside, Riverside County, California. This aquatic resources delineation report includes five locations, Tequesquite North Extension, Tequesquite South Extension, 5200 Tequesquite Avenue, Santa Ana River Greenway, and Jurupa Avenue Trailhead. All these sites with the exception of Jurupa Avenue Trailhead are by Tequesquite Avenue in the City. The sites combined comprise approximately 140 acres of City- and privately owned land and are situated along the Santa Ana River. The City received funding from the Coastal Conservancy to provide master planning for improvements within these sites. Proposed improvements for the three Tequesquite sites include Santa Ana River Trail trailhead, native plant interpretive garden, habitat conservation areas, community garden, nature playground, horse

stables, interpretive trails/signage, vehicular access control, lighting, bike repair café, dog and/or skate park. The Santa Ana River Greenway components propose to add a decomposed granite path parallel to the existing paved trail to separate slower recreational users from higher-speed users as well as landscaping, irrigation, lighting, signage, emergency phones, and other trail user support amenities to create a shady and aesthetically inviting space. The Jurupa Avenue Trailhead improvement features would include drinking fountains, shade resting areas, parking, bike lockers and racks, a bicycle repair station, and equestrian facilities to support users of the Santa Ana River Trail.

1.2 Project Location

The five project sites within the study area are along the Santa Ana River Trail within the City (Appendix A, Figures 1 and 2). The study area is mapped in land grants on the U.S. Geological Survey (USGS) 7.5-minute Riverside West, CA quadrangle map (USGS 2001).

Chapter 2
Regulatory Background and Methodology by Agency

2.1 Desktop Research

Prior to the field delineation, the following resources were reviewed to identify potential aquatic resources in the study area:

- Aerial imagery for various dates between 1994 and 2021 (Google Earth 2021)
- USGS 7.5-minute Riverside West, CA topographic quadrangle map (USGS 2001) (Appendix A, Figure 2)
- Watershed maps available from National Hydrography Dataset (NHD) (USGS 2017) (Appendix A, Figure 3)
- Federal Emergency Management Agency (FEMA) 100-year floodplain maps (FEMA 2014) (Appendix A, Figure 4)
- NHD and the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2017) data for the study area (Appendix A, Figure 4)
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (USDA/NRCS 2006) for the study area (Appendix A, Figure 5)

The above resources were used to identify approximate locations of potential aquatic resources subject to regulation by USACE, SWRCB/RWQCB, and CDFW within the study area.

In addition to the regionally available data (e.g., NWI, NHD, and FEMA) the approximate location and extent of potential aquatic resources were identified on field maps based on changes in vegetation type and cover, topographic changes, and visible drainage patterns.

2.2 Field Investigation and Mapping

ICF conducted the jurisdictional waters and wetland delineation for the study area in 2021 and conducted site visits on December 2 and 3, 2021 to confirm existing conditions. Additionally, a site visit was conducted on November 24 to set up dig alert points to submit for digging approval. Table 2-1 shows the date, delineator(s), and purpose of each site visit.

Table 2-1. Jurisdictional Delineation Field Dates

Date	Delineators	Purpose
November 24, 2021	Paul Schwartz, Cole Sutter	Dig alert setup
December 2, 2021	Kristen Klinefelter, Cole Sutter	Jurisdictional delineation field survey
December 3, 2021	Kristen Klinefelter, Cole Sutter	Jurisdictional delineation field survey

The 2021 field investigation was conducted in December within the study area, which is defined as the limits of disturbance for the proposed project sites.

During the field efforts, the study area was surveyed on foot where access was possible, and jurisdictional limits were recorded using ArcMap Collector on an iPad unit with an external global positioning system (GPS) receiver providing sub-meter accuracy. If no access was possible, then jurisdictional features were delineated based on visual estimates and aerial photographs and then digitized in a geographic information system (GIS). Common plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the *Jepson Manual: Vascular Plants of California*, 2nd edition (Baldwin et al. 2012) and the Arid West 2020 Regional Wetland Plant List (USACE 2020).

The site visit was conducted 56 days following a storm event that resulted in 0.15 inch of rain on October 8, 2021, as recorded at the Riverside Municipal Airport (National Weather Service 2021). Representative photos for features in the study area were taken to depict existing conditions (Appendix D).

The below subsections provide the regulatory background and aquatic resource delineation methods used per agency.

2.2.1 U.S. Army Corps of Engineers

USACE regulates activities proposed within navigable waters under Section 10 of the Rivers and Harbors Act and WoUS under Section 404 of the CWA. Section 10 of the Rivers and Harbors Act regulates work, structures, obstructions, or alterations occurring within navigable WoUS, which is defined as those waters subject to the ebb and flow of the tide shoreward to the mean high-water mark and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. The project site does not support tidal waters; therefore, Section 10 of the act is not discussed further.

The pre-2015 definition of WoUS became effective on September 3, 2021, in all states and territories (USACE/EPA 2021). This definition establishes the scope of USACE and EPA authority under the CWA and includes seven categories of jurisdictional WoUS (33 Code of Federal Regulations [CFR] 328.3(a)(1)–(7)) and two categories of non-jurisdictional aquatic features (33 CFR 328.3(a)(8)). The seven categories of jurisdictional WoUS are as follows:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide (33 CFR 328.3(a)(1));
- All interstate waters including interstate wetlands (33 CFR 328.3(a)(2));
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters (33 CFR 328.3(a)(3)):
    - Which are or could be used by interstate or foreign travelers for recreational or other purposes (33 CFR 328.3(a)(3)(i)); or
    - From which fish or shellfish are or could be taken and sold in interstate or foreign commerce (33 CFR 328.3(a)(3)(ii)); or
    - Which are used or could be used for industrial purpose by industries in interstate commerce (33 CFR 328.3(a)(3)(iii)).

- All impoundments of waters otherwise defined as waters of the United States under the definition (33 CFR 328.3(a)(4));
- Tributaries of waters identified in paragraphs (a) (1) through (4) of this section (33 CFR 328.3(a)(5));
- The territorial seas (33 CFR 328.3(a)(6));
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section (33 CFR 328.3(a)(7)).

The two categories of non-jurisdictional aquatic features (33 CFR 328.3(a)(8)) are as follows:

- Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA; and
- Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

2.2.1.1 Delineation Methods for CWA Section 404 (Non-tidal) Non-wetland WoUS

Aquatic resources with a defined OHWM would be considered potential non-wetland WoUS. USACE regulations at 33 CFR 328.3(c)(7) define OHWM as "the line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clean 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" (85 *Federal Register* 22339, April 21, 2020). The lateral limits of non-wetland WoUS were mapped using guidance provided in *Ordinary High Water Flows and the Stage-Discharge Relationship in the Arid West Region* (USACE 2011), *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States: A Determination Manual* (USACE 2008b), and Regulatory Guidance Letter 05-05 (USACE 2005).

ICF completed the 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheets (OHWM Datasheets) for representative non-wetland water features within the study area. Completed OHWM Datasheets are provided in Appendix B, and the location of each OHWM sample point is depicted on Figure 6 in Appendix A. The OHWM Datasheets were completed following guidance provided in the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2010). Common indicators of OHWM include changes in average sediment texture, break in slope, changes in vegetation species, and/or changes in vegetation cover.

2.2.1.2 Delineation Methods for CWA Section 404 (Non-tidal) Wetland WoUS

Wetlands consist of 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. Normally, three criteria (parameters) must be satisfied to classify an area as a wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond

long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

In areas that exhibited evidence of wetland hydrology and/or hydrophytic vegetation, wetland soil pits were established to examine soil color and texture and determine the wetland boundary. A paired-pit technique (i.e., one sample point with wetland results paired with one sample point with non-wetland results) was used to identify the wetland boundary. The wetland delineation was conducted pursuant to the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). The *Field Indicators of Hydric Soils in the United States,* Version 8.2 (USDA/NRCS 2018) was used to identify hydric soil; vascular plants were identified using *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012); and nomenclature and associated wetland ratings follow the *National Wetland Plant List* (USACE 2020). Wetland determination forms are provided in Appendix C.

Most of the Jurupa Avenue Trailhead site was inaccessible due homeless encampments and unsafe working conditions. Therefore, ICF biologists used results data collected in 2016 from the Santa Ana River Tributary Restoration Projects, Early Implementation Services for the Upper Santa Ana River Habitat Conservation Plan Jurisdictional Delineation Report where its study area overlapped with the Jurupa Avenue Trailhead site and confirmed that conditions had not changed wherever accessible within the study area. The report can be found in Appendix E for reference.

2.2.2 State Water Resources Control Board/Regional Water Quality Control Board

In California, the SWRCB and nine RWQCBs regulate activities within WoUS under Section 401 of the CWA and within WoS under the Porter-Cologne Act. The SWRCB defines WoS broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state."

2.2.2.1 Delineation Methods for CWA Section 401 Non-wetland WoUS and Porter-Cologne Non-wetland WoS

The SWRCB and RWQCBs do not have regulations or guidance defining the extent of non-wetland WoUS or WoS. Therefore, lateral limits of potential non-wetland WoUS and WoS were identified and delineated using the same methods for determining OHWM per USACE as described above in Section 2.2.1, as they have generally been considered coincident.

2.2.2.2 Delineation Methods for CWA Section 401 Wetland WoUS and Porter-Cologne Wetland WoS

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* (Procedures; SWRCB 2019). The Procedures became effective on May 28, 2020, and define wetland WoS as follows:

An area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The Procedures provide that RWQCBs shall rely on a wetland delineation from a final aquatic resources delineation report verified by USACE to determine the extent of wetland WoUS and WoS. If any potential wetland areas have not been delineated in a final aquatic resources delineation report verified by USACE, the limits of such potential wetland waters WoS shall be identified using the same wetland delineation methods per USACE as described in Section 2.2.1, except that a lack of vegetation (i.e., less than 5 percent areal coverage of plants during the peak of the growing season) does not preclude an area from meeting the definition of a wetland when hydric soils and wetland hydrology are present (SWRCB 2019).

2.2.3 California Department of Fish and Wildlife Jurisdiction

Pursuant to Sections 1600 et al. of the CFG Code, CDFW regulates any activity that would substantially divert or obstruct the natural flow—or substantially change or use any material from the bed, channel, or bank—of any river, stream, or lake. CDFW jurisdiction relies on the presence of a lake and/or streambed and associated riparian or wetland habitat. CDFW regulation under CFG Code Section 1602 requires that all lakes and streams on a project site are identified in order to assess the proposed activity's potential impacts on these aquatic resources.

2.2.3.1 Delineation Methods for CFG Code Section 1600 Lakes, Streambeds, and Associated Riparian and/or Wetland Habitat

CDFW defines lakes as "natural lakes or man-made reservoirs" (14 California Code of Regulations § 1.56). With respect to streams, it has been the practice of CDFW to define a stream as "a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators" (Brady and Vyverberg 2014). The historic hydrologic regime is defined as circa 1800 to the present. In addition, streams include "watercourses having a surface or subsurface flow that supports riparian vegetation" (14 California Code of Regulations § 1.72). Riparian habitat refers to vegetation and habitat associated with a stream. CDFW-jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. Isolated riparian habitat (i.e., where riparian vegetation does not appear associated with a stream channel) is not considered CDFW jurisdictional.

Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. Water features such as vernal pools and other seasonal swales—where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features—are generally not asserted to fall within CDFW jurisdiction under Section 1600. CDFW generally does not assert jurisdiction over human-made water bodies unless they are located where such natural features were previously located or where they are contiguous with existing or prior natural jurisdictional areas.

Based on the above, potential CDFW-jurisdictional aquatic resources delineated included lakes and/or streambeds and their associated riparian and wetland habitats. Staff delineated the lateral extent of potential CDFW jurisdiction to be "bank to bank" for a streambed or to the "dripline" of riparian habitat and/or wetland boundary, if present.

Chapter 3
Environmental Setting

The study area consists of the proposed project limits of disturbance, including proposed temporary construction access, staging, and storage areas. The following section describes the topography, land use, hydrology, soils, and vegetation characteristics associated with the study area.

3.1 Topography

The study area is within the Riverside West, CA USGS 7.5-Minute topographic quadrangle at an elevation between approximately 213 to 244 feet above mean sea level (amsl). The topography within the three Tequesquite sites and the Riverside Greenway site gradually slopes from northeast to southwest in the direction of the Santa Ana River. The Jurupa Avenue Trailhead site slopes from south to north along Hole Creek toward the Santa Ana River to the north. USGS topographic mapping for the study area is provided as Appendix A, Figure 2.

3.2 Land Use

The study area is along or adjacent to the Santa Ana River. The three Tequesquite sites and the Riverside Greenway site are generally surrounded by residential development to the southeast and open space and the Santa Ana River to the northwest. Paved and dirt paths are within and around this area for recreational use. The Jurupa Avenue Trailhead site is surrounded by residential development to the west, open space to the north and south, and commercial development to the east. The Santa Ana River is directly north of the site.

3.3 Hydrology

3.3.1 Precipitation

The regional climate is characterized by hot, dry summer months with relatively mild, wet winters. Precipitation data was obtained from the Riverside Municipal Airport approximately 1.5 miles southeast of the Jurupa Avenue Trailhead site and 3 miles southwest of the three Tequesquite sites and the Riverside Greenway site. The jurisdictional delineation was conducted in a typical year with precipitation totals on track to be close to the 20-year average. Table 3-1 summarizes the monthly and annual precipitation for 2017 to 2021 and provides the average monthly and annual precipitation for 2001 to 2021.

Table 3-1. Regional Rainfall Data Summary for Riverside Municipal Airport (inches)

	January	February	March	April	May	June	July	August	September	October	November	December	Total Average Precipitation (inches)
2017	5.48	2.19	0.16	0.10	0.02	0.00	0.01	0.28	0.22	T	0.03	T	8.49
2018	1.55	0.85	1.65	T	0.15	0.00	0.02	0.00	0.00	1.10	0.78	1.10	7.20
2019	2.84	5.39	1.43	0.02	0.44	0.00	0.02	0.00	0.01	0.00	1.81	2.52	14.48
2020	0.08	0.06	3.64	2.65	T	T	0.00	0.00	0.00	T	0.16	1.16	7.75
2021	1.59	T	1.45	T	T	0.02	0.16	T	T	0.29	0.00	-	3.51
2001–2021	1.59	1.94	1.00	0.61	0.14	0.01	0.14	0.03	0.12	0.40	0.60	1.77	7.93

Source: National Weather Service (2021) for Riverside Municipal Airport
T=Trace

3.4 Hydrologic Units and Aquatic Resources Mapping

The study area is within the Santa Ana hydrologic unit code (HUC) 8 watershed and the Middle Santa Ana River HUC 10 subwatershed (Appendix A, Figure 3). The study area is also within the Calwatershed Santa Ana River Hydrologic Unit. The FEMA 100-year floodplain, NHD database results, and the USFWS NWI database query results for the study area are depicted on the water resources map (Appendix A, Figure 4).

3.5 Soils

3.5.1 Soil Series

The NRCS has mapped the following soil series as occurring within the study area based on the SSURGO database (USDA/NRCS 2006): Buchenau, Dello, Grangeville, Tujunga, Riverwash, and Terrace Escarpments (Appendix A, Figure 5). The figure depicts the following soil types:

- Buchenau loam, slightly saline-alkali, 2 to 8 percent slopes
- Dello loamy sand, 0 to 5 percent slopes
- Dello loamy fine sand, 0 to 2 percent slopes
- Grangeville loamy fine sand, drained, 0 to 5 percent slopes
- Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes
- Tujunga loamy sand, channeled, 0 to 8 percent slopes
- Riverwash
- Terrace escarpments

A description of the series included within the SSURGO mapping units is provided below based on the official soil descriptions provided by USDA (USDA/NRCS 2006). Hydric soil determinations are

based off the *NRCS Field Office List of Hydric Soil Map Units for Orange County and part of Riverside County, California* (USDA/NRCS 2017).

3.5.1.1 Buchenau Series

Soils in the Buchenau Series occur on small alluvial fans at elevations between 300 and 1,500 feet amsl. Buchenau series form from metasedimentary rocks and consist of well to moderately well drained soils with medium to very slow runoff and moderately slow permeability to the hardpan, then very slow (USDA/NRCS 2006). Within the study area, these soils are mapped as Buchenau loam, slightly saline-alkali, 2 to 8 percent slopes. The Buchenau series is not listed as hydric within the study area (USDA/NRCS 2017).

3.5.1.2 Dello Series

Soils in the Tujunga Series occur in small depressions at elevations between about 10 feet below sea level to 500 feet amsl. Dello series form in alluvium derived from granitic rock sources and consist of very poorly drained soils with low runoff and rapid permeability (USDA/NRCS 2006). Within the study area, these soils are mapped as Dello loamy sand, 0 to 5 percent slopes and Dello loamy fine sand, 0 to 2 percent slopes. The Dello series is not listed as hydric within the study area (USDA/NRCS 2017).

3.5.1.3 Grangeville Series

Soils in the Grangeville Series occur on alluvial fans and floodplains at elevations between 0 and 1,800 feet amsl. Grangeville series form in alluvium derived from granitic rock sources and consist of somewhat poorly drained soils with negligible to very low runoff and moderately rapid permeability (USDA/NRCS 2006). Within the study area, these soils are mapped as Grangeville loamy fine sand, drained, 0 to 5 percent slopes and Grangeville fine sandy loam, poorly drained, saline-alkali, 0 to 5 percent slopes. The Grangeville series is not listed as hydric within the study area (USDA/NRCS 2017).

3.5.1.4 Tujunga Series

Soils in the Tujunga Series occur in washes, inset fans, and stream terraces at elevations between 400 and 2,350 feet amsl. Tujunga series form in alluvium derived from granitic rock and consist of somewhat excessively drained soils with low runoff and low permeability (USDA/NRCS 2006). Within the study area, these soils are mapped as Tujunga loamy sand, channeled, 0 to 8 percent. The Tujunga series is not listed as hydric within the study area (USDA/NRCS 2017).

3.5.1.5 Riverwash

Soils within riverwashes form from sandy and gravelly alluvium derived from mixed sources and are found at approximately 700 to 2,900 feet amsl. Riverwash soils are excessively drained with very low runoff and high to very high permeability (USDA/NRCS 2006). These soils are considered hydric within the study area (USDA/NRCS 2017).

3.5.1.6 Terrace Escarpments

Soils within terrace escarpments form in alluvium derived from mixed sources (USDA/NRCS 2006). These soils are not considered hydric within the study area (USDA/NRCS 2017).

Chapter 4
Jurisdictional Delineation Results

This chapter describes the potential jurisdictional features and expected jurisdictional status mapped within the study area. An impact analysis is not included as a part of this report.

The information and results included herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional delineations should be considered preliminary until reviewed and approved by the regulatory agencies.

Supporting information includes maps of jurisdictional features within the study area (Appendix A), OHWM data sheets (Appendix B), wetland determination forms (Appendix C), photographs for all delineated features (Appendix D).

4.1 Delineated Feature Descriptions

Within the study area, five aquatic features that are potentially subject to the jurisdiction of USACE, RWQCB, and CDFW were delineated (Table 4-1). All features evaluated in this delineation met the definition of a CWA Section 404 and 401 WoUS and were determined to be CDFW jurisdictional under Section 1600 of the CFG Code. The features are described by agency jurisdiction in detail below Table 4-1. Detailed maps depicting USACE/RWQCB WoUS and CDFW jurisdictions are included in Appendix A, Figures 6 and 7, respectively.

Table 4-1. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction Aquatic Resources

				USACE Section 404 and RWQCB Section 401 Aquatic Resources		CDFW Aquatic Resources	
Feature	Project Site	Lat/Long (centroid)	Cowardin Classification[1]	Non-Wetland WoUS (acres/ linear feet)	Non-Wetland WoUS with Wetland Conditions (acres/linear feet)	Streambed (acres/ linear feet)	Riparian (acres/ linear feet)
Feature 1 – Upper Santa Ana River	Tequesquite North Extension	33.97645, -117.40330	PUB2	--	--	12.90/ 2,849	17.87/ 3,183
Feature 2 – Old Ranch Creek	Santa Ana River Greenway	33.96918, -117.41154	R4SB4	--	0.05/247	0.02/38	0.62/204
Feature 3 – Hole Creek	Jurupa Avenue Trailhead	33.95865, -117.46441	R2UB1	0.34/323	0.04/122	0.09/83	0.78/242
Feature 4	Jurupa Avenue Trailhead	33.95941, -117.46368	R4SB4	0.02/47	--	--	0.09/102
Feature 5	Santa Ana River Greenway	33.97569, -117.39927	R4SBr	0.04/240	--	0.06/240	--
			Total	**0.40/615**	**0.09/369**	**13.07/ 3,240**	**19.35/ 3,731**

Data based on ICF GIS Calculations, January 2022
-- equals null value (zero)
[1] Cowardin et al. 1979

4.1.1 Feature 1 – Upper Santa Ana River

Feature 1 is the Upper Santa Ana River, a large earthen perennial stream that conveys flows from the northeast to the southwest. Only the feature's upper eastern banks above the OHWM are included within the study area. The feature runs along the western edge of the Santa Ana River Trail and is within the eastern half of the Tequesquite Extension North site. The banks of the feature contain well-established walking trails throughout that do not show signs of flows.

Feature 1 exhibits an even mix of both well-established riparian and upland vegetation throughout the feature. In general, upland areas are dominated by shortpod mustard (*Hirschfeldia incana*, upland [UPL]), California croton (*Croton californicus*, UPL), and yerba santa (*Eriodictyon californicum*, UPL) while riparian areas are dominated by arrowweed (*Pluchea sericea*, facultative wetland [FACW]), Fremont's cottonwood (*Populus fremontii*, facultative [FAC]), and black willow (*Salix gooddingii*, FACW).

The OHWM associated with Feature 1 exists outside of the study area to the northwest. Top of bank and/or associated riparian vegetation widths associated with Feature 1 range from 3 to 596 feet within the study area (Figures 7d, 7e, and 7f).

4.1.2 Feature 2 – Old Ranch Creek

Feature 2 is Old Ranch Creek, a small earthen intermittent stream that conveys flows from south to north and eventually empties into the Santa Ana River approximately 1.3 miles downstream of the study area. The feature is within the Santa Ana River Greenway site and runs along Rubidoux Avenue before passing under the Santa Ana River Trail via a 16-inch culvert. The feature generally carries runoff collected from the residential development directly upstream.

Feature 2 is dominated by shortpod mustard (UPL) and poison hemlock (*Conium maculatum*, FACW) in the southernmost portion, arrowweed (FACW) along the western edge, and Fremont's cottonwood (FAC) in the northern portion.

OHWM indicators within Feature 2 included change in vegetation cover, change in vegetation species, change in average sediment size, debris wracking, and a break in slope. The OHWM associated with Feature 2 is approximately 8 feet in width and supported wetland conditions entirely within the OHWM (Appendix A, Figure 6b). Top of bank and/or associated riparian vegetation widths associated with Feature 2 range from 12 to 211 feet within the study area (Appendix A, Figure 7b).

4.1.3 Feature 3 – Hole Creek

Feature 3 is Hole Creek, an earthen perennial stream that conveys flows from south to north and eventually empties into the Santa Ana River approximately 0.3 mile downstream of the study area. The feature is within the Jurupa Avenue Trailhead site and contains many man-made paths and homeless encampments throughout. The feature enters the study area via a 40-foot concrete box culvert that runs under Jurupa Avenue and the Santa Ana River Trail with concrete reinforcement and riprap near the outflow. During the site review on December 3, 2021, Feature 1 had flowing water within the low-flow channel.

In general, Feature 3 is dominated by black willow (FACW) and contains a mix of Fremont's cottonwood (FAC), tree of heaven (*Ailanthus altissima*, facultative upland [FACU]), velvet ash (*Fraxinus velutina*, FACU), mulefat (*Baccharis salicifolia*, FAC), saltcedar (*Tamarix ramosissima*, FAC), and giant reed (*Arundo donax*, FAC) throughout as well as castor bean (*Ricinus communis*, FACU) and rip-gut brome (*Bromus diandrus*, UPL) on the upper banks.

Feature 3 exhibited OHWM and flow indicators consistent with the Jurisdictional Delineation report attached in Appendix E including sediment deposition, a break in slope, and debris wracking. The OHWM associated with Feature 3 ranges from approximately 40 to 62 feet in width and supported wetland conditions in parts of the feature below the OHWM (Appendix A, Figure 6a). Top of bank and/or associated riparian vegetation widths associated with Feature 3 range from 40 to 130 feet within the study area (Appendix A, Figure 7a).

4.1.4 Feature 4

Feature 4 is an earthen ephemeral-to-intermittent stream that conveys flows from east to west and is a tributary to Feature 4 approximately 107 feet downstream of where it exits the study area. The feature is within the Jurupa Avenue Trailhead site and collects urban runoff from the surrounding area and flows out of a small culvert under Van Buren Boulevard before entering the study area. The feature is characterized by steep, eroded banks and compacted man-made trails within the upper banks.

The channel bed of Feature 4 is predominantly unvegetated with dense castor bean (FACU) on the upper southern banks and velvet ash (FACU), black willow (FACW), and California sycamore (*Platanus racemose*, FAC) on either side of the feature.

Feature 4 exhibited OHWM and flow indicators consistent with the Jurisdictional Delineation report attached in Appendix E including a break in slope and change in vegetation cover. The OHWM associated with Feature 4 is approximately 16 feet in width (Appendix A, Figure 6a). Top of bank and/or associated riparian vegetation widths associated with Feature 4 range from 5 to 52 feet within the study area (Appendix A, Figure 7a).

4.1.5 Feature 5

Feature 5 is a large, unvegetated concrete box channel that conveys flows from east to west and eventually empties into the Santa Ana River approximately 0.46 miles downstream from the study area. The feature is within the Santa Ana River Greenway site and runs along the south side of Tequesquite Avenue before passing under a 20-foot box culvert and outflowing on the north side of the road. The feature generally carries runoff collected from the residential development directly upstream.

OHWM indicators within Feature 5 included staining on the channel walls. The OHWM associated with Feature 5 ranges from approximately 20 to 28 feet in width (Appendix A, Figure 6d). Top of bank widths associated with Feature 5 range from 20 to 37 feet within the study area (Appendix A, Figure 7d).

4.2 Summary of Jurisdictional Delineation Results

Based on the investigation and analysis documented in this report, potential CWA Section 404 and 401 USACE/RWQCB aquatic resources documented within the study area consist of 0.40 acre (615 linear feet) of non-wetland WoUS and 0.09 acre (369 linear feet) of non-wetland WoUS with wetland conditions.

No potential RWQCB Porter Cologne Act WoS-only aquatic resources are mapped within the study area.

Lastly, potential CDFW jurisdiction documented in the study area consist of 13.07 acre (3,240 linear feet) of streambed and 19.35 acre (3,731 linear feet) of associated riparian vegetation. All jurisdictional determinations in this report should be considered preliminary until reviewed and approved by applicable regulatory agencies.

4.3 List of Delineators and Report Preparers/Reviewers

Kristen Klinefelter—Delineator/Report Preparer

Lanika Cervantes—Report Reviewer

Brad Stein—GIS/Graphics Support

Chapter 5
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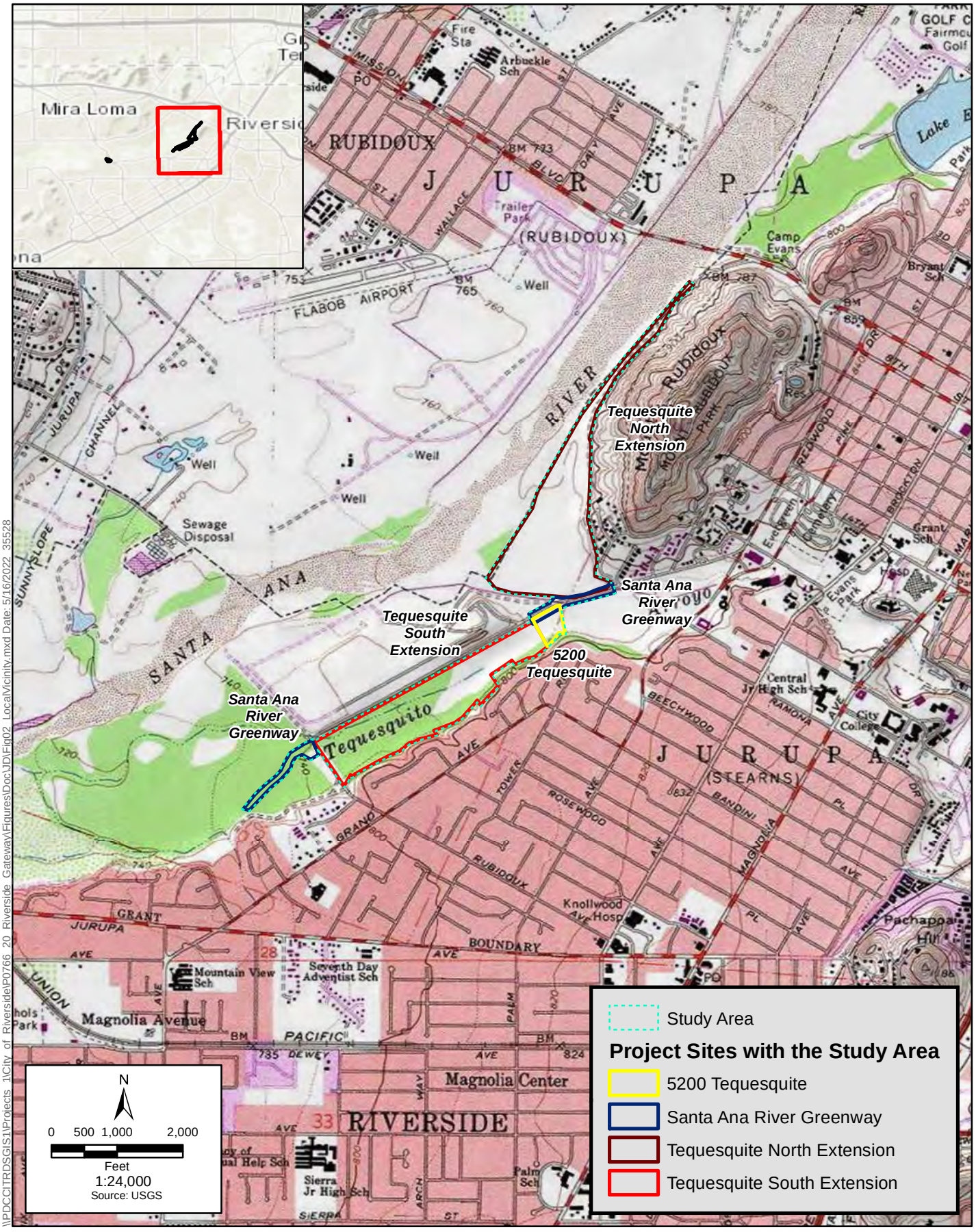
Appendix A

Jurisdictional Delineation Figures



\\PDCCITRDSGIS1\Projects_1\City_of_Riverside\P0766_20_Riverside_Gateway\Figures\Doc\JD\Fig01_Regional_Vicinity.mxd Date: 5/16/2022_35528

Figure 1
Regional Vicinity Map



\\PDCCITRDSGIS1\Projects 1\City of Riverside\P0766 20 Riverside Gateway\Figures\Doc\JD\Fig02 LocalVicinity.mxd Date: 5/16/2022 35528

Figure 2a
Local Vicinity Map

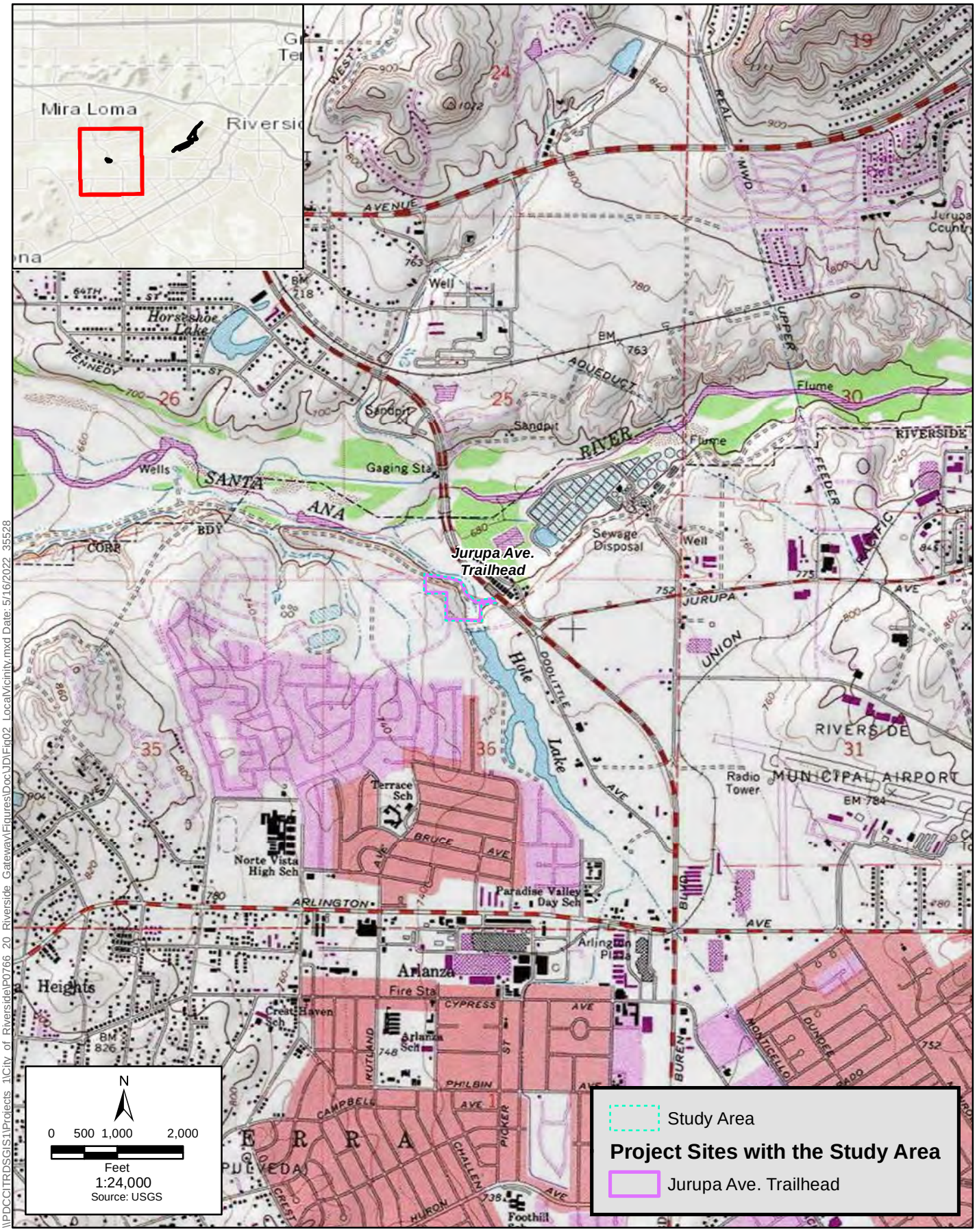


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Figure 2b
Local Vicinity Map



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0 1.5 3 Miles

1:190,080

Source: ICF, ESRI Basemaps (2018)

N

Figure 3
Watersheds

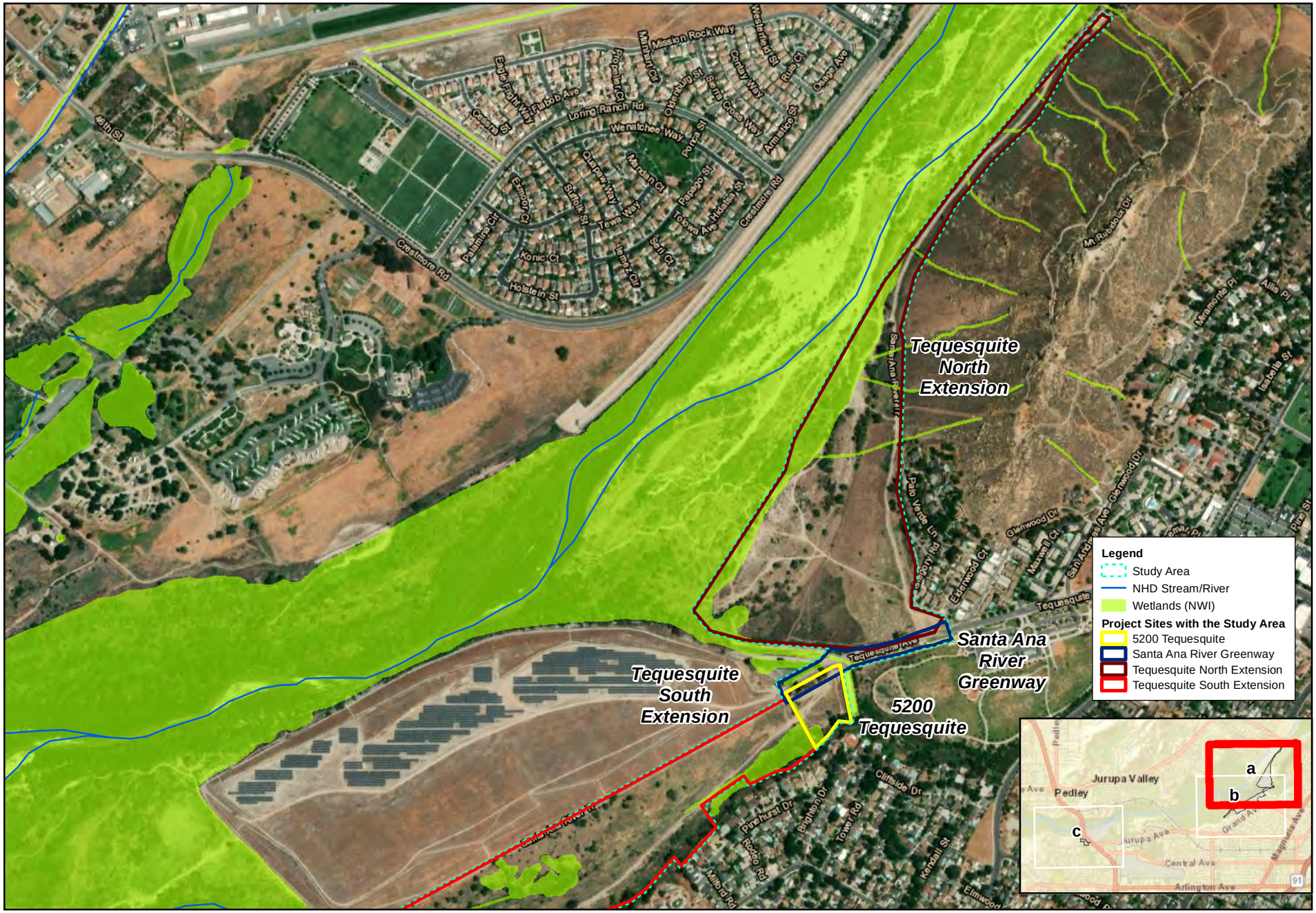

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Figure 4a
Water Resources



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0 500 1,000
Feet
1:12,000

Source: ICF; ESRI Basemaps; USGS; FEMA

Figure 4b
Water Resources



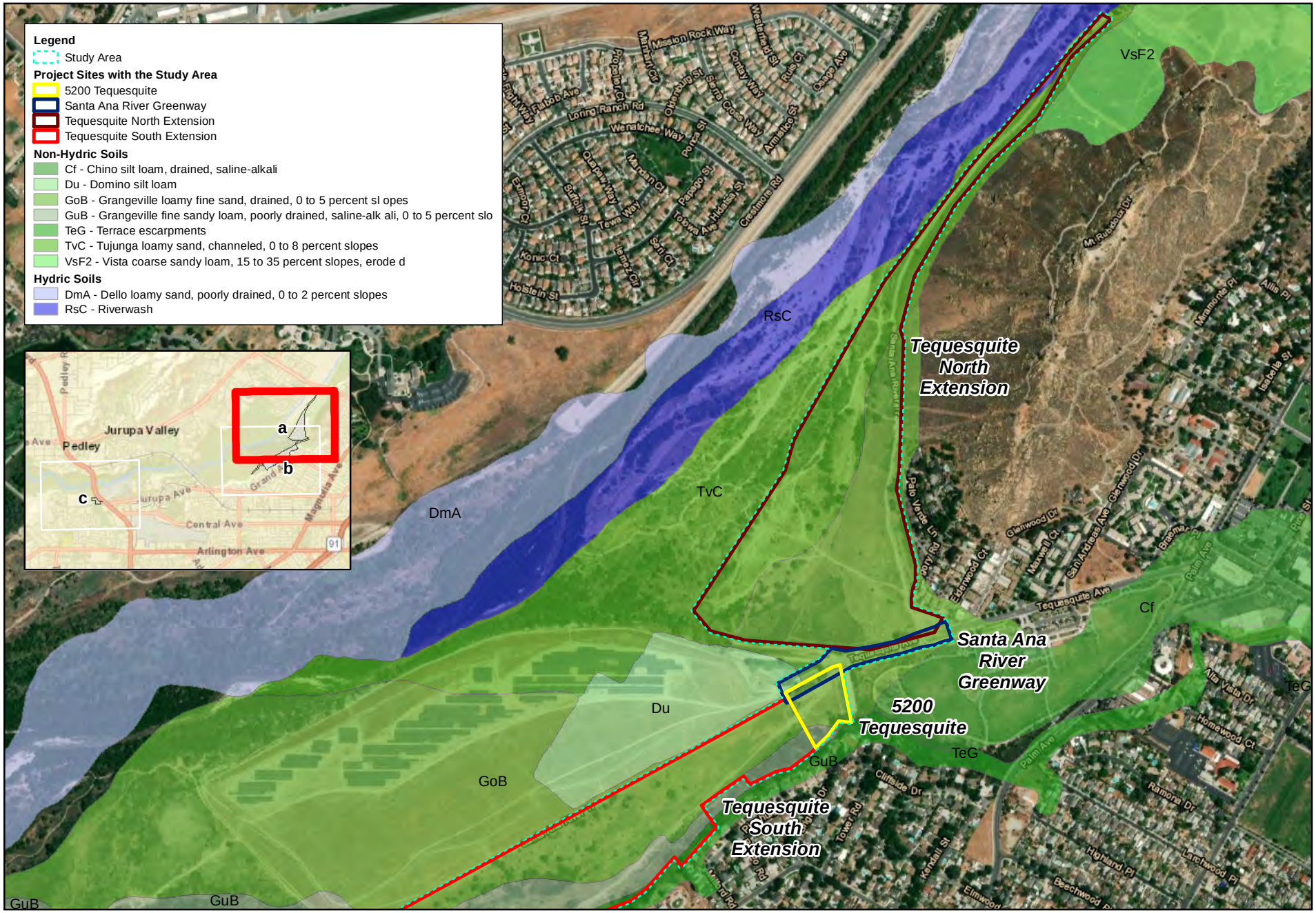
0 500 1,000 Feet

1:12,000

Source: ICF; ESRI Basemaps; USGS; FEMA

Figure 4c
Water Resources

\\PDCCITRDSGIS1\Projects_1\City_of_Riverside\P0766_20_Riverside_Gateway\Figures\Doc\JDIFig04_WaterResources.mxd: User: 35528: Date: 5/16/2022



\\PDCCITRDSGIS1\Projects_1\City_of_Riverside\P0766_20_Riverside_Gateway\Figures\Doc\JDFig05_Soils.mxd: User: 35528: Date: 5/16/2022

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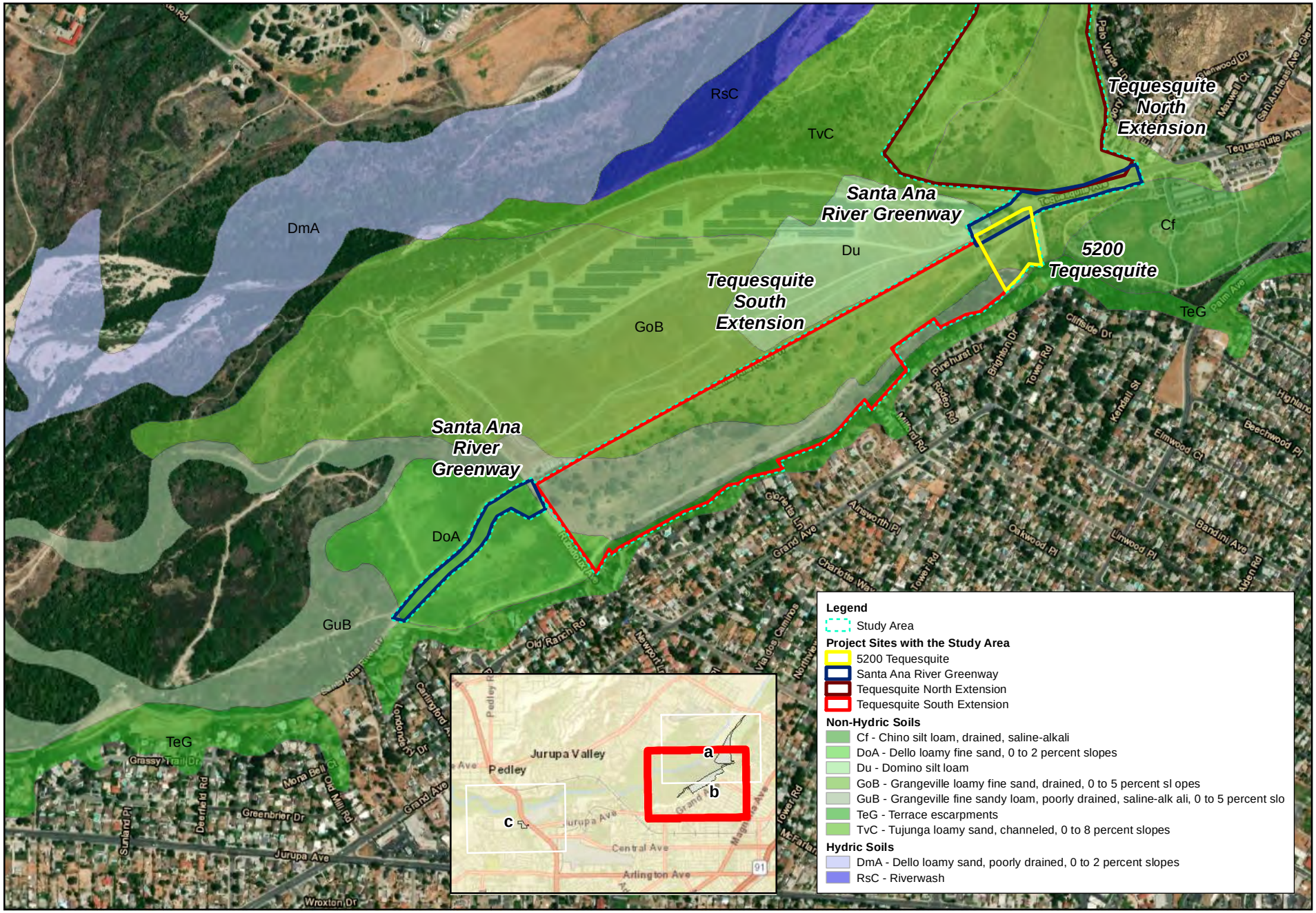
1:12,000

Source: ICF; ESRI Basemaps; NRCS

Figure 5a
Soils



\\PDCCITRDSGIS1\Projects_1\City_of_Riverside\P0766_20_Riverside_Gateway\Figures\Doc\JDF\g05_Soils.mxd: User: 35528: Date: 5/16/2022

Figure 5b
Soils



\\PDCCITRDSGIS1\Projects_1\City_of_Riverside\P0766_20_Riverside_Gateway\Figures\Doc\JDFig05_Soils.mxd: User: 35528: Date: 5/16/2022

0 500 1,000
Feet
1:12,000
Source: ICF; ESRI Basemaps; NRCS

N

Figure 5c
Soils



Legend

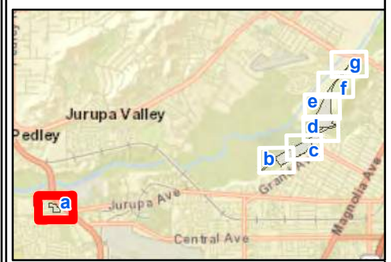
- Study Area
- OHWM Sample Point
- Photo Point
- Feature Width

Project Sites with the Study Area

- Jurupa Ave. Trailhead

Waters of the U.S. and State (USACE/RWQCB)

- Non-Wetland Waters of the U.S.
- Non-Wetland Water of the U.S. with Wetland Conditions



Source: ICF, ESRI 2022

0 50 100 Feet

1:1,200

Figure 6a
Jurisdictional Aquatic Resources Map (USACE/RWQCB)



Legend

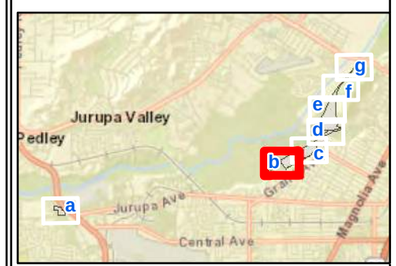
- Study Area
- OHWM Sample Point
- Wetland Sample Point
- Photo Point
- Feature Width
- Culvert

Project Sites with the Study Area

- Santa Ana River Greenway
- Tequesquite South Extension

Waters of the U.S. and State (USACE/RWQCB)

- Non-Wetland Water of the U.S. with Wetland Conditions



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 6b
Jurisdictional Aquatic Resources Map (USACE/RWQCB)



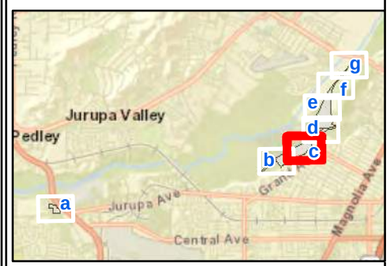
Legend

Study Area

Project Sites with the Study Area

5200 Tequesquite

Tequesquite South Extension



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

N

Figure 6c
Jurisdictional Aquatic Resources Map (USACE/RWQCB)



Legend

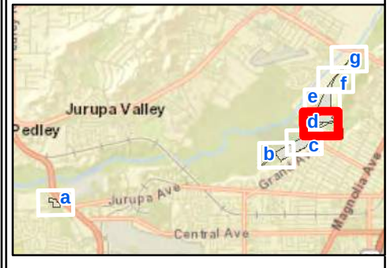
- Study Area
- OHWM Sample Point
- Photo Point
- Feature Width
- Culvert

Project Sites with the Study Area

- 5200 Tequesquite
- Santa Ana River Greenway
- Tequesquite North Extension
- Tequesquite South Extension

Waters of the U.S. and State (USACE/RWQCB)

- Non-Wetland Waters of the U.S.

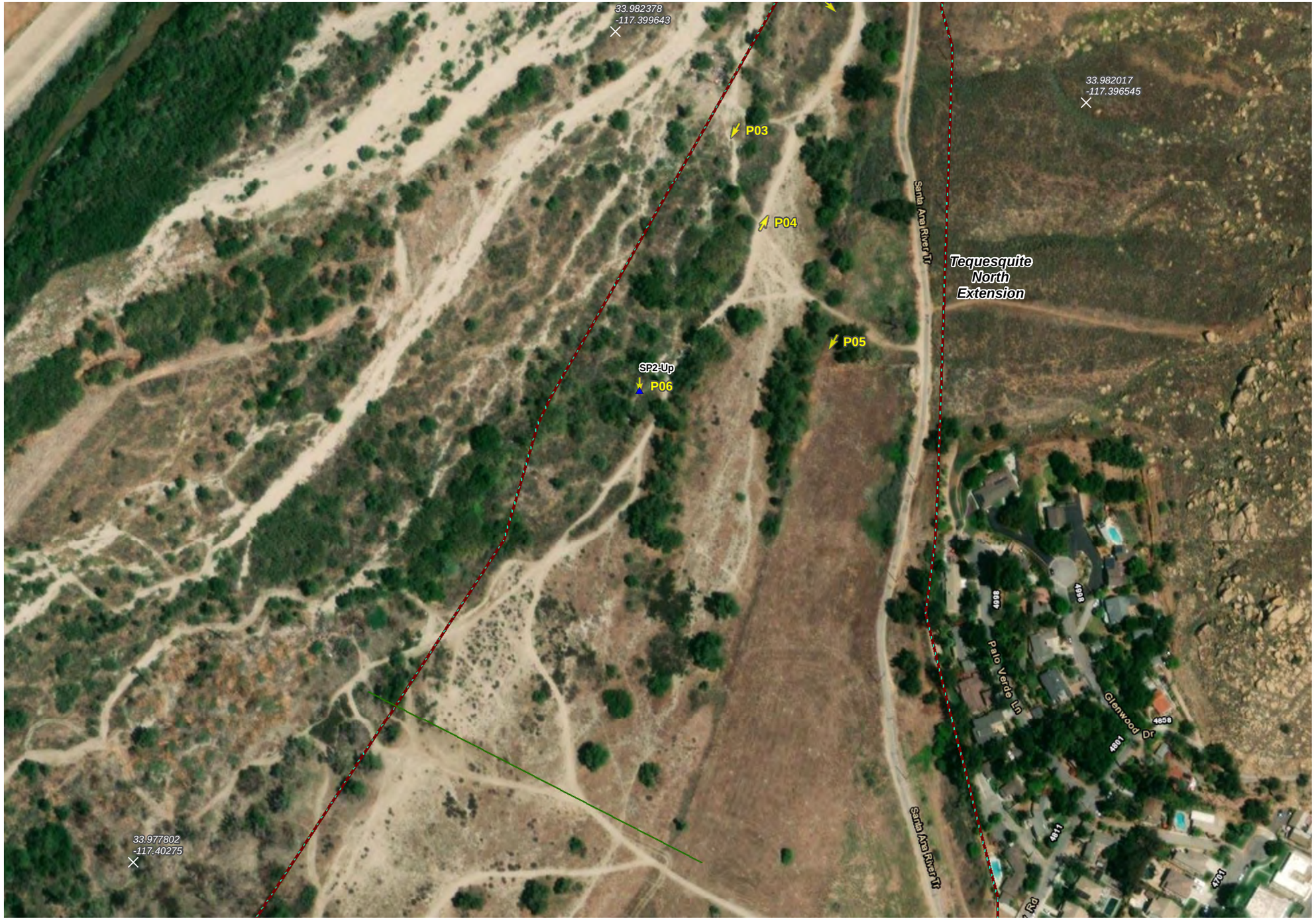


Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 6d
Jurisdictional Aquatic Resources Map (USACE/RWQCB)

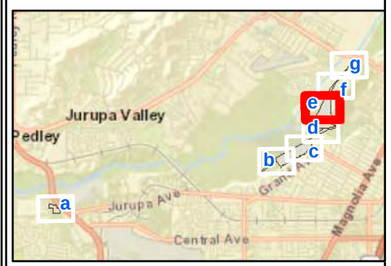


Legend

- Study Area
- Wetland Sample Point
- Photo Point
- Feature Width

Project Sites with the Study Area

- Tequesquite North Extension



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 6e
Jurisdictional Aquatic Resources Map (USACE/RWQCB)

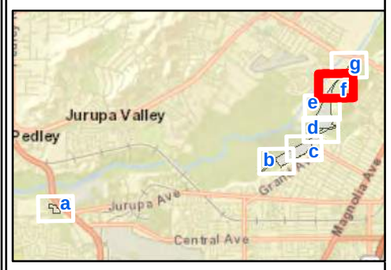


Legend

- Study Area
- Wetland Sample Point
- Photo Point

Project Sites with the Study Area

- Tequesquite North Extension



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 6f
Jurisdictional Aquatic Resources Map (USACE/RWQCB)

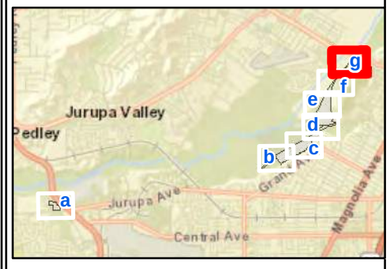


Legend

Study Area

Project Sites with the Study Area

Tequesquite North Extension



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

N

Figure 6g
Jurisdictional Aquatic Resources Map (USACE/RWQCB)



Legend

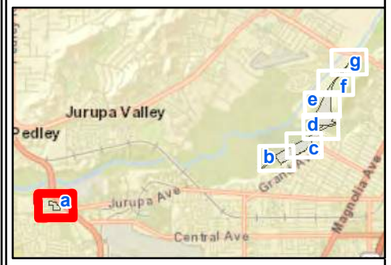
- Study Area
- Photo Point
- Feature Width

Delineation Study Areas

- Jurupa Ave. Trailhead

Waters of the State (CDFW)

- Streambed
- Riparian



Source: ICF, ESRI 2022

0 50 100 Feet

1:1,200

N

Figure 7a
Jurisdictional Aquatic Resources Map (CDFW)



Legend

- Study Area
- Photo Point
- Culvert
- Feature Width

Delineation Study Areas

- Santa Ana River Greenway
- Tequesquite South Extension

Waters of the State (CDFW)

- Streambed
- Riparian

Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 7b
Jurisdictional Aquatic Resources Map (CDFW)



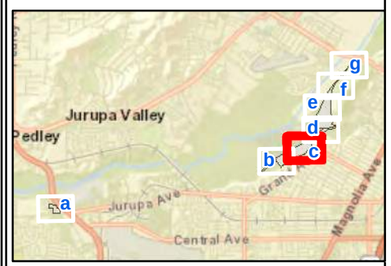
Legend

Study Area

Delineation Study Areas

5200 Tequesquite

Tequesquite South Extension



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

N

Figure 7c
Jurisdictional Aquatic Resources Map (CDFW)



Legend

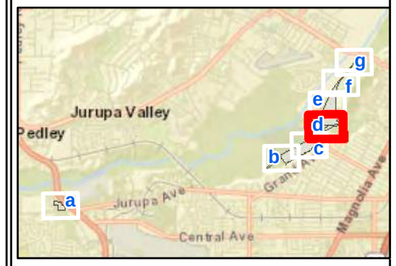
- Study Area
- Photo Point
- Culvert
- Feature Width

Delineation Study Areas

- 5200 Tequesquite
- Santa Ana River Greenway
- Tequesquite North Extension
- Tequesquite South Extension

Waters of the State (CDFW)

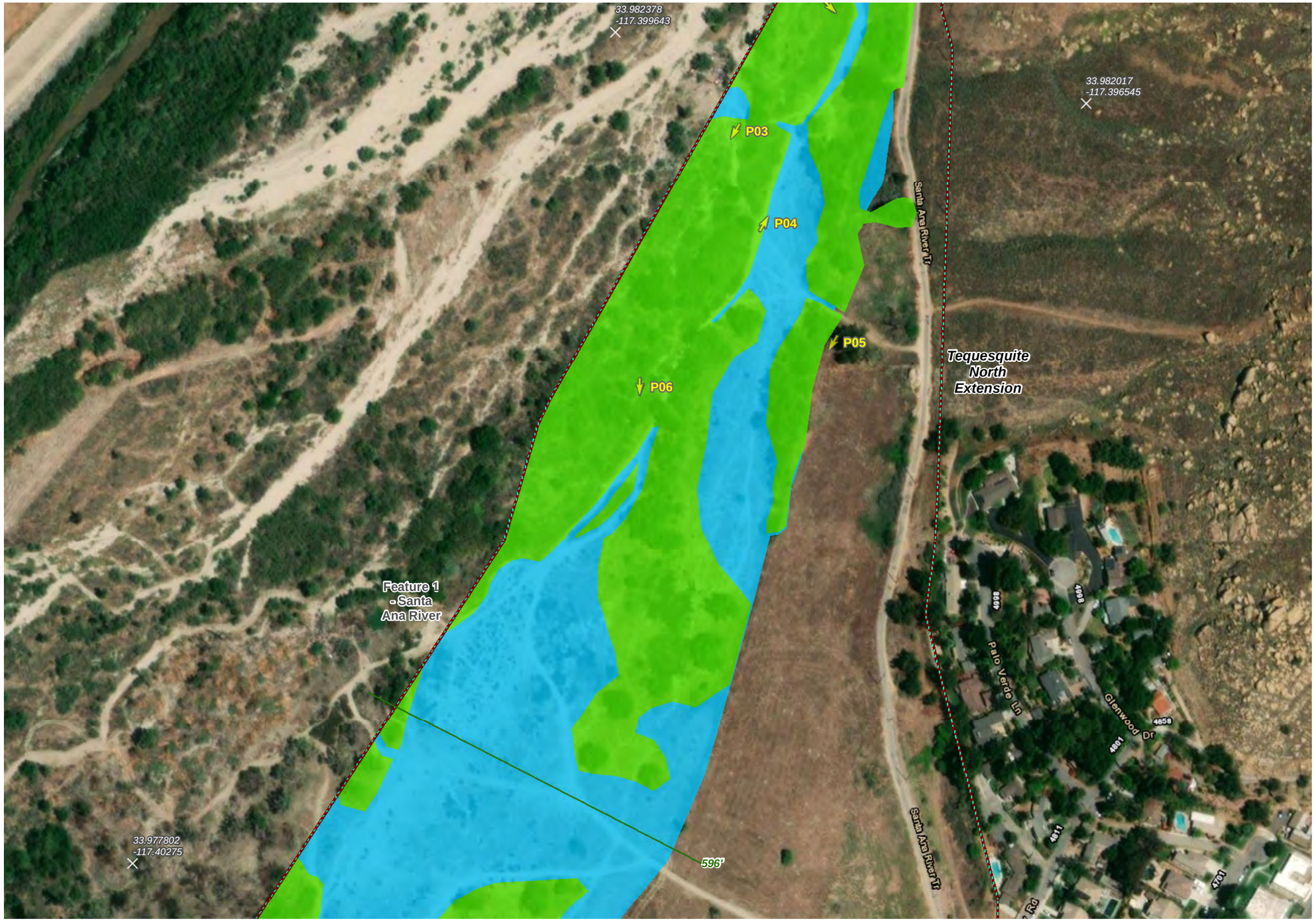
- Streambed
- Riparian



Source: ICF, ESRI 2022

0 100 200 Feet
1:2,400

Figure 7d
Jurisdictional Aquatic Resources Map (CDFW)



Legend

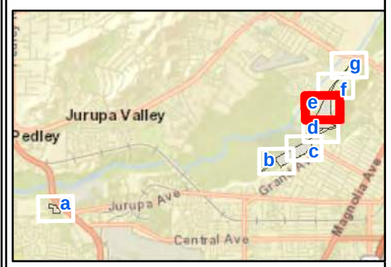
- Study Area
- Photo Point
- Feature Width

Delineation Study Areas

- Tequesquite North Extension

Waters of the State (CDFW)

- Streambed
- Riparian



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

N

Figure 7e
Jurisdictional Aquatic Resources Map (CDFW)



Legend

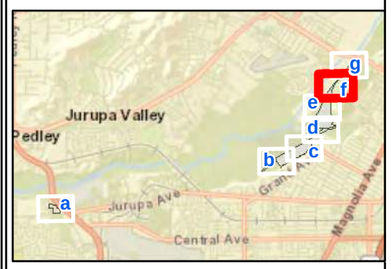
- Study Area
- Photo Point

Delineation Study Areas

- Tequesquite North Extension

Waters of the State (CDFW)

- Streambed
- Riparian



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 7f
Jurisdictional Aquatic Resources Map (CDFW)

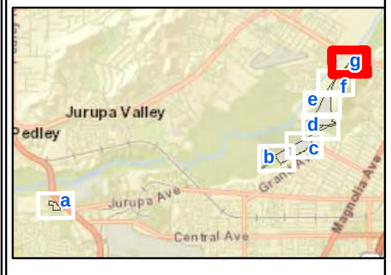


Legend

Study Area

Delineation Study Areas

Tequesquite North Extension



Source: ICF, ESRI 2022

0 100 200 Feet

1:2,400

Figure 7g
Jurisdictional Aquatic Resources Map (CDFW)

Appendix B

Ordinary High Water Mark Data Sheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM-1

Project: Riverside Gateway
Project Number: 104147.0.001.01
Stream: Feature 2 - Old Ranch Creek
Investigator(s): C. Sutter, K. Klinefelter

Date: 12/3/2021 **Time:** 12:11 pm
Town: Riverside **State:** CA
Photo begin file#: P10 **Photo end file#:** P13

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: Santa Ana River Greenway site

Projection: Lat/Long **Datum:** WGS-84
Coordinates: 33.969683, -117.411458

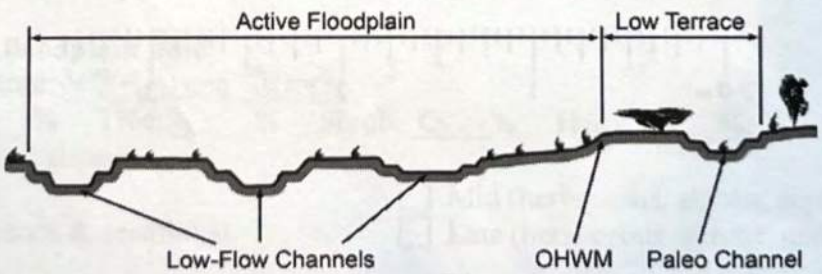
Potential anthropogenic influences on the channel system:
Paved bike path, creek runs under it via a 16-in culvert. Some trash from human visitation/use.

Brief site description:
Small channel that runs along paved footpath (Rubidoux Road). Flowing from South to north.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

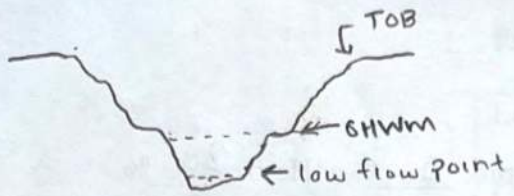
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



oject ID: Cross section ID: OHWM-1 Date: 12/3/21 Time: 12:11 pm

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: Debris Racking
- [ ] Other: _____

Comments:

Dead veg racking up around culvert entrance.

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: very fine Sand

Total veg cover: 5 % Tree: 0 % Shrub: 0 % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [x] Other: Change in veg cover
- [ ] Other: _____
- [ ] Other: _____

Comments:

Hemlock and mustard sprouts.

Project ID: **Cross section ID:** OHWM-1 **Date:** 12/3/21 **Time:** 12:11pm

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 20 % Tree: 0 % Shrub: 0 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☑ Surface relief
- ☑ Other: change in veg cover/species
- ☐ Other: _____
- ☐ Other: _____

Comments:

Higher density of hemlock intermixed with baccharis salicina and verbesena encilioides. Hemlock in later life stages than individuals present in low flow channel.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Santa Ana River Greenway

Arid West Ephemeral and Intermittent Streams OHWM Datasheet OHWM-2

Project: Riverside Gateway
Project Number: 104147.0.001.01
Stream: Feature 5
Investigator(s): K. Klinefelter, C. Sutter

Date: 12/2/2021 **Time:** 11:15 AM
Town: Riverside **State:** CA
Photo begin file#: P21 **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: Santa Ana River Greenway Tequesquite Ave. Site

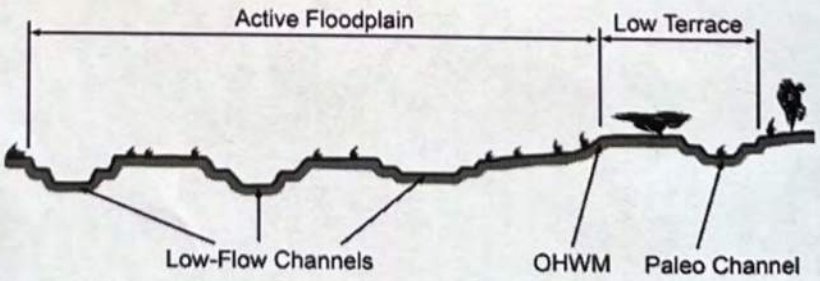
Projection: Lat/Long **Datum:** WGS-84
Coordinates: 33.975729, -117.3992662

Potential anthropogenic influences on the channel system:
- Runoff from residential areas to the northeast and south of the feature
- Concrete box culvert where feature runs under Tequesquite Ave.

Brief site description:
Large concrete box channel that flows through a 20-ft box culvert within the study area

Checklist of resources (if available):
- ☑ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ GPS
   - ☐ Digitized on computer
   - ☐ Other:

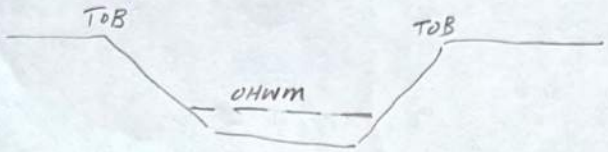
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: **Cross section ID:** OHWM-2 **Date:** 12/2/21 **Time:** 11:15AM

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☑ Other: Staining on banks
- ☐ Other: _____

Comments:

OHWM based on staing on the trapezoidal banks

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Jurupa Ave Trailhead

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM-3

Project: Riverside Gateway
Project Number: 104147.0.001.01
Stream: Feature 3 - Hole Creek
Investigator(s): K. Klinefelter, C. Sutter

Date: 12/3/21 **Time:** 11:05 AM
Town: Riverside **State:** CA
Photo begin file#: P17 **Photo end file#:** P20

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details: Jurupa Avenue Trailhead Site

Projection: Lat/Long **Datum:** WGS-84
Coordinates: 33.959069, -117.464111

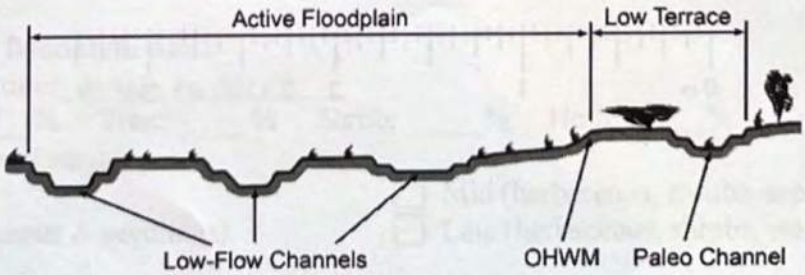
Potential anthropogenic influences on the channel system:
Heavy presence of homeless in area, especially on west side of channel (inaccessible). Area surrounded by wide paved major roads and housing developments.

Brief site description:
channel contained flows in low flow portion during delineation. Banks contain broken up concrete slabs in addition to willows, ash trees, and arrundo.

Checklist of resources (if available):

- ☐ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

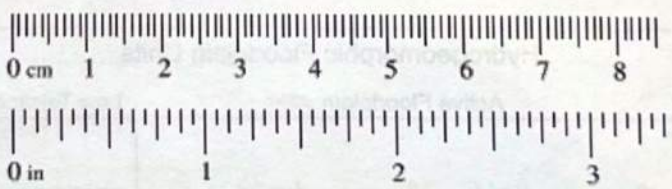


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

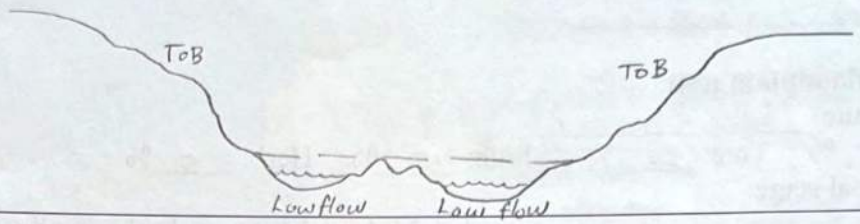
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64		
0.157	4	Pebble	
		Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039		
		Clay	Mud



Project ID: **Cross section ID:** OHWM-3 **Date:** 12/8/22 **Time:** 11:05AM

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: Debris wracking
- [ ] Other: _____

Comments:

- Small boulders and broken up cement slabs around OHWM
- Arrundo growing around OHWM, larger trees growing above

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: unable to access

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [x] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

- Contained flows at time of delineation
- Leaf wracking around low flow line

Project ID: **Cross section ID:** OHWM-3 **Date:** 12/3/22 **Time:** 11:05 AM

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Cobble - Boulder

Total veg cover: 40 % Tree: 20 % Shrub: 15 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: change in veg
- ☐ Other: _____
- ☐ Other: _____

Comments:

Palms and arrundo on island within channel (lines up with OHWM)

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Jurupa Ave Trailhead

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM-4

Project: Riverside Gateway
Project Number: 104470.001.01
Stream: Feature 4 (Hole Creek Trib)
Investigator(s): K. Klinefelter, C. Sutter

Date: 12/3/21 **Time:** 10:50 AM
Town: Riverside **State:** CA
Photo begin file#: P16 **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details: Jurupa Avenue Trailhead Site

Projection: Lat/Long **Datum:** WGS-84
Coordinates: 33.959463, -117.463348

Potential anthropogenic influences on the channel system:
Road runoff from Van Buren (major road), heavy homeless presence within area, soils very compacted

Brief site description:
Small drainage tributary leading to Hole Creek. Castor bean lining southern banks as well as tush, sycamores, and willows on both banks. Lots of trash deposited in channel. Flows east to west.
* No wetland sample pit dug for safety and sanitary reasons (feces, potential needles, etc.)

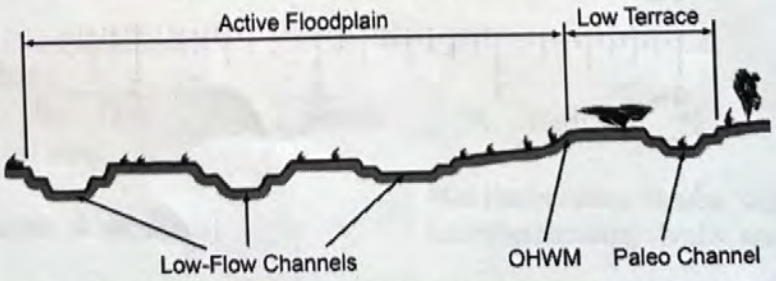
Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

—using previous JD data from tributaries JD as reference and confirming in field

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other: Tributaries JD data from 2018

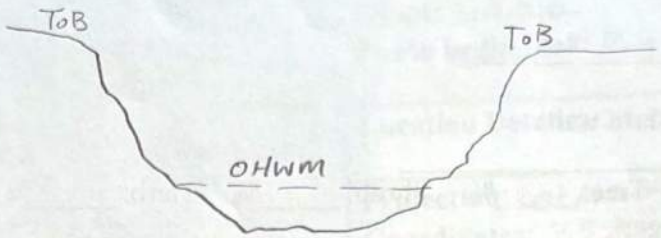
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



roject ID: **Cross section ID:** OHWM-4 **Date:** 12/3/21 **Time:** 10:50AM

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

- Sandy sediment deposited on channel bed
- Some rocks/small boulders lining OHWM
- Below OHWM predominantly unvegetated, larger trees and castor bean above

Floodplain unit:

- [ ] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Appendix C

Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/2/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP1-Up

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C-Med Lat: 33.982572 Long: -117.398231 Datum: WGS-84

Soil Map Unit Name: Tujungo loamy sand, channeled, 0 to 8 percent slopes, 0 to 5 percent slo NWI classification: Wetlands

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

SP is located in the Tequesquite Extension North site on terrace of SAR, above the OHWM and below ToB. The SP is representative of riparian mapped portions of the SAR terrace due to similar vegetation and hydrology throughout these areas.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	25	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Salix exigua	20	Y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Brassica nigra	15	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.6% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SP located in between Salix gooddingii tree and Salix exigua shrub with scatterd Brassica nigra within the area.

SOIL

Sampling Point: SP1-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-16	10YR 3/2	100					fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Sand very loose and dry; uniform throughout entire pit. No redox present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Very small amounts of biotic crust scattered within sample pit area but not strong enough to be an indicator.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/2/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP2-Up

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): bottom of low point Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): C-Med Lat: 33.980415 Long: -117.399458 Datum: WGS-84

Soil Map Unit Name: Tujungo loamy sand, channeled, 0 to 8 percent slopes NWI classification: Wetlands

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

SP located in the Tequesquite Extension North site within a low point within the riparian area surrounding the SAR (within the SAR terrace). Does not appear to show signs of flow, however the ground is difficult to see due to recent Arundo donax mulching within the floodplain.
SP is representative of riparian forests within the SAR terrace.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	15	Y	FAC
2. Salix gooddingii	5	N	FACW
3. Tamarix sp.	10	Y	FAC
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Ricinus communis	25	Y	FACU
2. Nicotiana glauca	10	Y	FAC
3. Baccharis salicifolia	2	N	FAC
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Artemisia douglasiana	2	Y	FAC
2. Croton californicus	2	Y	UPL
3. Brassica nigra	5	Y	UPL
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 91 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Area also contains recently mulched Arundo donax but can't tell where exactly it's been growing.

SOIL

Sampling Point: SP2-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-4	10YR 5/2	100					Sand	dry
4-14	10YR 5/2	100					Sand	moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Sand very loose and difficult to get consistent profile. No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicators have possibly been masked by recently mulched Arundo donax, though area does not appear to receive regular flows.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/2/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP3-Up

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C-Med Lat: 33.969168 Long: -117.409711 Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam, poorly drained, saline-alkali NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

SP located with Tequesquite South Extension site within salt grass flat with scattered cottonwood and willow trees, however it does not appear to be associated with a hydrologic feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	25	Y	FAC
2. Schinus molle	20	Y	FACU
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Distichlis spicata	98	Y	FAC
2. Bassia hyssopifolia	2	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: SP3-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-14	10YR 3/2	100					Sandy loar	Thick layer of salt grass on surface

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soil is loose and dry with some thick roots within the pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/2/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP4-Wet

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): channel bed Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): C-Med Lat: 33.959463 Long: -117.411453 Datum: 33.969675

Soil Map Unit Name: Dellow loamy fine sand, 0 to 2 percent slopes NWI classification: Wetlands

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

SP located within Santa Ana River Greenway site and is associated with Feature 2. SP taken below OHWM upstream from culvert.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Pluchea sericea	15	Y	FACW
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Brassica nigra	15	Y	UPL
2. Conium maculatum	20	Y	FACW
3. Baccharis salicifolia	15	Y	FACW
4. Verbasina encelioides	15	Y	FACU
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Vegetation is representative of species growing near and below the OHWM.

SOIL

Sampling Point: SP4-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-8	10YR 2/1	100					Sandy loar	
8-15	10YR 3/2	95	10YR 5/4	5	C	M	SaClLo	Prominent redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** _____

Remarks:

Meets for F6 because second layer starts less than or equal to 8in from the surface and has a matrix value of 3 or less and chroma of 2 or less and greater than or equal to 5% distinct or prominent redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ✔ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dead vegetation choking the entrance to the culvert downstream as well as drift deposits within the channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/2/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP5-Up

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): C-Med Lat: 33.969349 Long: -117.411277 Datum: WGS-84

Soil Map Unit Name: Dellow loamy fine sand, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

SP located within Santa Ana River Greenway site and is associated with Feature 2. SP paired with SP4-Wet. Representative of cottonwood forest and arrowweed thicket banks of feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	35	Y	FAC
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Pluchea sericea	70	Y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Conium maculatum	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: SP5-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-11	10YR 3/2	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hardpan soils

Depth (inches): 11in

Hydric Soil Present? Yes ____ No ✔

Remarks:

Could not dig past 11 inches - reached hard dense soils. Soils above that were dry and loose. No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ____

Water Table Present? Yes ____ No ✔ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No discernible hydrology within feature's terrace.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/3/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP6-Up

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): flats Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C-Med Lat: 33.968426 Long: -117.412828 Datum: WGS-84

Soil Map Unit Name: Dellow loamy fine sand, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

SP located within Santa Ana River Greenway site located within saltgrass flats and arrowweed thickets along the Santa Ana River Trail. SP is representative of salt grass flats/arrowweed thicket mix along the entirety of the trail.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Pluchea sericea	30	Y	FACW
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5')			
1. Distichlis spicata	80	Y	FAC
2. Brassica nigra	10	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: SP6-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-15	10YR 3/2	100					Sandy loar	Soils dry throughout pit

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Roots present throughout soil pit. Does not meet for any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area is flat and does not appear to be associated with any hydrologic feature.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Riverside Gateway City/County: Riverside/Riverside Sampling Date: 12/3/21

Applicant/Owner: City of Riverside PRCSD State: CA Sampling Point: SP7-Up

Investigator(s): K. Klinefelter, C. Sutter Section, Township, Range: Land Grant

Landform (hillslope, terrace, etc.): flats Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): C-Med Lat: 33.966967 Long: -117.414422 Datum: WGS-84

Soil Map Unit Name: Dellow loamy fine sand, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____ No ✔	
Wetland Hydrology Present?	Yes _____ No ✔	

Remarks:

SP located within Santa Ana River Greenway site adjacent to an E-Corps restoration area and on the boundary of a willow woodland with saltgrass understory.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	20	Y	FACW
2. Baccharis salicifolia	10	Y	FAC
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Baccharis salicifolia	5	Y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Ambrosia psilosthachya	5	N	FACU
2. Distichlis spicata	25	Y	FAC
3. Rumex crispus	5	N	FAC
4. Xanthum strumarium	2	N	FAC
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 63 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Many of the surrounding annual herbs have died back/in dormancy.

SOIL

Sampling Point: SP7-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1-4	10YR 4/2	100					Sandy loar	
4-15	2.5YR 3/2	100					Sandy loar	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Roots in higher concentration in 1-4in layer. Does not meet for depleted matrix (or depleted below dark surface)because top layer has value of greater than or equal to 4 and chroma of less than or equal to 2 but does not contain redox and bottom layer does not have value greater than or equal to 4 or chroma less than or equal to 2.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No observable hydrologic feature associated with the area.

Appendix D

Site Photographs

Site Photographs – December 2021

	**Photograph**: 1 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: Northeast **Comment**: Looking upstream at the top of bank of Feature 1.
	**Photograph**: 2 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: Southeast **Comment**: Looking at wetland sample point SP1-Up.

	**Photograph**: 3 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: Southeast **Comment**: Trails within riparian and upland habitat on the terraces of Feature 1.
	**Photograph**: 4 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: Northeast **Comment**: Road within the terrace of Feature 1.

	**Photograph**: 5 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: Southwest **Comment**: Looking at the top of bank of Feature 1.
	**Photograph**: 6 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: South **Comment**: Looking at wetland sample point SP2-Up.

	**Photograph**: 7 **Photo Date**: 12/2/21 **Location**: Feature 1 – Upper Santa Ana River, Tequesquite North Extension **Direction**: Southwest **Comment**: Man-made trails within riparian forests associated with Feature 1.
	**Photograph**: 8 **Photo Date**: 12/2/21 **Location**: Tequesquite North Extension **Direction**: Northeast **Comment**: Looking at upland area with scattered riparian forest in the southwest end of Tequesquite South Extension.

	**Photograph**: 9 **Photo Date**: 12/2/21 **Location**: Tequesquite North Extension **Direction**: Northwest **Comment**: Looking at wetland sample point SP3-Up within salt grass flats and cottonwood forests.
	**Photograph**: 10 **Photo Date**: 12/2/21 **Location**: Feature 2 – Old Ranch Creek, Santa Ana River Greenway **Direction**: Northeast **Comment**: Looking downstream at culvert clogged with debris.

	**Photograph**: 11 **Photo Date**: 12/2/21 **Location**: Feature 2 – Old Ranch Creek, Santa Ana River Greenway **Direction**: Southwest **Comment**: Looking upstream at wetland sample point location SP4-Wet.
	**Photograph**: 12 **Photo Date**: 12/2/21 **Location**: Feature 2 – Old Ranch Creek, Santa Ana River Greenway **Direction**: Northwest **Comment**: Looking across the channel at the change in vegetation from riparian to upland.

	**Photograph**: 13 **Photo Date**: 12/2/21 **Location**: Feature 2 – Old Ranch Creek, Santa Ana River Greenway **Direction**: Southwest **Comment**: Looking at SP5-Up within the upper banks of the channel.
	**Photograph**: 14 **Photo Date**: 12/3/21 **Location**: Santa Ana River Greenway **Direction**: Northwest **Comment**: Looking at wetland sample point SP6-Up within arrowweed thickets and salt grass flats.

	**Photograph**: 15 **Photo Date**: 12/3/21 **Location**: Santa Ana River Greenway **Direction**: Southeast **Comment**: Looking at SP7-Up within salt grass flats on the border of a small willow woodland.
	**Photograph**: 16 **Photo Date**: 12/3/21 **Location**: Feature 4, Jurupa Ave. Trailhead **Direction**: Northwest **Comment**: Looking downstream at sediment deposits and debris wracking within the channel.

	**Photograph**: 17 **Photo Date**: 12/3/21 **Location**: Feature 3 – Hole Creek, Jurupa Ave. Trailhead **Direction**: North **Comment**: Looking upstream the OHWM of Feature 3.
	**Photograph**: 18 **Photo Date**: 12/3/21 **Location**: Feature 3 – Hole Creek, Jurupa Ave. Trailhead **Direction**: South **Comment**: Looking upstream at the OHWM of Feature 3.

	**Photograph**: 19 **Photo Date**: 12/3/21 **Location**: Feature 3 – Hole Creek, Jurupa Ave. Trailhead **Direction**: Northwest **Comment**: Looking downstream at the east side of Feature 3.
	**Photograph**: 20 **Photo Date**: 12/3/21 **Location**: Feature 3 – Hole Creek, Jurupa Ave. Trailhead **Direction**: Northeast **Comment**: Looking downstream at the west side of Feature 3.



Photograph: 21

Photo Date: 3/15/22

Location: Feature 5, Santa Ana River Greenway

Direction: West

Comment: Looking downstream at Feature 5 from above the culvert.

Appendix E

Santa Ana River Tributary Restoration Projects Jurisdictional Delineation Report

Santa Ana River Tributary Restoration Projects, Early Implementation Services for the Upper Santa Ana River Habitat Conservation Plan Jurisdictional Delineation Report

1.0 Summary

This report discusses regulatory methods and provides the results of a formal delineation completed for the San Bernardino Valley Municipal Water District (SBVMWD) Early Implementation of the Upper Santa Ana River Habitat Conservation Plan (project). The purpose of this delineation is to assess the limits of potential federal jurisdiction (i.e., Waters of the U.S. subject to U.S. Army Corps of Engineers [USACE] regulation) and state jurisdiction (i.e., Waters of the State subject to Regional Water Quality Control Board [RWQCB] regulation and California Department of Fish and Wildlife [CDFW] jurisdictional waters subject to CDFW regulation) within the Tributary Restoration Sites.

A verification site visit was completed by ICF staff and Michael Ladouceur from the USACE on October 30, 2018 for Lower Hole Creek and Anza Drain/Old Farm Road (also referred to as Old Ranch Creek) sites and on May 28, 2019 for Hidden Valley Wetlands and Hidden Valley Ponds sites. Subsequent conference calls took place with Michael Ladouceur to come to agreement on the proper ordinary high water mark (OHWM) limits for the Santa Ana River as they occur within the Hidden Valley Wetlands site. The jurisdictional delineation limits and calculations in this report have been updated to reflect the changes requested by the USACE.

Additionally, the survey area for Hidden Valley Wetlands have been updated to include portions of the previous Hidden Valley Pond survey area to ensure that all project impact areas are covered under the single survey area.

Lastly, recent feedback received from CDFW has resulted in CDFW jurisdictional waters to be placed into categories that better reflect the condition of habitat onsite. These changes are reflected in this updated version of the jurisdictional delineation report.

2.0 Project Description

SBVMWD proposes restoration of three sites along tributaries to the Santa Ana River (Tributary Restoration Sites) and within abandoned ponds as early implementation of the Upper Santa Ana River Habitat Conservation Plan. Each of the three Tributary Restoration Sites was assessed for jurisdictional waters: Hidden Valley Wetlands, Lower Hole Creek, and Anza Drain/Old Farm Road (assessed as one site).

3.0 Project Location

The Tributary Restoration Sites are located along the Santa Ana River, mostly within the city of Riverside, Riverside County, California (Figure 1; all figures are included as Attachment 1). The

project sites are depicted on the U.S. Geological Survey Riverside West 7.5-minute topographical quadrangle map (amended 1980; Figure 2). The center coordinates for each Tributary Restoration Site in decimal degree format (in World Geodetic System 1984) are as follows.

- Hidden Valley Wetlands (33.964832°, -117.482207°)
- Lower Hole Creek (33.960120°, -117.465609°)
- Anza Drain/Old Farm Road (33.968439°, -117.420807°)

4.0 Methodology

Prior to beginning the field delineation, aerial photography, U.S. Geological Survey topographic maps, national hydrography dataset, and National Wetlands Inventory maps were analyzed to determine the locations of potential areas of USACE, RWQCB, and CDFW jurisdiction. Based on the pre-field analysis it was determined that there was a potential for both wetland and non-wetland features, as defined below, to occur within the project sites.

ICF biologists Team 1 (Paul Schwartz, James Hickman, and Sarah Horwath) and Team 2 (Lanika Cervantes, Brett Bowen, and Ford Bendell) conducted the jurisdictional delineation within the Tributary Restoration Sites on the following dates.

- Anza Drain/Old Farm Road: August 1–3, 2016
- Hidden Valley Wetlands: August 8, 2016
- Lower Hole Creek: August 9, 2016

The Hidden Valley Wetlands survey area was then expanded to include the adjacent abandoned ponds, this additional area was assessed by ICF biologists Lanika Cervantes and Lance Woolley on the following dates:

- August 22 and 23, 2017.

In the field, the jurisdictional features were recorded in the Arc Collector application (ESRI software) on iPads using visible landmarks on recent aerial imagery layers, and were mapped using Arc Collector with a Trimble R1 Global Navigation Satellite Systems Receiver unit, which provided sub-meter accuracy.

USACE Jurisdiction

Potential wetlands were delineated using the methodology set forth in the 1987 USACE *Wetland Delineation Manual* (Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). To meet the definition of a potential wetland, the area must be a three-parameter wetland. A three-parameter wetland must meet the following criteria: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. Details of the application of these techniques are described below.

- **Hydrophytic Vegetation:** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC)

(Environmental Laboratory 1987). An OBL indicator status refers to plants that almost always occur in wetlands under natural conditions. A FACW indicator status refers to plants that usually occur in wetlands but are occasionally found elsewhere. A FAC indicator status refers to plants that are equally likely to occur in wetlands or elsewhere. An NI (no indicator) status designates that insufficient information was available to determine an indicator status. An NO (no occurrence) status indicates that the species does not occur in the region; when a plant with an NO status is found within a region, it usually indicates that the plant is ornamental. The wetland indicator status used for this report follows the *National Wetland Plant List* (Lichvar et al. 2016).

- **Hydric Soils:** The definition of a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA/NRCS 1994). This determination is made based on various field indicators detailed in the *Arid West Supplement* and the *Field Indicators of Hydric Soils in the United States (Version 7.0)* (USDA/NRCS 2010).
- **Wetland Hydrology:** Wetland hydrology is determined using indicators of inundation or saturation (flooding, ponding, or tidally influenced) detailed in the *Wetland Delineation Manual* and the *Arid West Supplement*.

Within areas that could potentially support wetlands, soil pits were dug to examine soil color and texture and determine the wetland boundary. Wetland Data Forms are attached as Attachment 3. A paired-pit technique was used (one sample point with wetland results paired with one sample point with non-wetland results, used to identify a wetland boundary).

Potential non-wetland waters were identified using field indicators for ordinary high water mark (OHWM) using the methodology set forth in *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE 2008b). Non-wetland waters are features that support indicators of flow (i.e., OHWM) but do not support a three-parameter wetland.

In addition, based on USACE guidance, three-parameter wetlands that occurred within the OHWM limits are classified as non-wetland waters (meets wetland criteria but within the OHWM). Calculations for waters of the U.S. and how waters of the U.S. limits are displayed on attached figures reflect this update.

RWQCB/SWRCB Jurisdiction

Evaluation of state jurisdiction followed guidance from Section 401 of the CWA and typically follows the same jurisdictional areas as the USACE. In addition, the survey areas were reviewed for resources potentially regulated under the Porter-Cologne Act (i.e., isolated features). Isolated vernal pools, isolated wetlands, or other aquatic features not normally subject to federal regulation did not occur within the survey areas: no further evaluation was necessary.

Although the USACE considers three-parameter wetlands that occur within the OHWM limits as "non-wetland waters (meets wetland criteria but within the OHWM)", the RWQCB still considers these areas as wetlands. Therefore, the RWQCB figure sets display all areas that met a three-parameter wetland as wetlands and only drainage features as non-wetland waters.

CDFW Jurisdiction

CDFW jurisdiction typically includes water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of standard practices by CDFW personnel. Briefly, CDFW jurisdiction was delineated by measuring outer width and length boundaries of potentially jurisdictional areas (lakes or streambeds), consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation.

Mainstem channels that had a defined baseflow was classified as a streambed, while the larger floodplain area that occurred within CDFW jurisdiction were classified as riparian habitat and categorized by the vegetation community present. Table 1 below presents the vegetation communities mapped within all survey areas and the CDFW category used for each vegetation community. Figures (Attachment 1) and acreages presented in Table 4 below reflect the CDFW categorization used in Table 1.

Table 1. CDFW Categorization by Vegetation Community

CDFW Category	Vegetation Community
Native Communities	
Native Riparian	Arrow Weed Thickets
	Black Willow Thickets
	Black Willow/Fremont Cottonwood Forest
	California Sycamore Woodlands
	Cattail Marshes
	Fremont Cottonwood Forest
	Fremont Cottonwood/Willow Forest
	Fremont Cottonwood/Willow/Mulefat Forest
	Fremont Cottonwood/Willow/Wild Grape Forest
	Mulefat Thickets
	Salt Grass Flats
	Sandbar Willow Thickets
Native Xeric Riparian	California Buckwheat Scrub
Nonnative Communities	
Nonnative Riparian	Giant Reed Breaks
	Nonnative Riparian

Nonnative Xeric Riparian	California Annual Grassland
	Urban/Developed
	Disturbed Habitat
Unvegetated Communities	
Streambed	Open Water – Within Santa Ana Mainstem
Open Water	Open Water – Within Larger Floodplain Area

5.0 Results

A summary of the delineation results for each Tributary Restoration Site is provided below. Reference photographs are provided in Attachment 2 and wetland data forms are included in Attachment 3.

5.1 Hidden Valley Wetlands

The Hidden Valley Wetlands site contains ten features. A summary of each feature mapped is provided below. Waters of the U.S. under the jurisdiction of USACE are shown on Figure 3, Overview and Sheets 1 through 6, Waters of the State under the jurisdiction of RWQCB are shown on Figure 6, Overview and Sheets 1 through 6, and CDFW jurisdictional waters are shown on Figure 9, Overview and Sheets 1 through 6.

The site is entirely within the wide floodplain of the Santa Ana River; therefore, the jurisdictional limits of CDFW extend throughout much of the site well beyond the OHWM and wetland limits. Additional details on how the OHWM limits and CDFW jurisdictional limits were delineated for this site are discussed under the Santa Ana River description.

5.1.1 Drainage 1

A manmade canal (Drainage 1) runs along the southern and western project boundaries (Figures 3 and 6, Sheets 3 and 4). The water for the wetland ponds at the western end of Hidden Valley Wetlands was supplied by recycled water from the City of Riverside's Regional Water Quality Control Plant upstream, not from diversion of Santa Ana River flow. The recycled water was routed alongside the Santa Ana River low flow channel, separated by a berm, until it reached the upstream end of the site and entered a headworks structure and into the 4,000-foot-long canal (Drainage 1) that routed the water to the wetlands. A major storm in 2010 led the Santa Ana River to erode the berm separating the recycled water from the river, damaged the headworks infrastructure, and lowered the riverbed by about 8 feet (Danelski 2014). Because the canal is presently elevated about 8 feet above the low-flow channel water surface, only during large and infrequent flood events would Santa Ana River floodwater flow into the damaged headworks and into the abandoned canal.

The canal supports wetland and riparian habitat throughout most of the channel, dominated by black willow (*Salix gooddingii*), red willow (*Salix laevigata*), sandbar willow (*Salix exigua*), and mulefat (*Baccharis salicifolia*). Southern California grape (*Vitis girdiana*) dominates areas where the

riparian canopy is open. OHWM indicators observed included shelving and sediment sorting. The canal enters a culvert about 1,300 feet west of the headworks (Figures 3 and 6, Sheet 4), then traverses southwest for 1,600 feet, general paralleling the access road, before entering another culvert at the southwestern corner of the site (Figures 3 and 6, Sheet 3). The canal then outlets about 60 feet north of the inlet where it flows northwest until joining the Santa Ana River at the northwestern corner of the site. This downstream segment is a more confined channel compared to the upstream segment and supports wetland habitat and a riparian canopy throughout. The center portion of the drainage that does not support vegetation (low-flow area) is considered CDFW streambed, whereas the majority of this area is considered CDFW riparian.

5.1.2 Drainage 2

Drainage 2 is a high flow channel that flows out of the Santa Ana River on higher flow events and travels west for 690 linear feet until draining back into the Santa Ana River (Figures 3 and 6, Sheet 2). This drainage was the historic low flow channel for Santa Ana River prior to 2010 when the Santa Ana shifted to the northern edge of the survey area. This drainage supports OHWM but does not support wetland habitat. CDFW streambed includes the length of the drainage.

5.1.3 Drainage 3

A manmade canal (Drainage 3) runs along the southern project boundaries (Figures 3 and 6, Sheets 3, 4, and 5). Drainage 3 is a canal that was constructed to supply recycled water for the wetland ponds (including Depressions 3 through 6). This channel starts at an outlet where recycled water historically had been diverted into Drainage 3 from Drainage 1. However, following a major storm in 2010, the headworks infrastructure was damaged and water has not been actively pumped within this channel since then (Danelski 2014). Currently, this canal is hydrologically supported by the surrounding hillsides and stormwater runoff from the adjacent trails.

The canal supports wetland and riparian habitat throughout most of the channel, dominated by black willow, red willow, sandbar willow, and mulefat. OHWM indicators observed included shelving and drift deposits. The upstream segment is characterized by a loamy/clay channel bottom compared to the downstream segment which is characterized by a sandy alluvial channel bottom.

5.1.4 Drainages 4 and 5

Drainages 4 and 5 are high flow channels that flows out of the Santa Ana River on higher flow events and then splits into two distinct drainages. Drainage 4 travels continues to travel west then north into the Santa Ana River, while Drainage 5 travels north until draining back into the Santa Ana River (Figures 3 and 6, Sheets 2 through 4). These drainages support sandy bottoms and recent flows were evident by the splays of sediment and lack of tree litter in the drainages. CDFW streambed includes the length of the drainages.

5.1.5 Depressions 3 through 6

Depressions 3 through 6 are constructed depressional pond features located at the western portion of the survey area (Figures 3 and 6, Sheet 3). Analysis of historic aerial imagery indicated that these features were constructed over 40 years ago and actively maintained as ponds until a major storm in 2010. After this storm, the headworks infrastructure was damaged and water has no longer been

pumped into these wetland ponds. Due to the depth of these ponds and their proximity to the Santa Ana River, the wetlands and riparian habitat continue to be supported primarily by shallow groundwater. The wetland ponds are dominated by black willow, red willow, arroyo willow, Oregon ash (*Fraxinus latifolia*), and mulefat. However, mulefat and willows occurring within the center of Depression 5 have been dying off in the recent years. Although this pond is still dominated with wetland vegetation it appears that this pond will soon have portions revert to upland habitat as the hydrology is no longer present to support the wetland and riparian habitat.

Depression 6 is the western-most pond and due to the lack of recent hydrology has begun to revert to upland habitat within the majority of its footprint. Only the portions of this pond occurring at lower elevations and along the trails still support evidence of hydrology and allow for the wetland and riparian habitat to persist (Figures 3 and 6, Sheets 4 and 5). Riparian vegetation extends along the slope of the depressions banks (Figure 9, Sheet 4 and 5).

5.1.6 Santa Ana River

The Santa Ana River runs along the northern project boundary (Figures 3 and 6, Sheets 1 through 4). The OHWM of this feature was defined by clear breaks in slope that occurred along the most upstream and downstream segments of this feature (Figures 3 and 6, Sheets 1 and 4). As the river travels downstream however, the area is more of a large sandbar and has a gentle slope. After further desktop evaluation of this site and discussions with the USACE, the elevations of the OHWM limits within the areas where clear breaks in slope were recorded in the field were determined and by using LiDAR data, those same elevations were followed within the segment of the Santa Ana River where the OHWM limits were not as evident in the field (Figures 3 and 6, Sheets 1 and 3). Wetland habitat occurs along a historic (pre-2010) low flow channel of the Santa Ana River, within the limits of the OHWM, and is dominated by red willow, sandbar willow, arroyo willow (*Salix lasiolepis*), Freemont cottonwood (*Populus deltoides*), and mulefat. Additionally, the previously identified Depressions 1 and 2, are now mapped within the limits of the Santa Ana River and shown as wetland habitat within the limits of the OHWM (Figures 3 and 6, Sheets 1 and 3). Analysis of historic aerial imagery indicated that these wetland features are remnants of the former Santa Ana River mainstem oxbow prior to the 2010/2011 rain season, when its path took a more southerly route in the vicinity.

Due to the flat topography, the majority of this area was determined to be within the large floodplain of the Santa Ana River. A defined break in slope within the higher terrace was considered CDFW top of bank and is located along the southern edge of the site along the trail. All areas with open water or areas supporting disturbed or upland scrub vegetation were considered CDFW streambed, and all areas supporting wetlands and/or vegetation communities dominated by wetland vegetation were considered CDFW riparian (Figure 9, Sheets 1 through 4).

5.1.7 Summary of Jurisdictional Features within Hidden Valley Wetlands Site

Within the Hidden Valley Wetlands site, there is a total of 55.39 acres of Waters of the U.S. and State under the jurisdiction of USACE and RWQCB. Refer to Table 2 for a breakdown of the amount and type of waters of the U.S. that occur within the survey area. Refer to Table 3 for a breakdown of the amount and type of waters of the State that occur within the survey area. There are 143.52 acres of CDFW jurisdiction. Refer to Table 4 for a breakdown of the amount and type of CDFW jurisdictional waters that occur within the survey area.

5.2 Lower Hole Creek

Hole Creek is confined within a small and steep valley and is divided into an upper reach ("Upper Hole Creek") and lower reach ("Lower Hole Creek") by Jurupa Avenue, where the stream passes under the road through a large 40-foot concrete box culvert with extensive downstream protections. The Lower Hole Creek site begins downstream of Jurupa Avenue where the stream passes under the road through a large 40-foot concrete box culvert with extensive downstream protections and contains three features. A summary of each feature is provided below. Waters of the U.S. under the jurisdiction of USACE are shown on Figure 4, Waters of the State under the jurisdiction of RWQCB are shown on Figure 7, and CDFW jurisdictional waters are shown on Figure 10.

5.2.1 Lower Hole Creek Channel

The upstream half of Lower Hole Creek has steep banks, is heavily affected by human use, and has many access trails running down the banks and across the stream. In the downstream half of Lower Hole Creek, stream meandering is prevented by a steep bedrock wall along the western side of the stream and by bank stabilization in the form of interlocking concrete mat and Pedley Landfill on the eastern side of the stream. OHWM is present along the entire creek consisting of shelving and vegetation destruction. Fringing wetland habitat is present along portions of the creek with more substantial wetlands present within the floodplain of the Santa Ana River near the creek's confluence with the river. Fringed wetland habitat is dominated by black willow, mulefat, saltcedar (*Tamarix ramosissima*), Pacific willow (*Salix lasiandra*), and white sweet clover (*Melilotus albus*).

Areas supporting open water or nonvegetated low-flow channel were considered CDFW streambed. CDFW riparian vegetation is present along most of the upstream half of Lower Hole Creek, and is less abundant along the downstream reach. CDFW riparian habitat is dominated by black willow, tree of heaven (*Ailanthus altissima*), velvet ash (*Fraxinus velutina*), Southern California grape, giant reed (*Arundo donax*), cockleburr (*Xanthium strumarium*), and castor bean (*Ricinus communis*).

5.2.2 Unnamed Drainage 1

Drainage 1 is an unnamed eastern tributary to Lower Hole Creek, fed by urban runoff through a culvert that runs under the bike path and Van Buren Boulevard. The banks below the culvert are severely eroded and are steep along the entire drainage. This drainage supports OHWM but does not support wetland habitat.

CDFW streambed includes the open water areas/unvegetated low-flow channel. CDFW riparian vegetation consists of a black willow and California ash closed canopy; the banks largely lack understory due to human access of the drainage.

5.2.3 Santa Ana River

The Santa Ana River flows westward along the northern edge of the site boundary. In 2010, a large flood in the Santa Ana River altered the channel morphology near the confluence with Hole Creek and caused substantial erosion into Pedley Landfill. As a result of the risk for continued erosion into the landfill, a project was initiated to excavate approximately 1.3 acres of the landfill and install interlocking concrete mat on the river's south bank. The OHWM of the Santa Ana River now extends across the wide sandbar to the current bank of the landfill and into the downstream portion of

Lower Hole Creek. Based on the more recent site visit on October 30, 2018, this area was determined to now support wetland habitat.

5.2.4 Summary of Jurisdictional Features within Lower Hole Creek Site

Within the Lower Hole Creek site, there are 2.91 acres of waters of the U.S. and State. Refer to Table 2 for a breakdown of the amount and type of waters of the U.S. that occur within the survey area. Refer to Table 3 for a breakdown of the amount and type of waters of the State that occur within the survey area. There are 4.75 acres of CDFW jurisdiction. Refer to Table 4 for a breakdown of the amount and type of CDFW jurisdictional waters that occur within the survey area.

5.3 Anza Drain/Old Farm Road

The Anza Drain/Old Farm Road site contains seven features, some of which support wetland habitat. The summary below includes descriptions of each feature. Waters of the U.S. under USACE jurisdiction are shown on Figure 5, Overview and Sheets 1 through 9, Waters of the State under RWQCB jurisdiction are shown on Figure 8, Overview and Sheets 1 through 9, and CDFW jurisdictional waters extend well beyond the OHWM and include the entire floodplain area as shown on Figure 11, Overview and Sheets 1 through 9.

The site is entirely within the wide floodplain of the Santa Ana River; therefore, the jurisdictional limits of CDFW extend throughout much of the site well beyond the OHWM and wetland limits. Additional details on how CDFW jurisdictional limits were delineated for this site are discussed under the Santa Ana River description.

5.3.1 Old Farm Road Channel

This drainage is the former Old Farm Road Channel (also referred to as Old Ranch Creek), which originates from a 10-foot concrete box culvert in the southeastern corner of the site and flows in a northwesterly direction. This drainage is also fed by stormwater runoff from surrounding habitat via an outlet that occurs near the southwest corner of the closed Tequesquite Landfill property (Figures 5, 8, and 11, Sheet 6).

The Old Farm Road Channel used to connect with the Santa Ana River based on observation of an aerial image from 1948. Observation of a 1980 aerial shows that a flood likely occurred sometime between 1966 and 1980 that caused the Santa Ana River to shift to the south and erode the downstream half of the Old Farm Road Channel that connected with the river. The signature of this previous channel alignment is still observable today by an arcing swath of dense vegetation and topographic changes. It does not appear the river has migrated south into this area since a flood that occurred prior to the 1980 aerial. The presence of Tequesquite Landfill on the eastern boundary of the site likely constrains the ability of the Santa Ana River to migrate south into the area it formerly occupied.

The upstream portion of this drainage supports OHWM indicators consisting of shelving and sediment sorting and is vegetated with predominantly upland species. However, after passing a low-flow road crossing, the drainage turns westward, and becomes a broader and less-defined channel (Figures 5, 8, and 11, Sheets 5 and 6). This segment of the Old Farm Road Channel supports wetland habitat dominated by black willow, arroyo willow, giant reed, common fig (*Ficus carica*), Southern California grape, willow baccharis (*Baccharis salicina*), and Fremont cottonwood. Directly

downstream of a well-defined dirt road/trail that crosses the Old Farm Road Channel, approximately halfway along its length (Figures 5, 8, 11, Sheet 6), the drainage is confined in a steep channel supporting wetland habitat (Figures 5 and 8, Sheet 5). Riparian trees are sparse and Southern California grape covers most of the drainage.

At the downstream end of the Old Farm Road channel, sediment accumulation has resulted in a natural berm and a subsequent shallow pool. From this point water may spill out and over the berm at high flows and enter an unnamed ephemeral drainage. In addition, Old Farm Road Channel appears to split off at the upstream end where a distributary channel (Drainage 2) heads south (Figures 5 and 8, Sheet 6) and connects to Anza Drain (described below under Drainage 2).

5.3.2 Unnamed Ephemeral Drainage

An unnamed ephemeral drainage begins at the downstream end of Old Farm Road channel. The drainage appears to be fed during high events from the spill-out from Old Farm Road channel as well as over-banking by the Santa Ana River and other small swale features in the floodplain. The water accumulates and enters the upstream end of the ephemeral drainage and continues through desert wash conditions (Figures 5, 8, and 11, Sheets 4, 5, and 8). The ephemeral drainage continues southwest supporting OHWM indicators consisting of shelving and sediment sorting dominated by salt grass (*Distichlis spicata*), mulefat, and Freemont cottonwood before flowing toward the wetland habitat associated with Anza Drain.

5.3.3 Drainage 2

Drainage 2 is an unnamed northern distributary of the Old Farm Road Channel that flows southwest into a large depressional area that receives runoff from Anza Drain to the south where it outlets at the bicycle trail (Figures 5 and 8, Sheets 5, 6, and 9). This feature does not support OHWM indicators but appears to be a large wetland habitat that splits off of Old Farm Road Channel and travel south connecting to wetland supported by Anza Drain. The feature is heavily vegetated with riparian/wetland species dominated by arroyo willow, black willow, willow baccharis, salt grass, Yerba mansa (*Anemopsis californica*), Southern California grape, and California blackberry (*Rubus ursinus*).

5.3.4 Depression 2

This depressional wetland feature is east of Drainage 2 (Figure 5, Sheet 6). Wetland habitat is dominated by Yerba mansa and supports hydric soils.

Previously mapped depression 1 occurred within a low area of a trail and was dominated by Yerba mansa, upon further investigation with the USACE on October 30, 2018 and completion of a wetland datasheet by the USACE, depression 1 was determined to not meet a three-parameter wetland. Therefore, this small depression has been removed from this report.

5.3.5 Anza Drain

The Anza Drain is the larger drainage that flows along the southern edge of the site (Figures 5 and 8, Sheets 3, 7, 8, and 9). This drainage supports OHWM indicators consisting of shelving, vegetation destruction, and sediment sorting. This drainage also supports wetland/riparian habitat. The upper 2,000 feet of the present-day Anza Drain channel was the active channel of the Santa Ana River in

1931, which had a large meander bend that extended south up against the present-day bicycle trail. Portions of the middle section of the present Anza Drain are located on land that appears to be a terrace feature in the 1931 aerial. A flood event that occurred prior to 1980 appears to have eroded portions of this high ground where the Anza Drain channel is presently located near Anza Narrows Park. The confluence of the present-day Anza Drain channel with the Santa Ana River is a dynamic area, as the exact location of the confluence changes depending on shifts in the position of the Santa Ana River in response to flood events.

Flows originate from a large 20-foot concrete box culvert under the Santa Ana River bike trail (Figures 5 and 8, Sheet 9, and Figure 8, Sheet 9) and a concrete box culvert that enters from the southeast corner of Anza Narrows Park (Figures 5 and 8, Sheet 7). Surface water was present during the survey at the upstream and downstream segments of this drainage. Surface flow is consistently weak from Anza Drain outlet until the middle segment of this drainage, at which point additional groundwater springs help sustain flow and creates more of a single thread perennial channel (Figures 5 and 8, Sheets 8 and 9).

At a trail crossing (Figures 5 and 8, Sheet 8), where the drainage was accessible, the Anza Drain consisted of a small wetted channel. Proceeding downstream, the surface flow quickly grew due to groundwater upwelling and stormwater runoff from the concrete box culvert located at the southeast corner of Anza Narrows Park (Figures 5 and 8, Sheet 7) that drains higher-elevation land to the south. At the time of the survey, water temperatures in the Anza Drain were considerably cooler than in the Santa Ana River, indicating groundwater upwelling may be occurring. The drainage becomes well defined approximately 0.6 mile upstream of the confluence with the Santa Ana River; at this location the banks are steep and OHWM extent more confined (Figures 5 and 8, Sheets 3 and 7). Wetland habitat surrounding the Anza Drain is supported by stormwater inputs from the upstream outfall, high groundwater, and several tributaries that enter the drainage. Wetlands within this drainage are dominated by sandbar willow, black willow, red willow, arroyo willow, yerba mansa, willow baccharis, white sweetclover, Broadleaved pepperweed (*Lepidium latifolium*), giant reed, Southern California grape, flatsedge (*Cyperus* sp.), California fan palm (*Washingtonia filifera*), and Mexican fan palm (*Washingtonia robusta*).

5.3.6 Drainage 3

Drainage 3 is an unnamed southern tributary to Anza Drain that originates as an input through a 12-foot-wide concrete box culvert at the southwestern side of the project boundary (Figures 5 and 8, Sheet 7). This drainage also receives input from groundwater upwelling as the ground elevation drops in the western portion of the site. Drainage 3 supports OHWM indicators consisting of shelving, vegetation destruction, and sediment sorting. This drainage also supports wetland habitat dominated by dense vegetation including red willow, black willow, giant reed (*Arundo donax*), and Southern California grape. This drainage flows north until its confluence with Anza Drain

5.3.7 Santa Ana River

The Santa Ana River flows westerly along the northern site boundary (Figures 5, 8 and 11, Sheets 1 through 4). OHWM of this area extends to the edge of the wetland habitat and consists of shelving, sediment sorting, and woody debris. The wetland habitat occurs within the limits of the OHWM and is dominated by black willow, arroyo willow, sandbar willow, mulefat, branching phacelia (*Phacelia*

Ramosissima), salt cedar, mulefat, white sweet clover, watercress (*Nasturtium officinale*), Freemont cottonwood, Ash (*Fraxinus* sp.), castor bean, and Southern California grape.

Due to the flat topography, the majority of this area was determined to be within the large floodplain of the Santa Ana River. A defined break in slope that was considered CDFW top of bank is located along the southern edge of the site along the Santa Ana River bike trail. All areas with open water or areas supporting disturbed or upland scrub vegetation were considered CDFW streambed; all areas supporting wetlands and/or vegetation communities dominated by wetland vegetation were considered CDFW riparian (Figure 11, Sheets 1 through 9).

5.3.8 Summary of Jurisdictional Features within Anza Drain/Old Farm Road

Within the Anza Drain/Old Farm Road site, there are 89.95 acres of waters of the U.S and State. Refer to Table 2 for a breakdown of the amount and type of waters of the U.S. that occur within the survey area. Refer to Table 3 for a breakdown of the amount and type of waters of the State that occur within the survey area. There are 311.31 acres of CDFW jurisdiction. Refer to Table 4 for a breakdown of the amount and type of CDFW jurisdiction that occur within the survey area.

Table 2: Waters of the U.S. under the USACE Jurisdiction within the Tributary Restoration Sites

		USACE		
Site/Feature	Linear Feet	Non-wetland Acres[1]	Nonwetland (wetlands below OHWM) Acres[1]	Adjacent Wetlands Acres[1]
Hidden Valley Wetlands				
Drainage 1	4,079	0.31	1.01	-
Drainage 2	773	0.19	-	-
Drainage 3	4,020	-	1.82	-
Drainage 4	2,228	0.37	-	-
Drainage 5	609	0.11	-	-
Culvert	516	0.01	-	-
Depression 3	-	-	-	4.28
Depression 4	-	-	-	1.05
Depression 5	-	-	-	1.03
Depression 6	-	-		2.19
Santa Ana River	4,825	26.43	15.69	0.90
Subtotal	*17,050*	*27.42*	*18.52*	*9.45*
Lower Hole Creek				
Lower Hole Creek	2,173	1.63	0.42	-
Culvert	116	0.11	-	-
Drainage 1	238	0.12	-	-
Santa Ana River	171	0.24	0.38	-
Subtotal	*2,698*	*2.11*	*0.80*	-
Anza Drain/Old Farm Road				
Old Farm Road Channel	4,662	0.31	6.74	0.02
Unnamed Ephemeral Drainage	1,464	0.51	-	-
Depression 2	-	-	-	0.08
Drainage 2	1,076	-		7.09
Drainage 3	551	-	0.76	0.01
Anza Drain	8,416	0.17	11.83	33.41
Santa Ana River	7,519	6.03	23.02	-
Subtotal	*23,689*	*7.02*	*42.33*	*40.60*
TOTAL	**43,437**	**36.55**	**61.65**	**50.05**

[1] Total acreage may not add up to the total shown; total is reflective of rounding geographic information systems raw data in each category.

Table 3: Waters of the State under the RWQCB Jurisdiction within the Tributary Restoration Sites

		RWQCB	
		Non-wetland	Wetland
Site/Feature	Linear Feet	Acres[1]	Acres[1]
Hidden Valley Wetlands			
Drainage 1	4,079	0.31	1.01
Drainage 2	773	0.19	-
Drainage 3	4,020	-	1.82
Drainage 4	2,228	0.37	-
Drainage 5	609	0.11	-
Culvert	516	0.01	
Depression 3	-	-	4.28
Depression 4	-	-	1.05
Depression 5	-	-	1.03
Depression 6	-	-	2.19
Santa Ana River	4,825	26.43	16.59
Subtotal	*17,050*	*27.42*	*27.97*
Lower Hole Creek			
Lower Hole Creek[2]	2,173	1.63	0.42
Culvert	116	0.11	-
Drainage 1[2]	238	0.12	-
Santa Ana River[2]	171	0.24	0.38
Subtotal	*2,698*	*2.11*	*0.80*
Anza Drain/Old Farm Road			
Old Farm Road Channel	4,662	0.31	6.75
Unnamed Ephemeral Drainage	1,464	0.51	-
Depression 2	-	-	0.08
Drainage 2	1,076	-	7.09
Drainage 3	551	-	0.76
Anza Drain	8,416	0.17	45.23
Santa Ana River	7,519	6.03	23.02
Subtotal	*23,689*	***7.02***	***82.93***
TOTAL	**43,437**	**36.55**	**111.70**

[1] Total acreage may not add up to the total shown; total is reflective of rounding geographic information systems raw data in each category.

Table 4: CDFW Jurisdictional Waters within the Tributary Restoration Sites

Site/CDFW Categorization	Acres
Hidden Valley Wetlands	
Native Riparian	112.24
Native Xeric Riparian	2.61
Nonnative Xeric Riparian	20.05
Open Water	0.41
Streambed	8.21
Subtotal	*143.52*
Lower Hole Creek	
Culvert	0.11
Native Riparian	2.23
Nonnative Xeric Riparian	0.28
Streambed	2.13
Subtotal	*4.75*
Anza Drain/Old Farm Road	
Native Riparian	250.88
Nonnative Riparian	25.17
Nonnative Xeric Riparian	27.52
Open Water	0.77
Streambed	6.97
Subtotal	*311.31*
Total	**459.59**

[1] Total acreage may not add up to the total shown; total is reflective of rounding geographic information systems raw data in each category.

6.0 Conclusion

The Tributary Restoration Sites are within the Middle Santa Ana River hydrologic unit code 10 watershed (1807020308) (Figure 12). All potential aquatic resources described above ultimately flow into the Santa Ana River, which in turn flows into the Pacific Ocean (a Traditional Navigable Waterway). All potential aquatic resources described in this letter report meet the definition of a tributary and therefore would be subject to regulation under Sections 404 and 401 of the Clean Water Act. They would also be subject to CDFW jurisdiction under Sections 1600–1616 of the California Fish and Game Code.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. All jurisdictional delineations should be considered preliminary until reviewed and approved/determined by the regulatory agencies.

Attachments

1. Figures
    1 Regional Vicinity Map
    2 Project Vicinity Map
    3 Jurisdictional Waters of the U.S.: Hidden Valley Wetlands
    4 Jurisdictional Waters of the U.S.: Lower Hole Creek
    5 Jurisdictional Waters of the U.S.: Anza Drain/Old Farm Road
    6 Jurisdictional Waters of the State: Hidden Valley Wetlands
    7 Jurisdictional Waters of the State: Lower Hole Creek
    8 Jurisdictional Waters of the State: Anza Drain/Old Farm Road
    9 CDFW Jurisdictional Waters: Hidden Valley Wetlands
    10 CDFW Jurisdictional Waters: Lower Hole Creek
    11 CDFW Jurisdictional Waters: Anza Drain/Old Farm Road
    12 Watershed: Hydrologic Unit Code 10 Map
2. Photo Log
3. Wetland Data Forms

7.0 References

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Attachment 1
Figures

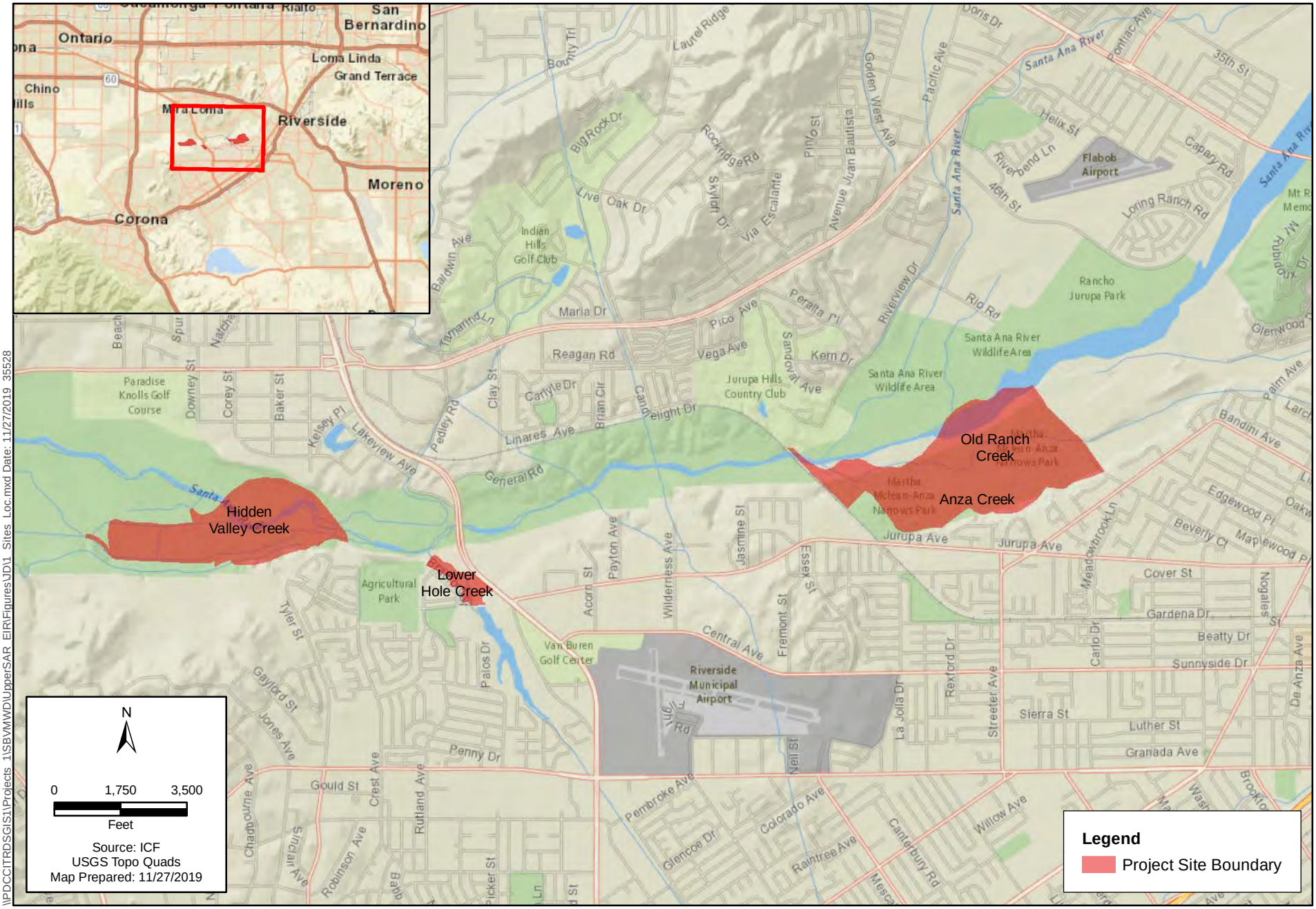

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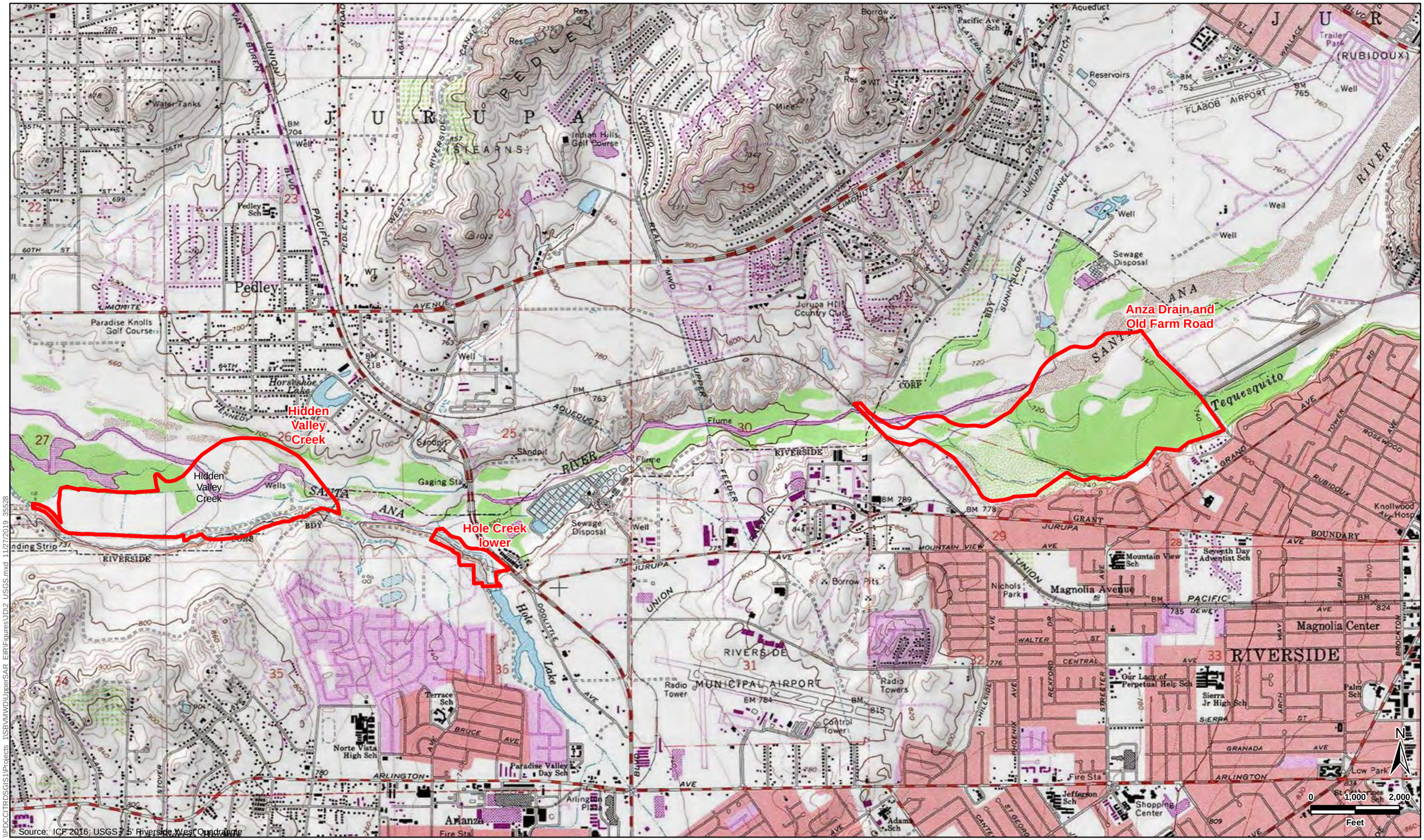
Figure 1
Project Location Map
Upper Santa Ana River Restoration Project



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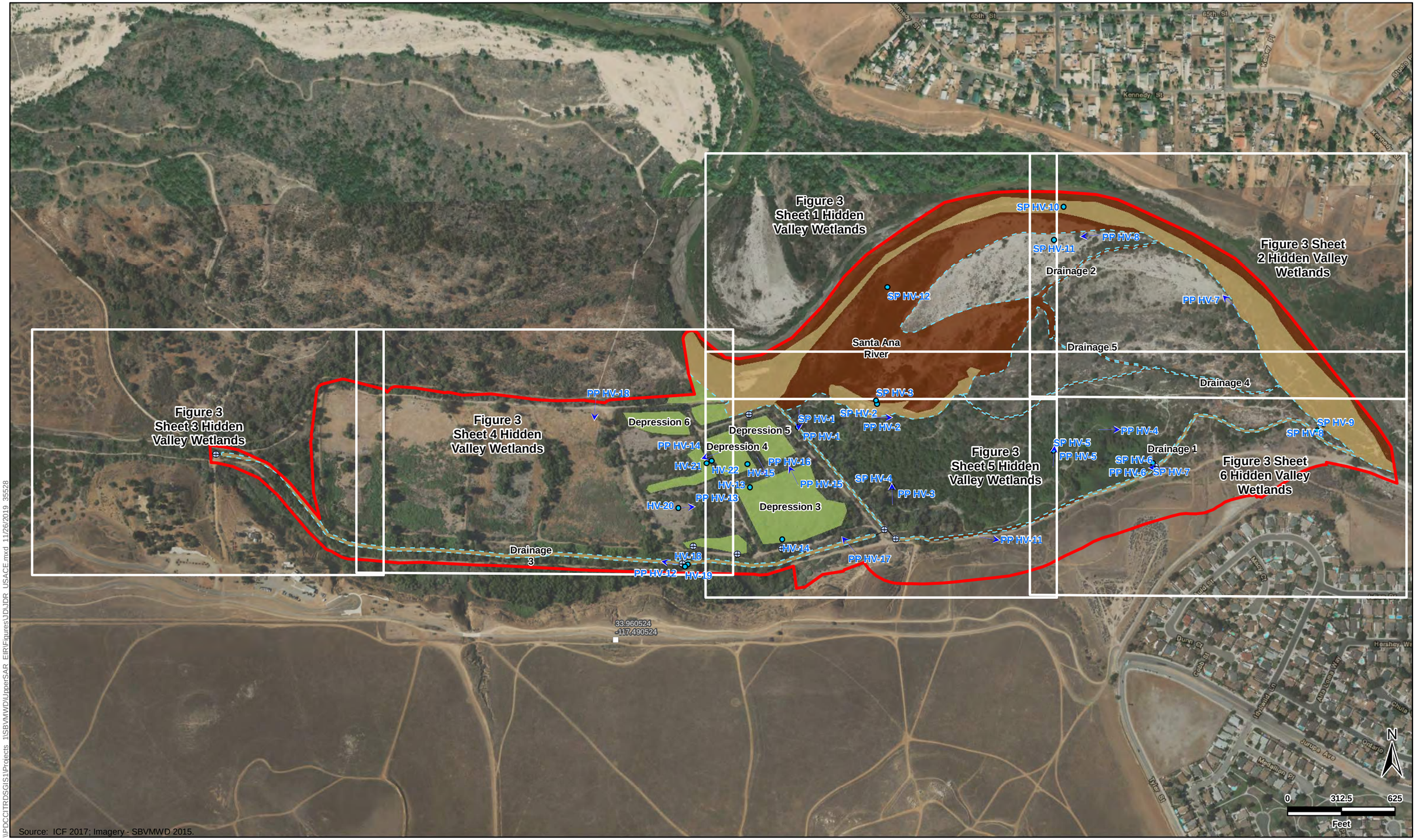
Source: ICF 2016; USGS 7.5' Riverside West Quadrangle

Tributary Restoration Site Boundary

Figure 2
Project Location
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Culvert
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Overview Hidden Valley Wetlands Site Jurisdictional Waters of the U.S Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Sheet 1 Hidden Valley Wetlands Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Sheet 2 Hidden Valley Wetlands Site Jurisdictional Waters of the U.S Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

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Study Areas

OHWM Limits

Waters of the U.S.

Culvert

Nonwetland (Meets wetland criteria but located within OHWM*)

⊕ Culvert

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Sheet 3 Hidden Valley Wetlands Site Jurisdictional Waters of the U.S Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Sheet 4 Hidden Valley Wetlands Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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ICF

Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Culvert
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Sheet 5 Hidden Valley Wetlands Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 3 Sheet 6 Hidden Valley Wetlands Site Jurisdictional Waters of the U.S Upper Santa Ana River Restoration Project



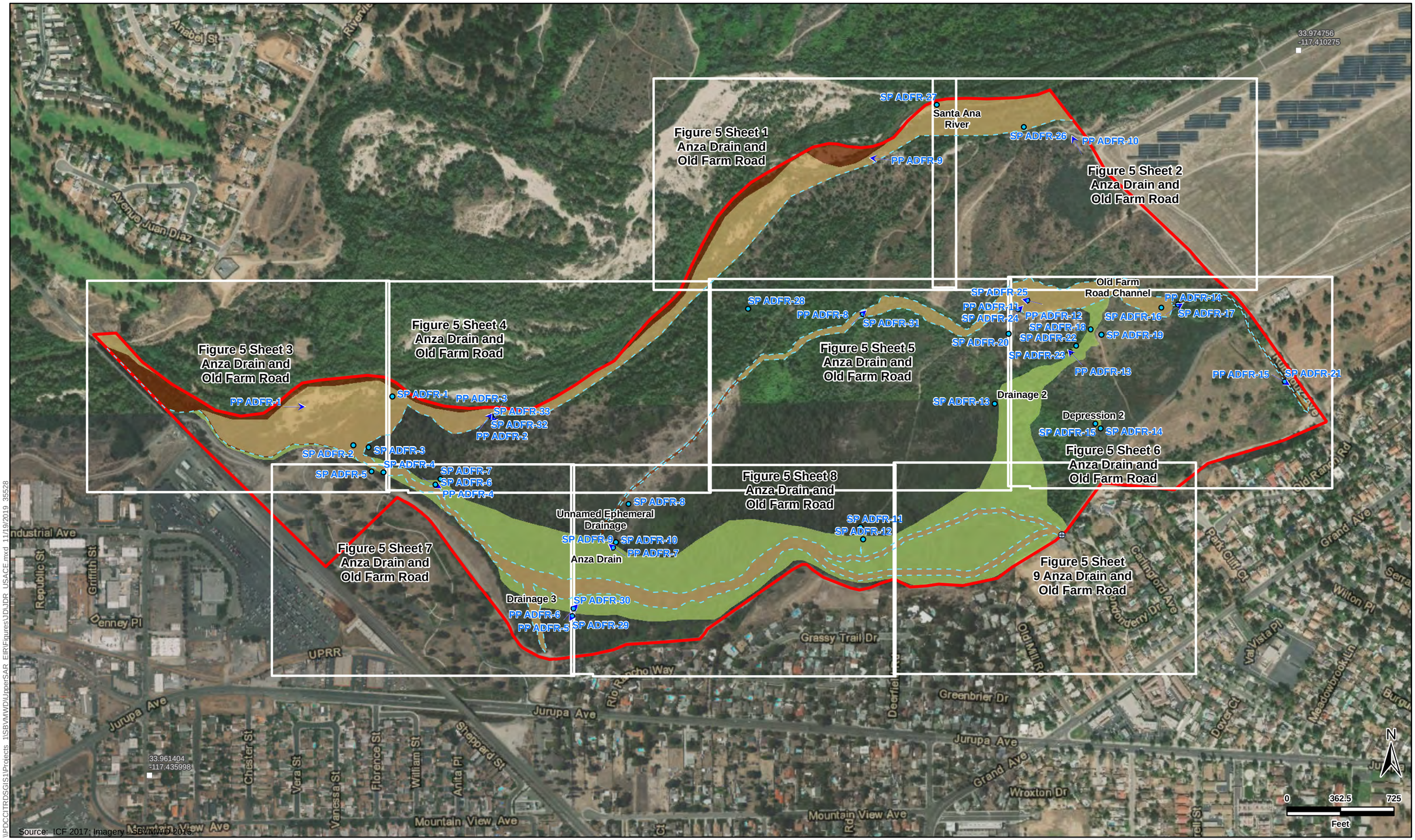
Study Areas
OHWM Limits

Waters of the U.S.
Culvert
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 4 Lower Hole Creek Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Overview Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 1 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits
Waters of the U.S.
Nonwetland (Meets wetland criteria but located within OHWM*)
Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 2 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project

33.970322
-117.430706

PP ADFR-1

SP ADFR-1

Santa Ana River

Anza Drain

SP ADFR-2

SP ADFR-3

SP ADFR-4

33.966996
-117.437121

N

0 90 180
Feet

Source: ICF 2017; Imagery - SBVMWD 2015.

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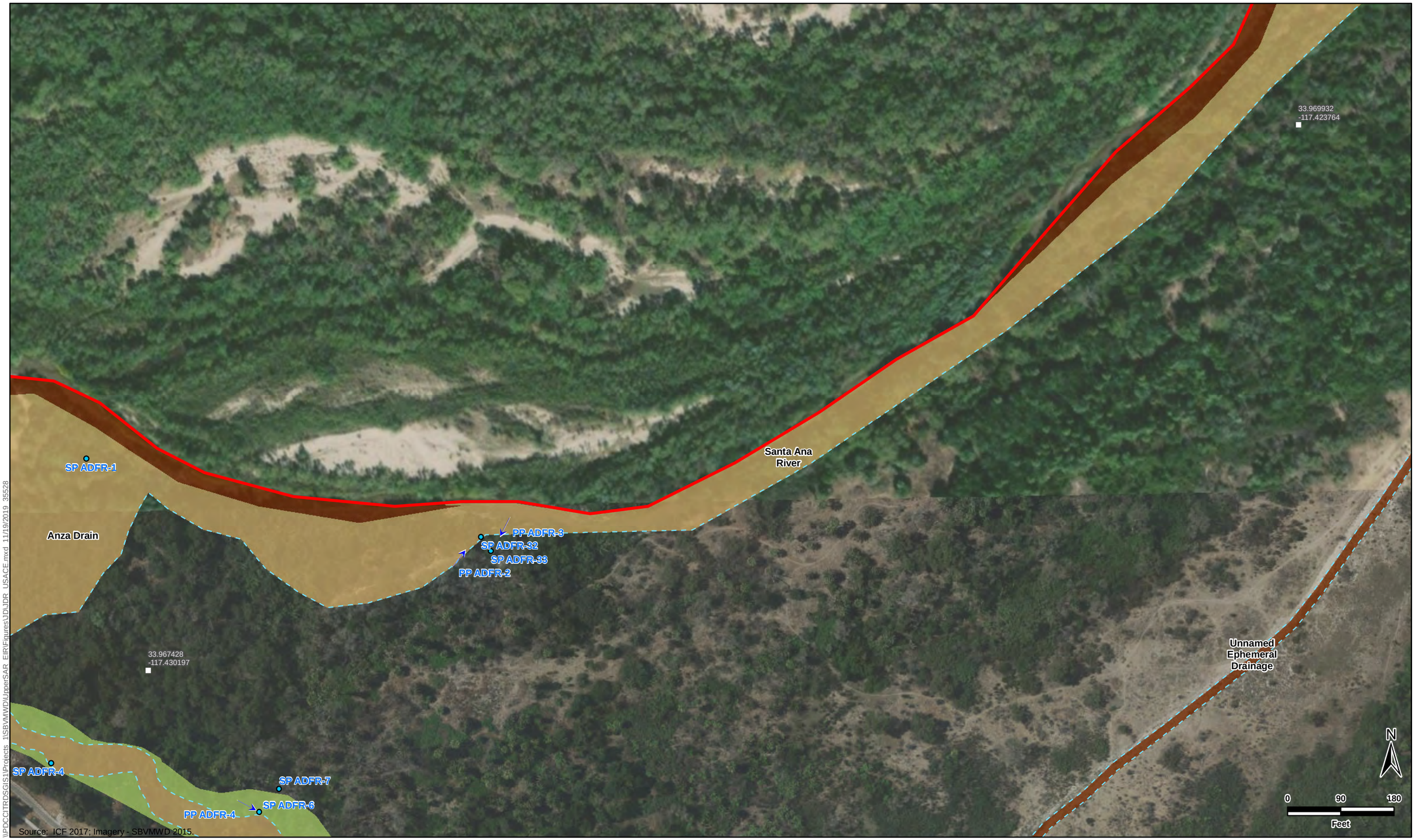
Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 3 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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ICF

Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 4 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 5 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 6 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 7 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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Source: ICF 2017; Imagery - SBVMWD 2015.

Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Photo Point
Sample Point

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 8 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the U.S
Upper Santa Ana River Restoration Project



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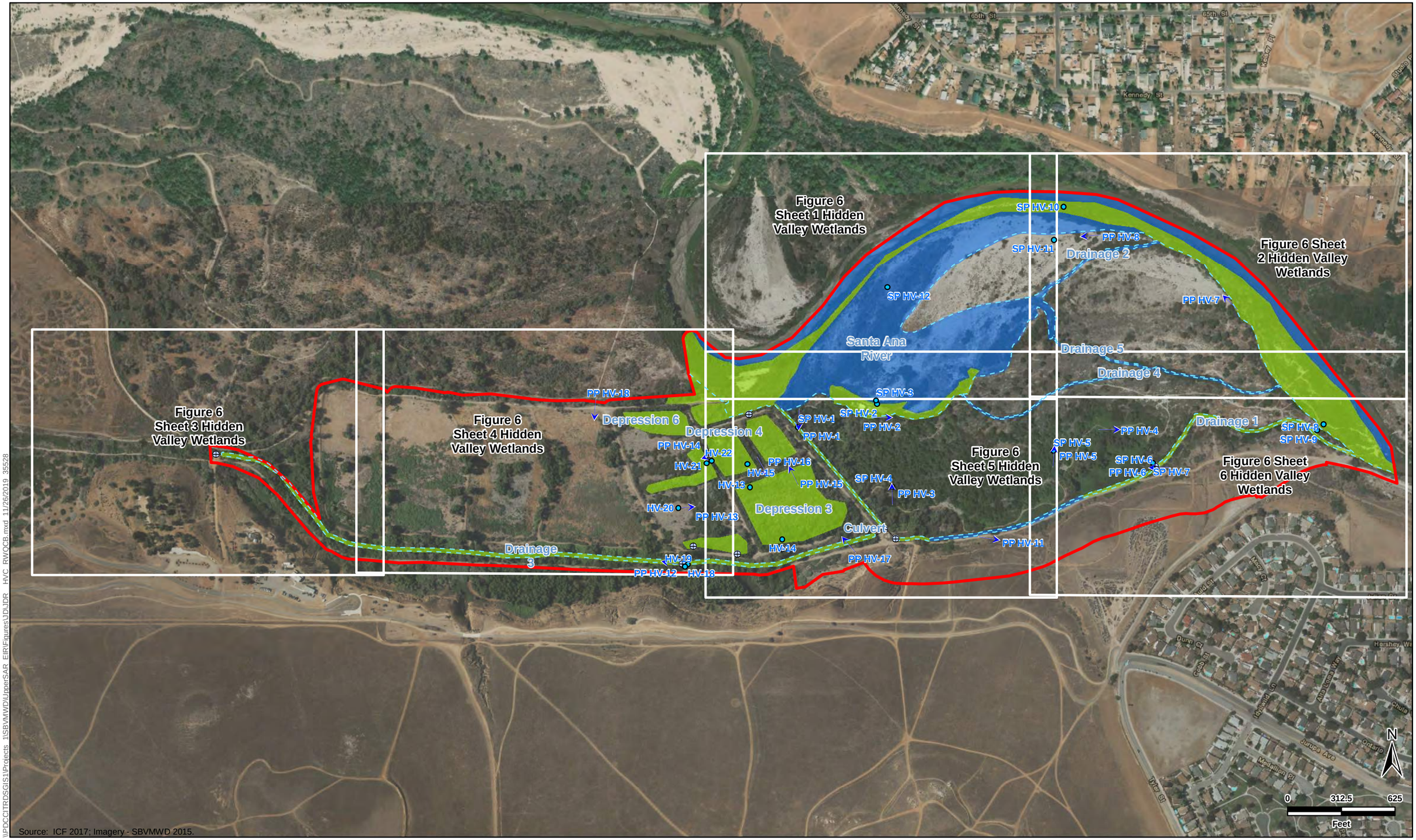
Study Areas
OHWM Limits

Waters of the U.S.
Adjacent Wetland
Nonwetland (Meets wetland criteria but located within OHWM*)

Culvert

* Revised to be described this way per our 10/30 field meeting with Michael Ladouceur, Senior Project Manager (USACE)

Figure 5 Sheet 9 Anza Drain and Old Farm Road Site Jurisdictional Waters of the U.S Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Culvert
- Photo Point
- Sample Point

Figure 6 Overview Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Sample Point

Figure 6 Sheet 1 Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project

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Study Areas

Waters of the State
- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 6 Sheet 2 Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

⊕ Culvert

Figure 6 Sheet 3 Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Culvert
- Photo Point
- Sample Point

Figure 6 Sheet 4 Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State
- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Culvert
- Photo Point
- Sample Point

Figure 6 Sheet 5 Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State
- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Culvert
- Photo Point
- Sample Point

Figure 6 Sheet 6 Hidden Valley Wetlands Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

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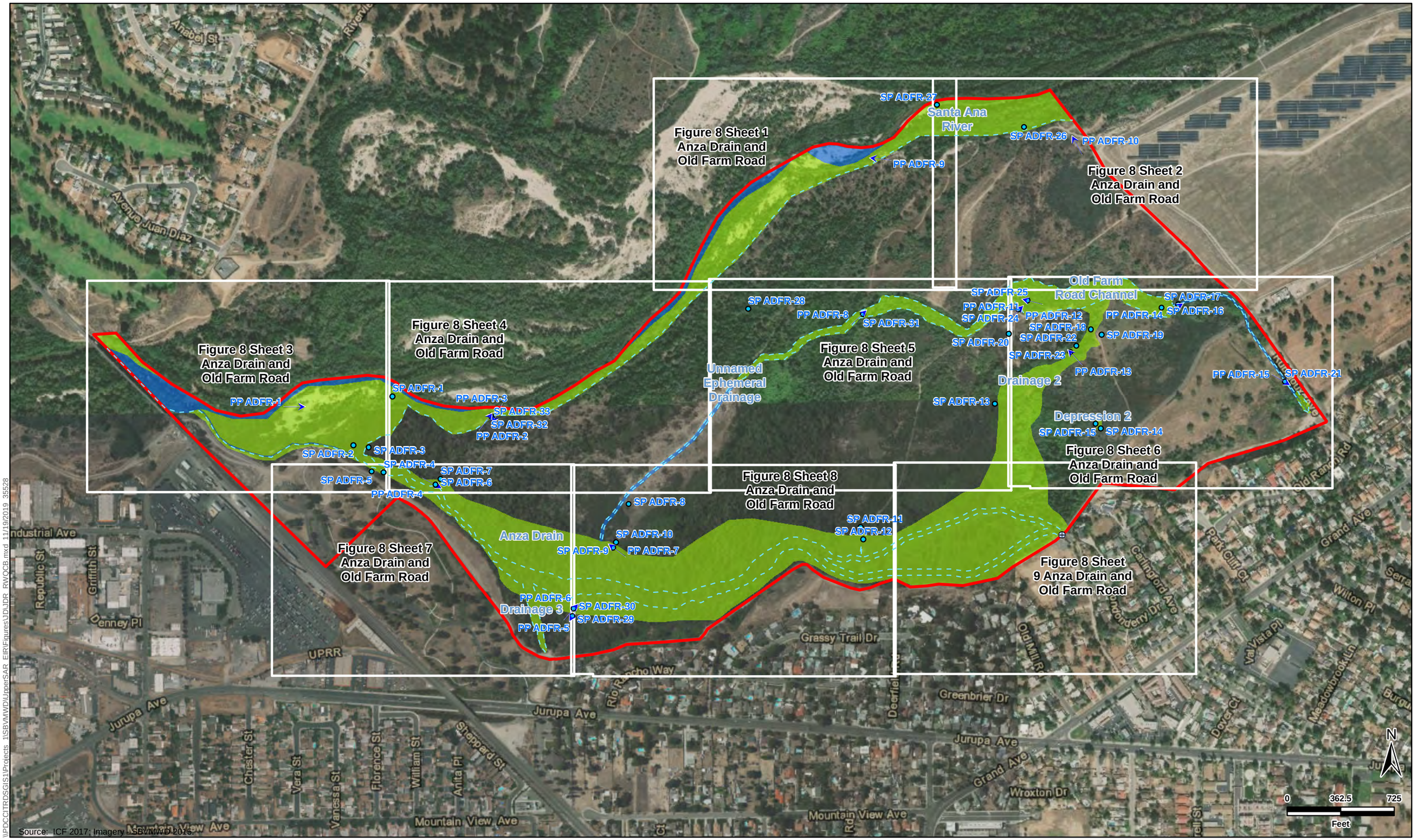
Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Culvert
- Photo Point
- Sample Point

Figure 7 Lower Hole Creek Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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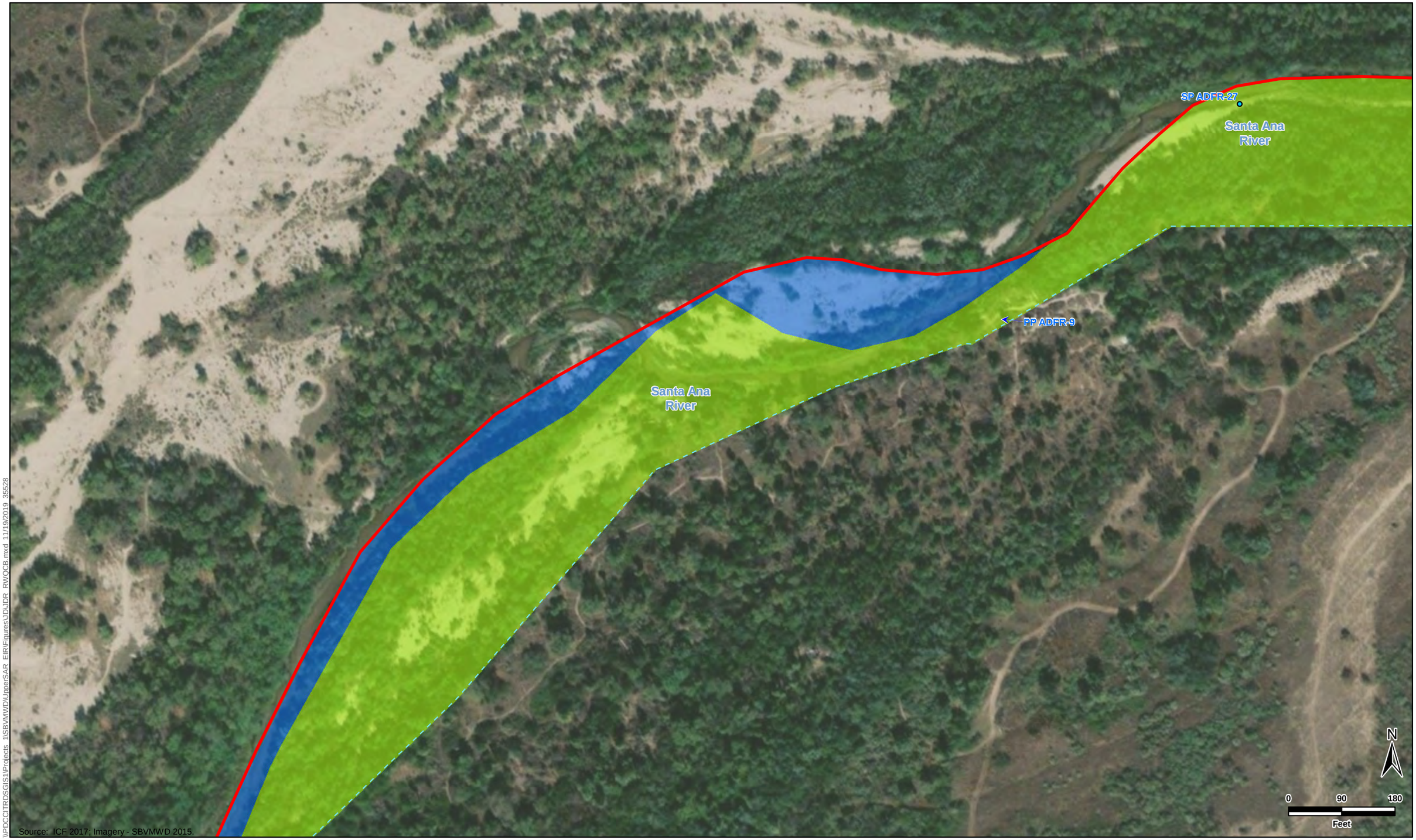
Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Culvert
- Photo Point
- Sample Point

Figure 8 Overview Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 1 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project

SP ADFR-27

Santa Ana River

Santa Ana River

SP ADFR-26

PP ADFR-10

Old Farm Road Channel

N

0 90 180

Feet

Source: ICF 2017; Imagery - SBVMWD 2015.

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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 2 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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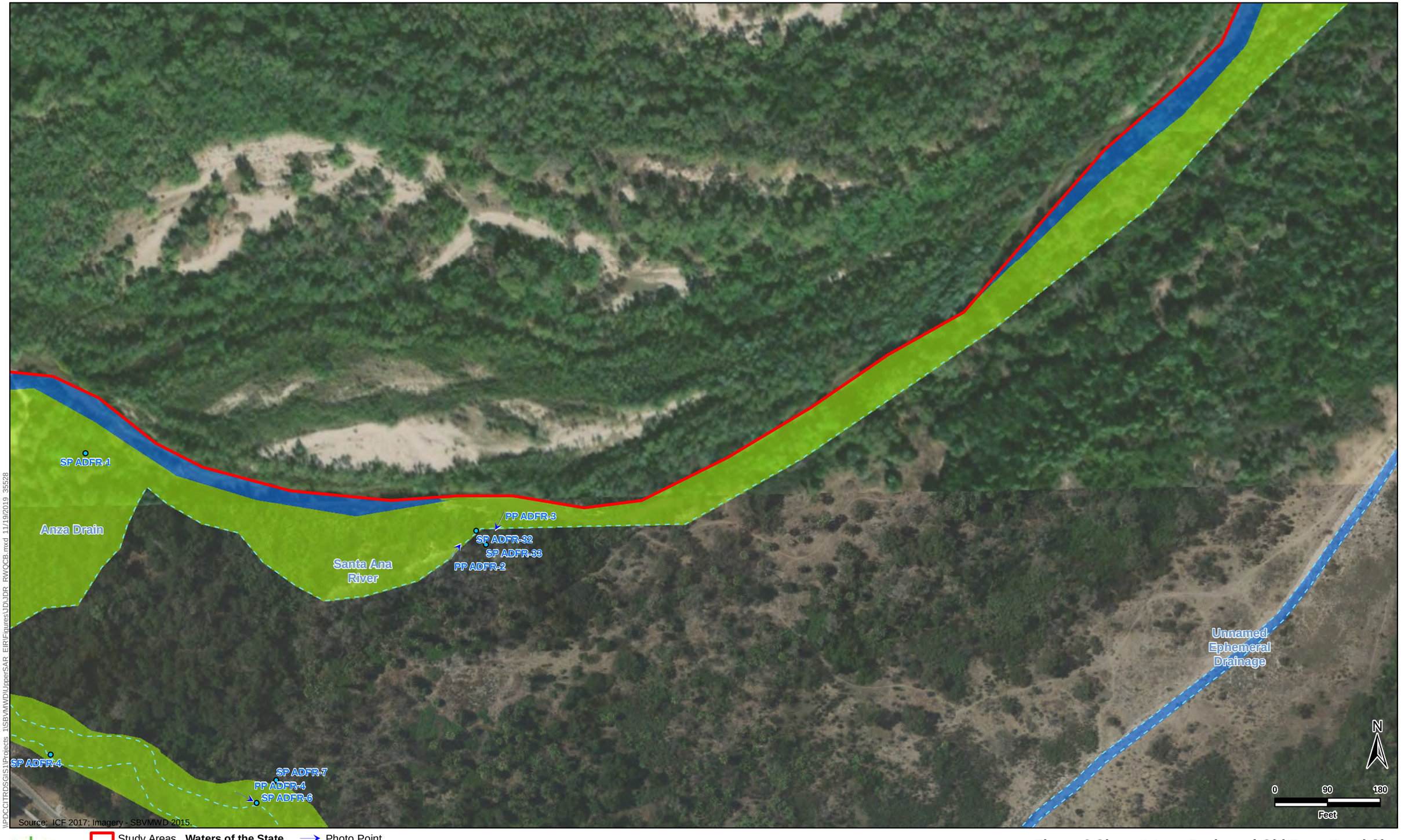
Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

- Photo Point
- Sample Point

Figure 8 Sheet 3 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 4 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 5 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project

Old Farm Road Channel

SP ADFR-25
PP ADFR-11
SP ADFR-24
PP ADFR-12
SP ADFR-20
SP ADFR-18
SP ADFR-19
SP ADFR-22
SP ADFR-23
PP ADFR-13
PP ADFR-14
SP ADFR-17
SP ADFR-16
PP ADFR-15
SP ADFR-21
Drainage 2
Depression 2
SP ADFR-15
SP ADFR-14
5109
Rubidoux Ave
5044
5901
Old Ranch

N

0 90 180
Feet

Source: ICF 2017; Imagery - SBVMWD 2015.

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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 6 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 7 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Photo Point

Sample Point

Figure 8 Sheet 8 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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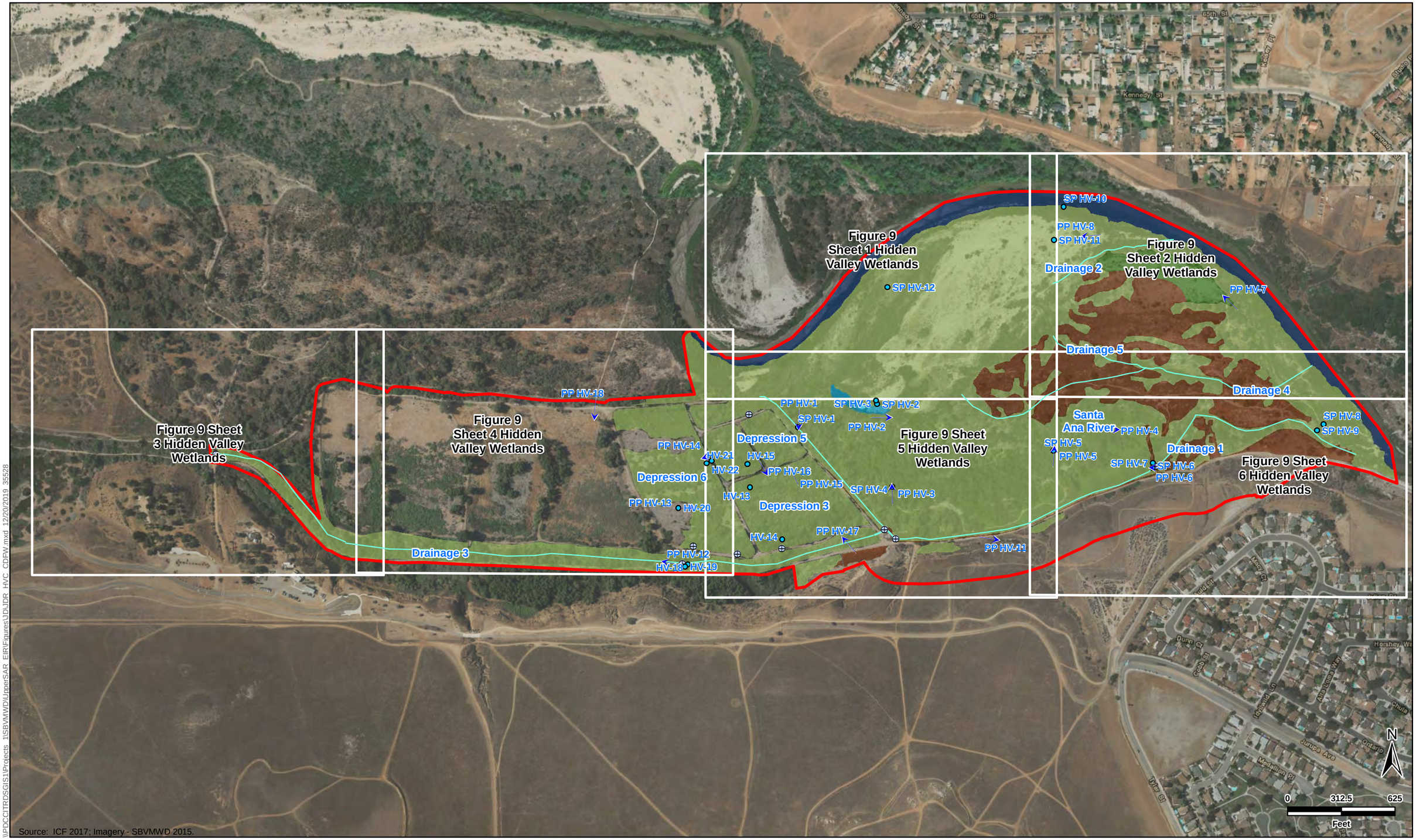
Study Areas

Waters of the State

- Culvert
- Nonwetland
- Wetland Waters
- OHWM Limits

Culvert

Figure 8 Sheet 9 Anza Drain and Old Farm Road Site
Jurisdictional Waters of the State
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Native Riparian
- Native Xeric Riparian
- Nonnative Xeric Riparian
- Open Water
- Streambed
- High Flow Channel

- Culvert
- Photo Point
- Sample Point

Figure 9 Overview Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

\\PDCCITRDSGIS1\Projects_1\SBVMWD\UpperSAR_EIR\Figures\1D\JDR_HVC_CDFW.mxd 12/20/2019 35528

Study Areas

Waters of the State

- Native Riparian
- Nonnative Xeric Riparian
- Open Water
- Streambed
- High Flow Channel

Sample Point

Figure 9 Sheet 1 Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Source: ICF 2017; Imagery - SBVMWD 2015.

Study Areas

Waters of the State

- Native Riparian
- Native Xeric Riparian
- Nonnative Xeric Riparian
- Streambed
- High Flow Channel

Photo Point

Sample Point

Figure 9 Sheet 2 Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas **Waters of the State** Nonnative Xeric Riparian Culvert
Native Riparian High Flow Channel

Figure 9 Sheet 3 Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Native Riparian
- Nonnative Xeric Riparian
- Streambed
- High Flow Channel
- Culvert
- Photo Point
- Sample Point

Figure 9 Sheet 4 Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Native Riparian
- Nonnative Xeric Riparian
- Open Water
- Streambed
- High Flow Channel
- Culvert
- Photo Point
- Sample Point

Figure 9 Sheet 5 Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Native Riparian
- Nonnative Xeric Riparian
- Streambed
- High Flow Channel
- Culvert
- Photo Point
- Sample Point

Figure 9 Sheet 6 Hidden Valley Wetlands Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

\\PDCCITRDSGIS1\Projects_1\SBVMWD\UpperSAR_EIR\Figures\JDJDR_CDFW.mxd 12/26/2019 35528

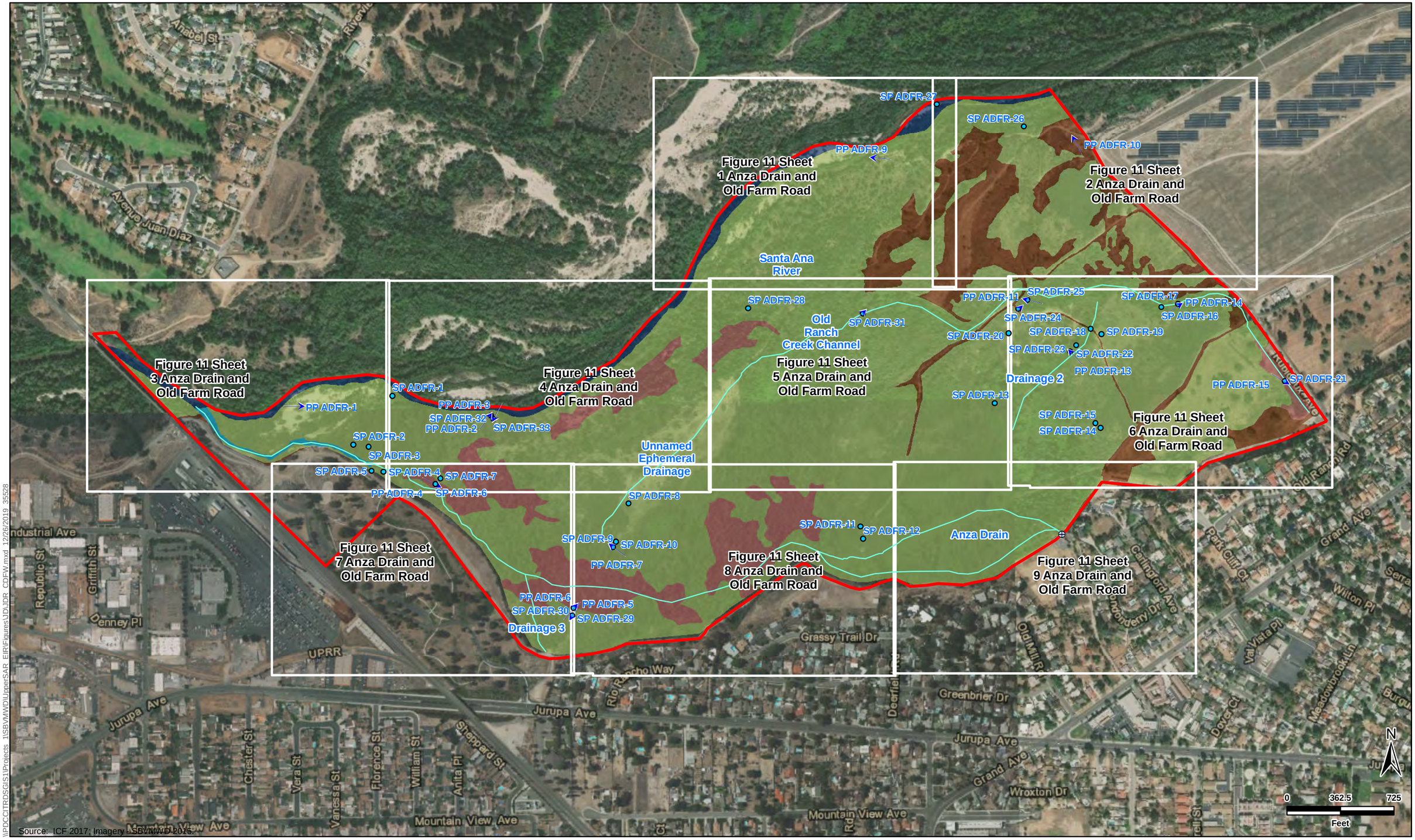
Study Areas

Waters of the State

- Culvert
- Native Riparian
- Nonnative Xeric Riparian
- Streambed

- Culvert
- Photo Point
- Sample Point

Figure 10 Lower Hole Creek Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



\\PDCCITRDSGIS1\Projects_1\SBVMWD\UpperSAR_EIR\Figures\JDJDR_CDFW.mxd 12/26/2019 35528

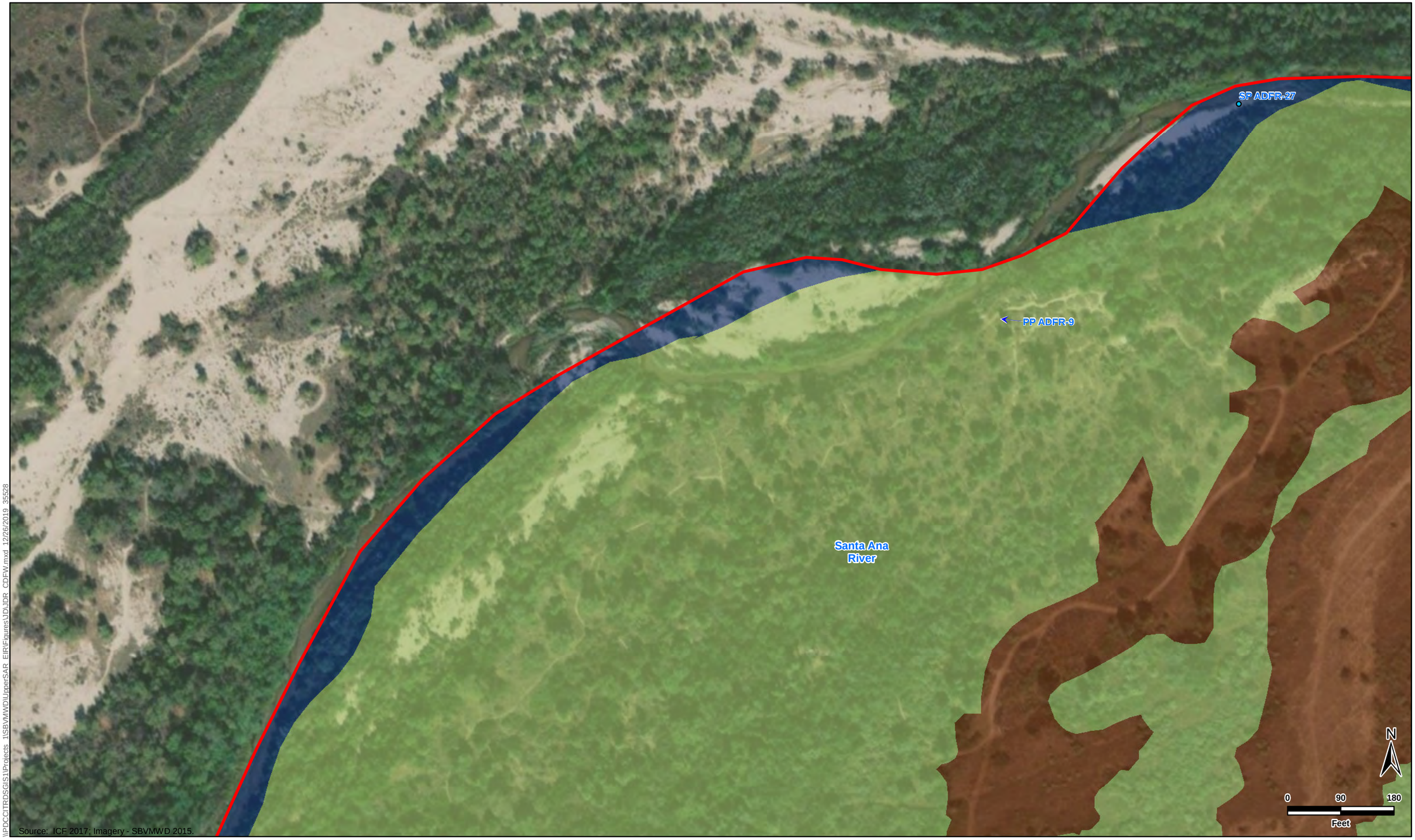
Source: ICF 2017; Imagery - SBVMWD 2016.

Study Areas

Waters of the State

- Native Riparian
- Nonnative Riparian
- Nonnative Xeric Riparian
- Open Water
- Streambed
- High Flow Channel
- Culvert
- Photo Point
- Sample Point

Figure 11 Overview Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas | **Waters of the State** | Native Riparian | Nonnative Xeric Riparian | Streambed | Photo Point | Sample Point

Figure 11 Sheet 1 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project

SP ADFR-27

SP ADFR-26

PP ADFR-10

Santa Ana River

Old Ranch Creek Channel

N

0 90 180

Feet

Source: ICF 2017; Imagery - SBVMWD 2015.

\\PDCCITRDSGIS1\Projects_1\SBVMWD\UpperSAR_EIR\Figures\JDJDR_CDFW.mxd 12/26/2019 35528

Study Areas

Waters of the State

Native Riparian

Nonnative Xeric Riparian

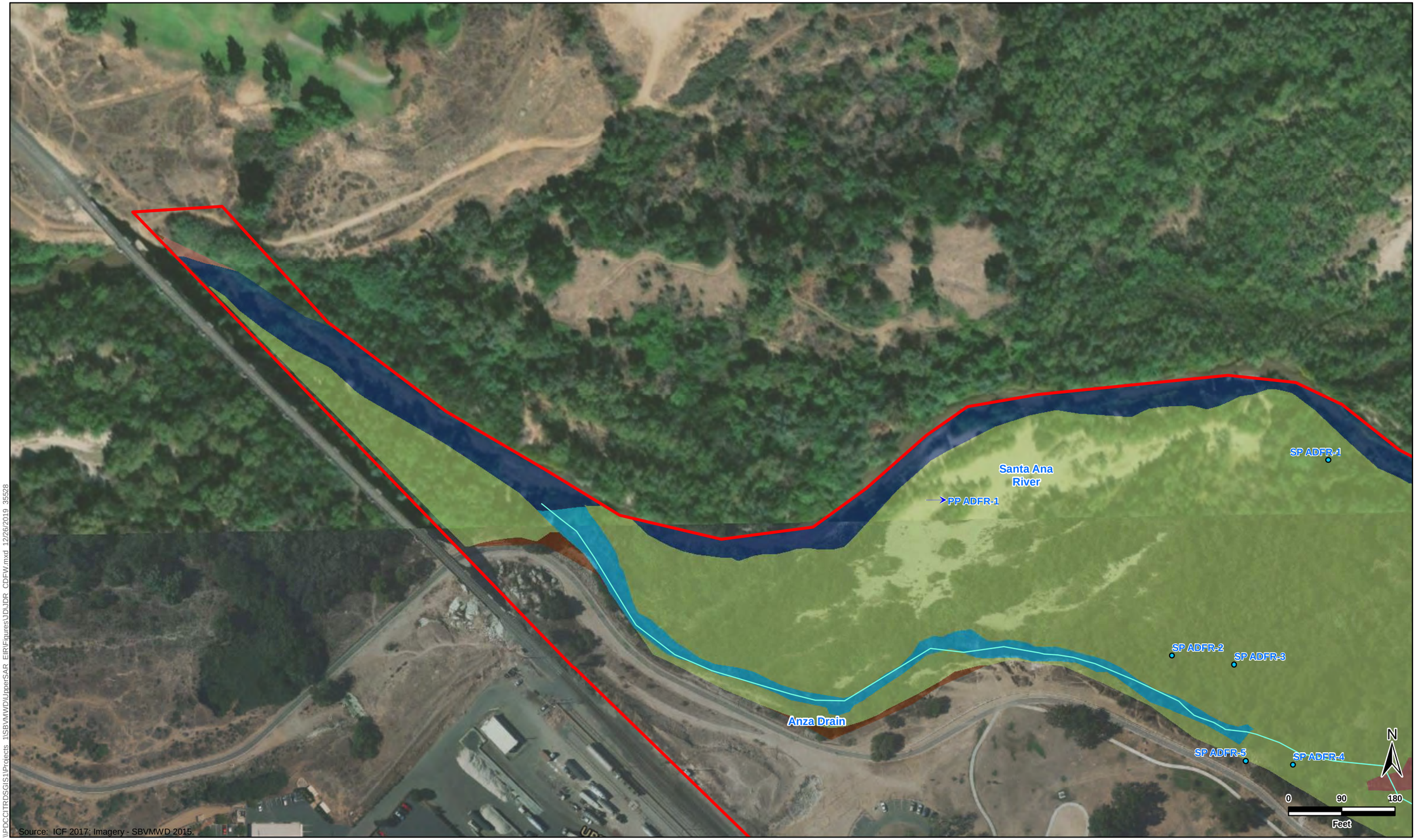
Streambed

High Flow Channel

Photo Point

Sample Point

Figure 11 Sheet 2 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



Source: ICF 2017; Imagery - SBVMWD 2015.

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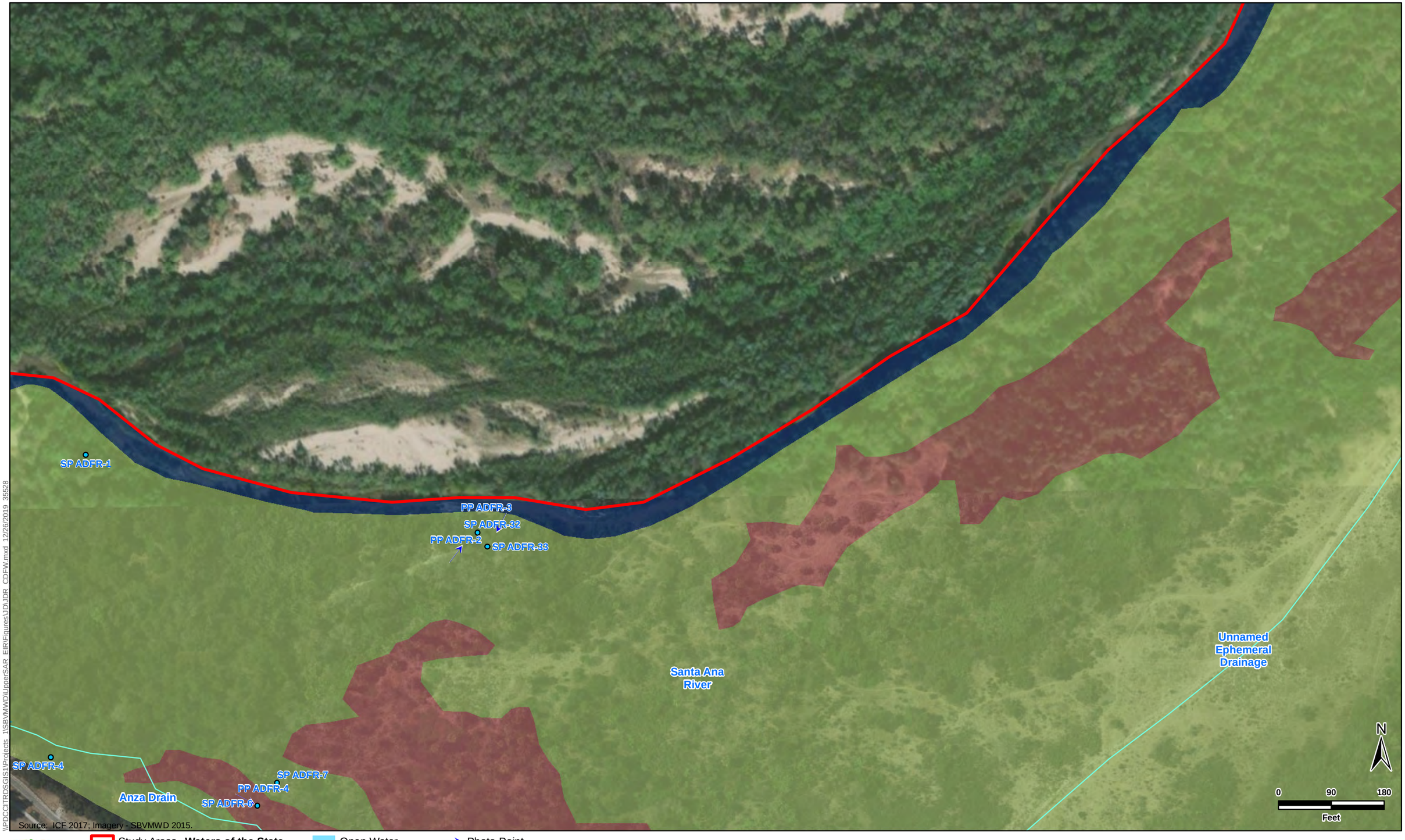
Study Areas

Waters of the State

- Native Riparian
- Nonnative Riparian
- Nonnative Xeric Riparian
- Open Water
- Streambed
- High Flow Channel

- Photo Point
- Sample Point

Figure 11 Sheet 3 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Native Riparian
- Nonnative Riparian
- Open Water
- Streambed
- High Flow Channel

Photo Point

Sample Point

Figure 11 Sheet 4 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

Native Riparian

Nonnative Riparian

Nonnative Xeric Riparian

Streambed

High Flow Channel

Photo Point

Sample Point

Figure 11 Sheet 5 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

Native Riparian

Nonnative Riparian

Nonnative Xeric Riparian

High Flow Channel

Photo Point

Sample Point

Figure 11 Sheet 6 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas

Waters of the State

- Native Riparian
- Nonnative Riparian
- Nonnative Xeric Riparian
- Open Water
- High Flow Channel

Photo Point

Sample Point

Figure 11 Sheet 7 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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Study Areas | **Waters of the State** | Nonnative Riparian | Photo Point
Native Riparian | High Flow Channel | Sample Point

ICF

Figure 11 Sheet 8 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



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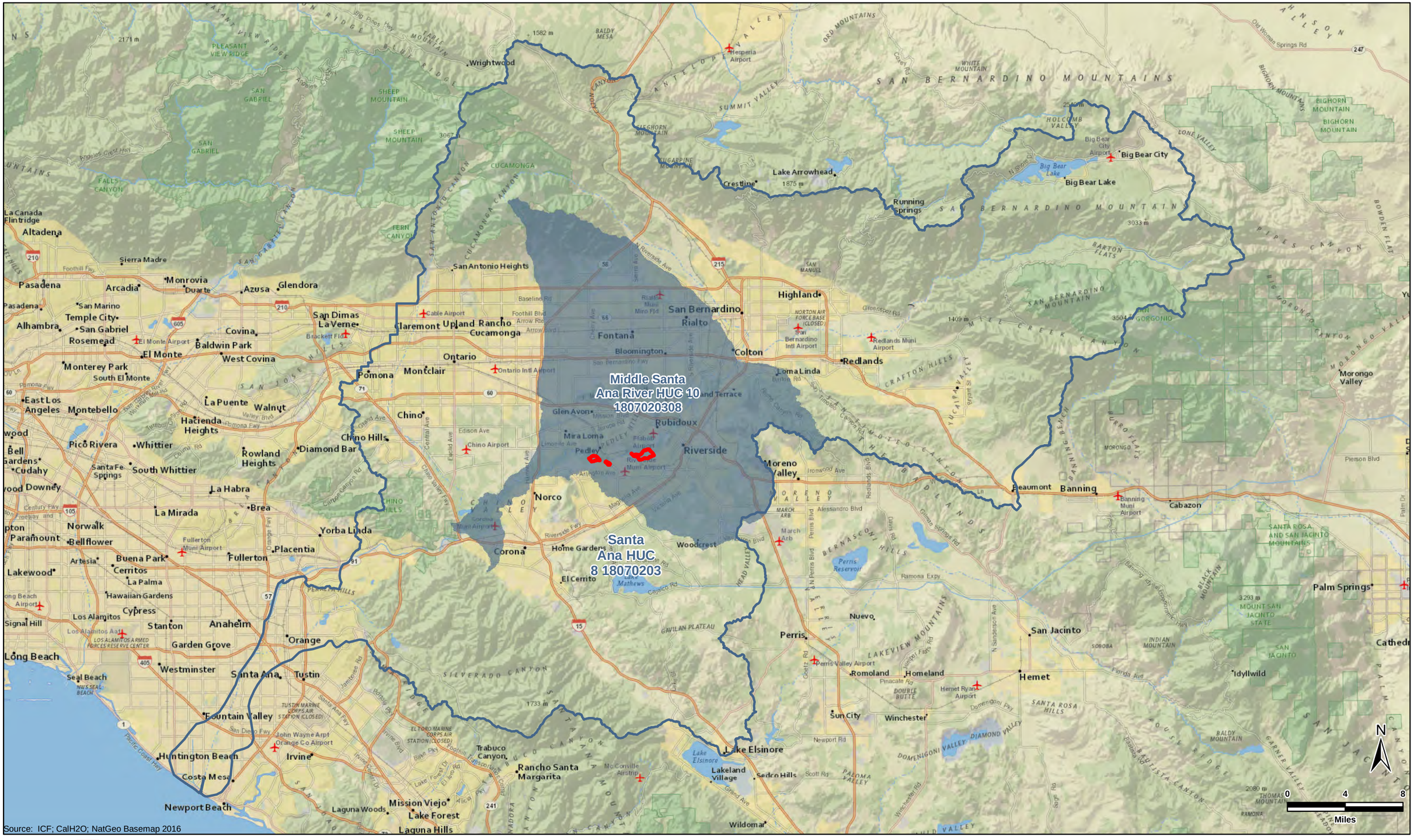
Study Areas
Waters of the State
Native Riparian
Nonnative Xeric Riparian
High Flow Channel
Culvert

Figure 11 Sheet 9 Anza Drain and Old Farm Road Site
CDFW Jurisdictional Waters
Upper Santa Ana River Restoration Project



Source: ICF; CalH2O; NatGeo Basemap 2016

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Tributary Restoration Site Boundary
Santa Ana HUC 8 Watershed
Middle Santa Ana River HUC 10 Watershed

Figure 12
Watersheds
Upper Santa Ana River Restoration Project

Attachment 2

Photo Log

Hidden Valley Wetlands Site Photo Points

Photo Point "PP HV-1"
Date:
08/08/16

Site:
Hidden Valley Wetlands

Figure:
Figure 3, Sheet 3

Direction:
Southwest

Description:
Taken at sample pit "SP HV-1," in pit. Wetland within OHWM of Drainage 1, near project site eastern boundary.



Photo Point "PP HV-2"
Date:
08/08/16

Site:
Hidden Valley Wetlands

Figure:
Figure 3, Sheet 3

Direction:
East

Description:
Fringing wetland at Depression 2, from southwest bank.



Photo Point "PP HV-3" Date: 08/08/16 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 3 Direction: North Description: Taken at sample pit "SP HV-4," out pit, in densely forested area, north of Drainage 1. Confirmation that it did not meet three-parameter wetland. CDFW riparian.	
Photo Point "PP HV-4" Date: 08/08/16 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 4 Direction: East Description: Outside of Waters of the U.S. (including wetlands). CDFW riparian area dominated by wild grape.	

Photo Point "PP HV-5" Date: 08/08/16 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 3 and 4 Direction: North Description: Taken at sample pit "SP HV-31," out pit.	
Photo Point "PP HV-6" Date: 08/08/16 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 4 Direction: West Description: Taken at sample pit "SP HV-6," in pit. Wetland within OHWM of upstream segment of Drainage 1, along southern project site boundary.	

Photo Point "PP HV-7" Date: 08/08/16 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 2 Direction: West Description: Looking across open sandy terrace where Santa Ana River formerly flowed. Although wrack was observed, it was determined to be a relic of when the river flowed within this area.	
Photo Point "PP HV-8" Date: 08/08/16 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 2 Direction: South Description: Looking across open sandy terrace at lower elevation than photo point #1.	

Photo Point "PP HV-9" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Overview Direction: Northwest Description: Overview of Santa Ana River floodplain.	
Photo Point "PP HV-10" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Overview Direction: Northwest Description: Facing downstream of Drainage 2, a nonwetland tributary to the Santa Ana River.	

Photo Point "PP HV-11" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 3 Direction: Southeast Description: Photo of downstream portion of erosional feature. As this feature enters the survey area, there no longer is a definable feature.	
Photo Point "PP HV-12" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Overview Direction: West Description: View of Drainage 3 that supports wetlands throughout the center of the drainage. Tributary to the Santa Ana River.	

Photo Point "PP HV-13" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 3 Direction: East Description: View of portion of old pond area that is now reverting back to upland habitat.	
Photo Point "PP HV-14" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 3 Direction: West Description: View of old pond area that received trail stormwater runoff and may support more groundwater to allow the area to continue to support wetland vegetation.	

Photo Point "PP HV-15"
Date:
08/22/17

Site:
Hidden Valley Wetlands

Figure:
Figure 3, Sheet 3

Direction:
North

Description:
View of one of the pond areas that still support wetland vegetation. Near the center of the pond, mulefat is dying off.



Photo Point "PP HV-16"
Date:
08/22/17

Site:
Hidden Valley Wetlands

Figure:
Figure 3, Sheet 3

Direction:
South

Description:
View of the largest pond that still supports wetland vegetation. Near the center of the pond, mulefat is dying off.



Photo Point "PP HV-17" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Sheet 3 Direction: North Description: View of the largest pond that still supports wetland vegetation. Near the center of the pond, mulefat is dying off.	
Photo Point "PP HV-18" Date: 08/22/17 Site: Hidden Valley Wetlands Figure: Figure 3, Overview Direction: South Description: View of one of the older pond areas that no longer supports wetland habitat.	

Lower Hole Creek Site Photo Points

Photo Point "PP HC-1" Date: 10/30/2018 Site: Lower Hole Creek Figure: Figure 4 Direction: West Description: Looking downstream near the confluence with the Santa Ana River. Updated photos of this area in 2018.	
Photo Point "PP HC-2" Date: 08/09/16 Site: Lower Hole Creek Figure: Figure 4 Direction: Southeast Description: Looking upstream of Lower Hole Creek.	

Photo Point "PP HC-3" Date: 08/09/16 Site: Lower Hole Creek Figure: Figure 4 Direction: East Description: Looking upstream of Lower Hole Creek.	
Photo Point "PP HC-4" Date: 08/09/16 Site: Lower Hole Creek Figure: Figure 4 Direction: Southeast Description: Looking upstream of Lower Hole Creek.	

Photo Point "PP HC-5" Date: 08/09/16 Site: Lower Hole Creek Figure: Figure 4 Direction: Southeast Description: Looking upstream of Lower Hole Creek.	
Photo Point "PP HC-6" Date: 08/09/16 Site: Lower Hole Creek Figure: Figure 4 Direction: North Description: Looking downstream of Lower Hole Creek at dragon's teeth structure from Jurupa Avenue culvert.	

Anza Drain/Old Farm Road Site Photo Points

Photo Point "PP ADFR-1" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 3 Direction: East Description: Within OHWM of Santa Ana River near western project site boundary.	
Photo Point "PP ADFR-2" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 4 Direction: North Description: Taken at sample pit "SP ADFR-32," in pit. USACE wetland, within OHWM of Santa Ana River.	

Photo Point "PP ADFR-3" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 4 Direction: South Description: Taken at sample pit "SP ADFR-33," out pit. Upland, outside OHWM of Santa Ana River, looking toward densely vegetated forest.	
Photo Point "PP ADFR-4" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 7 Direction: West Description: Taken from sample pit "SP ADFR-6." Looking downstream along Anza Drain.	

Photo Point "PP ADFR-5" Date: 08/03/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 8 Direction: North Description: Sample point "SP ADFR-29," upland pit, looking toward heavily forested area. Large drop in elevation occurs at the forested areas.	
Photo Point "PP ADFR-6" Date: 08/03/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 8 Direction: North Description: Taken at sample pit "SP ADFR-30." USACE wetland, occurring with the OHWM of Anza Drain. Ten feet lower in elevation than sample pit "SP ADFR-29." Near location where Anza Drain channel becomes barely defined and braids at low flows.	

Photo Point "PP ADFR-7" Date: 08/03/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 8 Direction: South Description: Taken at sample pit "SP ADFR-9," in pit, inside USACE wetland, outside OHWM. Looking south at wetland area; Anemopsis covers the ground.	
Photo Point "PP ADFR-8" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 5 Direction: North Description: Taken at sample pit "SP ADFR-31," in pit. USACE wetland, within OHWM of Old Farm Road channel.	

Photo Point "PP ADFR-9" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 1 Direction: West Description: Santa Ana River, looking downstream from left (southern) bank.	
Photo Point "PP ADFR-10" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 2 Direction: North Description: Concrete stockpile in northeast portion of project site.	

Photo Point "PP ADFR-11" Date: 08/01/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 5 Direction: Northwest Description: Taken at sample pit "SP ADFR-25," in pit. USACE wetland, within OHWM of Old Farm Road channel.	
Photo Point "PP ADFR-12" Date: 08/01/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 5 Direction: Northeast Description: Taken at sample pit "SP ADFR-24," out pit. Looking toward riparian corridor.	

Photo Point "PP ADFR-13" Date: 08/03/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 6 Direction: Northwest Description: Taken at sample pit "SP ADFR-23," in pit. USACE wetland, within OHWM of a tributary (Drainage 2) from Old Farm Road channel.	
Photo Point "PP ADFR-14" Date: 08/02/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 6 Direction: East Description: Taken at sample pit "SP ADFR-17," out pit. USACE non-wetland water, within OHWM of Old Farm Road channel, did not meet three-parameter wetland.	

Photo Point "PP ADFR-15" Date: 08/03/16 Site: Anza Drain/Old Farm Road Figure: Figure 5, Sheet 6 Direction: Southeast Description: Taken at sample pit "SP ADFR-21," out pit. Area did not support a three-parameter wetland; however, was a nonwetland water.	

Attachment 3

Wetland Data Forms

Hidden Valley Wetlands Site Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-1

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'50.09"N | Long: 117°29'13.24"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater emergent wetl

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	60	Yes	OBL
2. *Salix laevigata*	10	No	FACW
3.			
4.			
Total Cover:	70 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	10	x 2 =	20
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	70 (A)		80 (B)

Prevalence Index = B/A = 1.14

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HV-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 4/2	100					Sandy loam	
4-8	2.5Y 4/2	98	7.5 YR 5/6	2	C	M	Sandy loam	
8-18+	2.5Y 4/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside County | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-2

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Pond depression | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'51.39"N | Long: 117°29'7.77"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha domingensis*	40	Yes	OBL
2. *Schoenoplectus californicus*	20	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	60 (A)		60 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Vegetation along banks of pond feature.

SOIL

Sampling Point: SP HV-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Sample point in pond, hydric soils assumed due to presence of standing water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): several feet
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point in pond.

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside County | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-3

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'51.60"N | Long: 117°29'7.84"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Sample point upslope of pond.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	30	Yes	FACW
2. *Populus deltoides*	5	No	FAC
3.			
4.			
Total Cover:	35 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Heterotheca grandiflora*	25	Yes	Not Listed
2. *Melilotus albus*	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	30	x 2 =	60
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species	25	x 5 =	125
Column Totals:	75 (A)		250 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HV-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20+	2.5 Y 4/2	100					Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soils present, upslope of pond feature.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point upslope of pond feature. No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside County | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-4

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'46.63"N | Long: 117°29'6.75"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	70	Yes	FACW
2. *Populus deltoides*	10	No	FAC
3.			
4.			
Total Cover:	80 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	20	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	70	x 2 =	140
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		230 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: All mature vegetation, no young understory.

SOIL

Sampling Point: SP HV-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 4/2	100					Sandy loamy clay	
4-7	2.5Y 4/2	98	5 YR 4/6	2	C	M	Sandy clay	
8-10	2.5Y 4/2	100					Sandy loam	
10-18+	2.5Y 2.5/1	98	5YR 4/6	2	C	M	Sandy loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Abundant wrack in area, appears to be fallen material, not from flow/hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside County | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-5

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'48.66"N | Long: 117°28'55.60"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	80	Yes	FACW
2. *Washingtonia robusta*	20	Yes	FACW
3.			
4.			
Total Cover:	100%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	100	x 2 =	200
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: No understory.

SOIL

Sampling Point: SP HV-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20+	10YR 4/2	100					Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-6

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33°57'47.64"N | Long: 117°28'48.76"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	40	Yes	FACW
2.			
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Salix exigua*	20	Yes	FACW
2. *Baccharis salicifolia*	15	Yes	FAC
3.			
4.			
5.			
Total Cover:	35 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	60	x 2 =	120
FAC species	15	x 3 =	45
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	75 (A)		165 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HV-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5YR 4/2	70	7.5YR 4/6	30	C	M	Sandy loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-7

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'47.92"N | Long: 117°28'48.74"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix exigua*	10	Yes	FACW
2. *Sambucus nigra*	15	Yes	FACU
3.			
4.			
Total Cover:	25 %		
Sapling/Shrub Stratum			
1. *Nicotiana glauca*	5	Yes	FAC
2. *Baccharis salicifolia*	10	Yes	FAC
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1. *Helianthus annuus*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	15	x 3 =	45
FACU species	115	x 4 =	460
UPL species		x 5 =	0
Column Totals:	140 (A)		525 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: 5 ft. above test 24.

SOIL

Sampling Point: SP HV-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5YR 3/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No Hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrological indicators present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-8

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'50.11"N | Long: 117°28'36.93"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Within OHWM.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	15	Yes	FACW
2. *Populus deltoides*	15	Yes	FAC
3.			
4.			
Total Cover:	30 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	40	Yes	FAC
2. *Salix lasiolepis*	5	No	FACW
3. *Salix exigua*	5	No	FACW
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Melilotus albus*	5	Yes	FACU
2. *Cynodon dactylon*	8	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	13 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	25	x 2 =	50
FAC species	55	x 3 =	165
FACU species	13	x 4 =	52
UPL species		x 5 =	0
Column Totals:	93 (A)		267 (B)

Prevalence Index = B/A = 2.87

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HV-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Fine sandy loam	
3-4	2.5 Y /2	100					Sand	
4-5	10YR 3/2	100					Fine sandy loam	
5-20+	2.5 Y /2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: potential problem soils, recently deposited sediment

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dug a separate exploratory pit- ground water at 32".

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-9

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): convex | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'49.74"N | Long: 117°28'37.38"W | Datum: WGS-84

Soil Map Unit Name: Terrace escarpments | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	20	Yes	FAC
2.			
3.			
4.			
Total Cover:	20 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	5	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Salsola tragus*	1	No	FACU
2. *Helianthus annuus*	10	Yes	FACU
3. *Ambrosia acanthicarpa*	10	Yes	Not Listed
4. *Hirschfeldia incana*	10	Yes	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	31 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	25	x 3 =	75
FACU species	11	x 4 =	44
UPL species	20	x 5 =	100
Column Totals:	56 (A)		219 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

- [●] Dominance Test is >50%
- [●] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: SP HV-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sand	
4-12	10YR 4/3	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compact soils

Depth (inches): 12 inches

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators, at 4-5 ft. higher.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-10

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°58'2.71"N | Long: 117°28'54.79"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	55	Yes	FACW
2.			
3.			
4.			
Total Cover:	55 %		
Sapling/Shrub Stratum			
1. *Salix interior*	10	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Baccharis salicifolia*	15	Yes	FAC
2. *Melilotus albus*	2	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	17 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	65	x 2 =	130
FAC species	15	x 3 =	45
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	82 (A)		183 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HV-1(

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	100					Loamy sand	
6-10	2.5Y 4/3	100					Gravel/Sand	
10-20+	2.5Y 4/3	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Soils are sandy and naturally problematic, no redox observed however may be recently deposited sand. Hydrophytic vegetation and hydrology indicators met, therefore soils are assumed hydric as well.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-11

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°58'0.79"N | Long: 117°28'55.49"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Point taken in old 2012 channel location. Older wrack line observed. To review historic aerials to see transition of channel location.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eriogonum gracile*	20	Yes	Not Listed
2. *Heterotheca grandiflora*	10	Yes	Not Listed
3. *Ambrosia acanthicarpa*	10	Yes	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	40 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	40	x 5 =	200
Column Totals:	40 (A)		200 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: SP HV-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					Sand	deposited 2-3 years ago

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: no hydrology indicators observed.

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hidden Valley | City/County: Riverside | Sampling Date: 8/8/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HV-12

Investigator(s): Team 1 and 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Outer flow plain | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'58.11"N | Long: 117°29'7.01"W | Datum: WGS-84

Soil Map Unit Name: Delllo loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Salix exigua*	10	Yes	FACW
2. *Baccharis salicifolia*	10	Yes	FAC
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Heterotheca grandiflora*	25	Yes	Not Listed
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	25 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species		x 4 =	0
UPL species	25	x 5 =	125
Column Totals:	45 (A)		175 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HV-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18+	2.5Y 4/1	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside | Sampling Date: 8/31/16

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-13

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'46.61"N | Long: 117°29'16.55"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Emergent Wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	85	Yes	FAC
2.			
3.			
4.			
Total Cover:	85 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	25	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	25	x 2 =	50
FAC species	85	x 3 =	255
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	110 (A)		305 (B)

Prevalence Index = B/A = 2.77

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks: Full of litter and debris.

SOIL

Sampling Point: HV-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18+	10YR 4/2	85	5YR 4/4	15	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Constructed berm, depressional area. Has not actively ponded in several years however due to its depth may still be ponding and receiving groundwater input. near center of depression mulefat is dying off.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside | Sampling Date: 8/31/16

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-14

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'47.88"N | Long: 117°29'16.25"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Emergent Wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sample point taken with a depressional area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	80	Yes	FAC
2.			
3.			
4.			
Total Cover:	80 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	25	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	25	x 2 =	50
FAC species	80	x 3 =	240
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	105 (A)		290 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: HV-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	10YR 4/2	95	10YR 5/6	5	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Hydric soils observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Small sediment deposits on trees.

Constructed berm, depressional area. Has not actively ponded in several years however due to its depth may still be ponding and receiving groundwater input. near center of depression mulefat is dying off.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside | Sampling Date: 8/31/16

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-15

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'43.43"N | Long: 117°29'14.49"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Pond

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	40	Yes	FAC
2.			
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	50	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	50	x 2 =	100
FAC species	40	x 3 =	120
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	90 (A)		220 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: HV-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	10YR 4/2	95	7.5YR 5/6	5	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Hydric soils observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ○ Depth (inches):

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Constructed berm, depressional area. Has not actively ponded in several years however due to its depth may still be ponding and receiving groundwater input. near center of depression mulefat is dying off.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-16

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Flood plain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33.962637 | Long: -117.472101 | Datum: NAD 1963

Soil Map Unit Name: Terrace escarpments | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	60	Yes	FACW
2. *Salix lasiolepis*	20	Yes	FACW
3. *Populus fremontii*	10	No	FAC
4. *Platanus racemosa*	10	No	FAC
Total Cover:	100%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	25	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1. *Xanthium strumarium*	20	Yes	FAC
2. *Schoenoplectus americanus*	20	Yes	OBL
3. *Ricinus communis*	2	No	FACU
4. *Melilotus albus*	1	No	FACU
5. *Stipa miliacea*	1	No	NI
6.			
7.			
8.			
Total Cover:	44 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	80	x 2 =	160
FAC species	65	x 3 =	195
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	169 (A)		392 (B)

Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: The sample point habitat area was dominated with with OBL, FACW and FAC vegetation.

SOIL

Sampling Point: HV-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/1	100					Loamy Clay	
3-5	10 YR 6/2	100					Sand	
6-18	10 YR 6/2	90	10 YR 6/8	10	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Redox concentration was observed in the soil and met the requirements for the depleted matrix indicator. The sandy soils texture was more prominent as you neared the main channel.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Three secondary indicators for wetland hydrology were observed within the sample area.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-17

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Upper flood plain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33.962549 | Long: -117.472058 | Datum: NAD 1963

Soil Map Unit Name: Terrace escarpments | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: This sample point was located approximately 5 feet higher than HV-16.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	60	Yes	FACW
2.			
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Verbesina encelioides*	40	Yes	FACU
2. *Phacelia cicutaria*	15	Yes	NI
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	55 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 45 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	60	x 2 =	120
FAC species		x 3 =	0
FACU species	40	x 4 =	160
UPL species	15	x 5 =	75
Column Totals:	115 (A)		355 (B)

Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators:

- [●] Dominance Test is >50%
- [●] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: The the sample point habitat area was dominated with with FACW and upland vegetation.

SOIL

Sampling Point: HV-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/1	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compact

Depth (inches): 12 inches

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators were observed within the sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No primary nor secondary indicators for wetland hydrology were observed within the sample area.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-18

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33.961721 | Long: -117.489126 | Datum: NAD 1963

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus dipetala*	55	Yes	NI
2. *Salix lasiolepis*	25	Yes	FACW
3.			
4.			
Total Cover:	80 %		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	20	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 95 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	45	x 2 =	90
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	55	x 5 =	275
Column Totals:	100 (A)		365 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: The sample point habitat area was dominated with with FACW vegetation.

SOIL

Sampling Point: HV-18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/1	100					Organic layer	
3-5	10 YR 3/2	95	10 YR 4/6	5	C	M	Sand	
6-18	10 YR 4/1	85	7.5 YR 4/6	15	C	PL	Loamy clay	Redox was also observed in the Matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil was still moist which suggest ponding within this area occurs. Redox concentrations were also observed in the matrix and pore linings of the soil sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: One primary indicator for wetland hydrology was observed within the sample area. Shelfing was also observed on either side of the bank, appears that water ponds more within this area and slowly moves downstream. No active flow indicators observed within this area.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-19

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33.961688 | Long: -117.489180 | Datum: NAD 1963

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: This sample point was located approximately 10 feet higher in elevation from HV-18.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus dipetala*	50	Yes	NI
2. *Salix lasiolepis*	10	Yes	FACW
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	5	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Bromus diandrus*	50	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	15	x 2 =	30
FAC species		x 3 =	0
FACU species	50	x 4 =	200
UPL species	50	x 5 =	250
Column Totals:	115 (A)		480 (B)

Prevalence Index = B/A = 4.17

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: The sample point habitat area was dominated with with upland and FACW vegetation.

SOIL

Sampling Point: HV-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
N/A								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock/Fill

Depth (inches): At Surface

Hydric Soil Present? Yes ○ No ◉

Remarks: No sample pit was dug because the soil was all rock and fill. Because the sample area was dominated with upland vegetation and no wetland hydrology indicators were observed the soil was assumed non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No primary nor secondary indicators for wetland hydrology were observed within the sample area.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-20

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Abandon basin | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33.962628 | Long: -117.489298 | Datum: NAD 1963

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Emergent Wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	10	Yes	FACW
2. *Nicotiana glauca*	7	Yes	FAC
3.			
4.			
5.			
Total Cover:	17 %		
Herb Stratum			
1. *Cirsium vulgare*	10	Yes	FACU
2. *Hirschfeldia incana*	5	Yes	Not Listed
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 80 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	7	x 3 =	21
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	32 (A)		106 (B)

Prevalence Index = B/A = 3.31

Hydrophytic Vegetation Indicators:

- [•] Dominance Test is >50%
- [•] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks: The sample point habitat area is mostly unvegetated as it appears the area is slowly becoming invaded by upland vegetation. Area is dominated with a mixture of wetland and upland vegetation.

SOIL

Sampling Point: HV-20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/2	98	10 YR 4/6	2	C	M	Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: The sample soil pit has potentially relic soils from historic ponding. The area does not meet for a hydric soil indicators were observed within the soil sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No primary nor secondary indicators for wetland hydrology were observed within the sample area. The sample area is located within an old pond. Riparian vegetation occur near the edge of the ponds that are lower in elevation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-21

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Basin | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33.963340 | Long: -117.488757 | Datum: NAD 1963

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Emergent Wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	50	Yes	FACW
2.			
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	40	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	40 %		
Herb Stratum			
1. *Conium maculatum*	5	Yes	FACW
2. *Lepidium latifolium*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	10 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	55	x 2 =	110
FAC species	45	x 3 =	135
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		245 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: The sample point habitat area was dominated with with FACW and FAC vegetation.

SOIL

Sampling Point: HV-21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 5/1	98	7.5 YR 5/8	2	C	M	Loamy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Redox concentrations were observed within the soil sample and the requirements for the depleted matrix indicator were met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: One primary and one secondary indicator for wetland hydrology were observed within the sample area.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Upper SAR- Hidden Valley | City/County: Riverside County | Sampling Date: 8/22/17

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: HV-22

Investigator(s): L. Cervantes, L. Woolley | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Bank near pond | Local relief (concave, convex, none): convex | Slope (%): 40

Subregion (LRR): C - Mediterranean California | Lat: 33.963340 | Long: -117.488757 | Datum: NAD 1963

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Emergent Wetl

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Sample point taken approximately 5 feet higher in elevation from HV-21.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Nicotiana glauca*	5	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Conium maculatum*	30	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 70 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	35 (A)		75 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: The sample point habitat area was dominated with with FACW and FAC vegetation. Sample taken near top of hillslope of basin area.

SOIL

Sampling Point: HV-22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
N/A								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compact Soils

Depth (inches): constructed berm

Hydric Soil Present? Yes ○ No ◉

Remarks: No sample pit was dug due to the compact soils on the constructed berm. Soils are fill material and no hydrology observed within this area. Therefore, this area is no assumed hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No primary nor secondary indicators for wetland hydrology were observed within the sample area.

Lower Hole Creek Site Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lower Hole Creek | City/County: Riverside | Sampling Date: 10/30/2018

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HC-1

Investigator(s): Team 1; L. Cervantes | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'41.20"N | Long: 117°28'1.36"W | Datum: WGS-84

Soil Map Unit Name: Terrace escarpments | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Vegetation data re-taken 10/30/2018 to document current conditions as the site is a recently restored flood plain. Area is a large sandbar in delta/Santa Ana River floodplain that is now well-established with wetland vegetation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Populus fremontii (sapling)*	20	Yes	FAC
2. *Baccharis salicifolia*	15	Yes	FAC
3. *Salix exigua*	10	Yes	FACW
4.			
5.			
Total Cover:	45 %		
Herb Stratum			
1. *Melilotus albus*	25	Yes	FACU
2. *Erigeron canadensis*	10	Yes	FACU
3. *Ambrosia acanthacarpa*	5	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	40 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	35	x 3 =	105
FACU species	35	x 4 =	140
UPL species	5	x 5 =	25
Column Totals:	85 (A)		290 (B)

Prevalence Index = B/A = 3.41

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Wetland vegetation sapling trees have established well within this area. Low percentage of herbaceous vegetation.

SOIL

Sampling Point: SP HC-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/2	100					Sandy loam	
9-16	10YR 4/2	70	7YR 4/6	30	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lower Hole Creek | City/County: Riverside | Sampling Date: 8/9/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HC-2

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): River/stream bank | Local relief (concave, convex, none): concave | Slope (%): <1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'40.98"N | Long: 117°28'1.30"W | Datum: WGS-84

Soil Map Unit Name: Terrace escarpments | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sample point at edge of OHWM.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Salix gooddingii*	10	Yes	FACW
2. *Tamarix rassimossa*	5	Yes	FAC
3. *Baccharis salicifolia*	5	Yes	FAC
4. *Salix lasiondra*	10	Yes	FACW
5. *Periscaria lapithfolia*	5	No	FACW
Total Cover:	35 %		
Herb Stratum			
1. *Cyperus eragrostis*	5	No	FACW
2. *Polypogon monospeliensis*	2	No	FACW
3. *Leptochloa uninerva*	2	No	FACW
4. *Veronica anagallis- aquatica*	4	No	OBL
5. *Echinochloa crus-gali*	2	No	FACW
6. *Melilotus albus*	15	Yes	FACU
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	x 1 =	4
FACW species	36	x 2 =	72
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species		x 5 =	0
Column Totals:	65 (A)		166 (B)

Prevalence Index = B/A = 2.55

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HC-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	5Y 3/1	85	7.5YR 4/6	15	C	M	Silty loam	
8-16	5Y 3/1	100					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lower Hole Creek | City/County: Riverside | Sampling Date: 8/9/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HC-3

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Sandbar | Local relief (concave, convex, none): convex | Slope (%): <1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'34.20"N | Long: 117°27'51.23"W | Datum: WGS-84

Soil Map Unit Name: Terrace escarpments | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	40	Yes	FACW
2.			
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Fraxinus dipetela*	10	Yes	Not Listed
2. *Ailanthus altissima*	5	Yes	FACU
3. *Baccharis salicifolia*	5	Yes	FAC
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Pipatherum miliaceum*	7	No	Not Listed
2. *Ricinus communis*	10	Yes	FACU
3. *Xanthium strumarium*	10	Yes	FAC
4. *Arundo donax*	10	Yes	FACW
5.			
6.			
7.			
8.			
Total Cover:	37 %		
Woody Vine Stratum			
1. *Vitis girdiana*	35	Yes	FAC
2.			
Total Cover:	35 %		

% Bare Ground in Herb Stratum 45 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	50	x 2 =	100
FAC species	50	x 3 =	150
FACU species	15	x 4 =	60
UPL species	17	x 5 =	85
Column Totals:	132 (A)		395 (B)

Prevalence Index = B/A = 2.99

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP HC-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sand	
4-9	5Y 3/1	95	7.5Y 4/6	5	C	M	Sandy loamy clay	
9-16	Gley 1 N2.5/-	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Lower Hole Creek | City/County: Riverside | Sampling Date: 8/9/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP HC-4

Investigator(s): Team 1 | Section, Township, Range: Unefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 3

Subregion (LRR): C - Mediterranean California | Lat: 33°57'33.82"N | Long: 117°27'51.39"W | Datum: WGS-84

Soil Map Unit Name: Terrace escarpments | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	25	Yes	FACW
2. *Fraxinus dipetela*	35	Yes	Not Listed
3. *Washingtonia Robusta*	10	No	FACW
4.			
Total Cover:	70 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Piptatherum miliaceum*	20	Yes	Not Listed
2. *Ricinus communis*	2	No	FACU
3. *Arundo donax*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	27 %		
Woody Vine Stratum			
1. *Vitis girdiana*	35	Yes	FAC
2.			
Total Cover:	35 %		

% Bare Ground in Herb Stratum 60 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	40	x 2 =	80
FAC species	35	x 3 =	105
FACU species	2	x 4 =	8
UPL species	55	x 5 =	275
Column Totals:	132 (A)		468 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: SP HC-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16+	10YR 3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Located within OHWM.

Anza Drain/Old Farm Road Site Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road City/County: Riverside Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD State: CA Sampling Point: SP ADFR-1

Investigator(s): Team 2 Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33°58'6.30"N Long: 117°25'49.97"W Datum: WGS-84

Soil Map Unit Name: Dello loamy sand NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	45	Yes	FAC
2. *Salix Lasiolepis*	45	Yes	FACW
3.			
4.			
Total Cover:	90 %		
Sapling/Shrub Stratum			
1. *Artemisia Californica*	5	Yes	Not Listed
2. *Baccharis Salicifolia*	5	Yes	FAC
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Phacelia Ramosissima*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	45	x 2 =	90
FAC species	50	x 3 =	150
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	120 (A)		345 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-26	7.5YR 3/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-2

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain (outer) | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'3.05"N | Long: 117°25'53.12"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sample Point within OHWM of the Santa Ana River.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	60	Yes	FACW
2.			
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1. *Salix exigua*	5	Yes	FACW
2. *Baccharis salicifolia*	30	Yes	FAC
3.			
4.			
5.			
Total Cover:	35 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis Girdiana*	40	Yes	FAC
2.			
Total Cover:	40 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	65	x 2 =	130
FAC species	70	x 3 =	210
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	135 (A)		340 (B)

Prevalence Index = B/A = 2.52

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	10YR 5/6	5	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Can only dig to 6 in. due to root obstruction

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wracks prevalent

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-3

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain (outer) | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'2.90"N | Long: 117°25'51.88"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	40	Yes	FACW
2. *Populus deltoides*	20	Yes	FAC
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1. *Artemesia californica*	20	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Phacelia ramosissima*	80	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	40	x 2 =	80
FAC species	20	x 3 =	60
FACU species	80	x 4 =	320
UPL species	20	x 5 =	100
Column Totals:	160 (A)		560 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- [●] Dominance Test is >50%
- [●] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Upland area, some hydrophytic veg. present, but does not meet veg.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: All sand, difficult to dig deeper because sand would cave into pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No rack or sign of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-4

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): edge of creek | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'1.21"N | Long: 117°25'50.71"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: No data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	60	Yes	FACW
2.			
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1. *Salix lasiolepis*	5	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Urtica dioica*	10	Yes	FAC
2. *Persicaria lapathifolia*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum			
1. *Vitis girdiana*	5	Yes	FAC
2.			
Total Cover:	5 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	70	x 2 =	140
FAC species	15	x 3 =	45
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	85 (A)		185 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 5/1	80	5YR 3/4	20	C	M	Loamy clay	
7-24	10YR 2/1	100					Loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 7+"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample plot ~5' from creek edge.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-5

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'1.29"N | Long: 117°25'51.66"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: No Data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acacia sp.*	10	Yes	UPL
2.			
3.			
4.			
Total Cover:	10 %		
Sapling/Shrub Stratum			
1. *Nicotiana glauca*	5	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Datura stramonium*	5	No	UPL
2. *Bromus diandrus*	20	Yes	UPL
3. *Hordeum vulgare*	25	Yes	UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	65 (A)		315 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/6	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Yes (riprap)

Depth (inches): 16"

Hydric Soil Present? Yes ○ No ◉

Remarks: Area did not support redox features or any indicators of hysdric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: no wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-6

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°58'0.15"N | Long: 117°25'46.18"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Taken within drainage, steep slopes, veg. along banks

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	15	Yes	FAC
2. *Washingtonia Californica*	5	Yes	FACW
3.			
4.			
Total Cover:	20 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Artemisia californica*	5	Yes	Not Listed
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5 %		
Woody Vine Stratum			
1. *Vitis Girdiana*	40	Yes	FAC
2.			
Total Cover:	40 %		

% Bare Ground in Herb Stratum: % | % Cover of Biotic Crust: %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	55	x 3 =	165
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	65 (A)		200 (B)

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Flowing water 1 ft. deep, no pit taken. Soils are hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	12 in.
Water Table Present?	Yes ◉	No ○	Depth (inches):	At surface
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	At surface

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-7

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'0.48"N | Long: 117°25'46.20"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Phoenix dactylifera*	5	Yes	FAC
2. *Washingtonia Californica*	5	Yes	FACW
3. *Salix laevigata*	5	Yes	FACW
4.			
Total Cover:	15 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Conyza sp*	5	Yes	Not Listed
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5 %		
Woody Vine Stratum			
1. *Vitis Girdiana*	60	Yes	FAC
2.			
Total Cover:	60 %		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	65	x 3 =	195
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	80 (A)		240 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/2	100					Loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox or hydric soil indicators observed within this area.
Sample point taken once redox was no longer observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland hydrology, sample point taken about 8ft. higher in elevation from wetland sample point.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-8

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'59.00"N | Long: 117°25'31.03"W | Datum: WGS-84

Soil Map Unit Name: Delhi fine sand | NWI classification: Freshwater Emergent Wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	5	Yes	FAC
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Distichlis spicata*	75	Yes	FAC
2. *Polypogon monspeliensis*	5	No	FACW
3. *Hirschfeldia incana*	1	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	81 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	90	x 3 =	270
FACU species		x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	96 (A)		285 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Loamy Clay	
7-18	10YR 3/1	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrological indicators; Sample point within terrace adjacent to drainage.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-9

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'56.10"N | Long: 117°25'32.31"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	20	Yes	FACW
2. *Salix lasiolepis*	20	Yes	FACW
3. *Phoenix dactylifera*	5	No	Not Listed
4.			
Total Cover:	45 %		
Sapling/Shrub Stratum			
1. *Baccharis salina*	30	Yes	FAC
2. *Salix exigua*	10	No	FACW
3. *Baccharis salicina*	30	Yes	FACW
4.			
5.			
Total Cover:	70 %		
Herb Stratum			
1. *Anemopsis californica*	80	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1. *Vitis girdiana*	20	Yes	FAC
2.			
Total Cover:	20 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	80	x 2 =	160
FAC species	50	x 3 =	150
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	215 (A)		415 (B)

Prevalence Index = B/A = 1.93

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	95	10YR 6/8	5	D	M	Loamy Clay	
8-20	10YR 3/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Redox in top layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Some saturation at surface soils, sample location just upslope of depression with rush.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-10

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'56.46"N | Long: 117°25'32.08"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	90	Yes	FACW
2. *Nicotina glauca*	10	No	FAC
3.			
4.			
5.			
Total Cover:	100 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	50	Yes	FAC
2.			
Total Cover:	50 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	90	x 2 =	180
FAC species	60	x 3 =	180
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	150 (A)		360 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Hit refusal at 6 in, root obstruction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Upslope from wetland data point.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road City/County: Riverside Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD State: CA Sampling Point: SP ADFR-11

Investigator(s): Team 1 Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33°57'57.38"N Long: 117°25'12.42"W Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand NWI classification: No Data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Indicators that area has burned in past present. No paired "IN" pit due to dense veg. preventing access further into drainage.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	40	Yes	FACW
2. *Populus deltoides*	10	No	FAC
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Rosa californica*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Ambrosia psilostachya*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	25 %		
Woody Vine Stratum			
1. *Vitis girdiana*	10	Yes	FAC
2.			
Total Cover:	10 %		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	40	x 2 =	80
FAC species	30	x 3 =	90
FACU species	25	x 4 =	100
UPL species		x 5 =	0
Column Totals:	95 (A)		270 (B)

Prevalence Index = B/A = 2.84

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 4/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-12

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain- compacted land | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): C - Mediterranean California | Lat: 33°57'56.55"N | Long: 117°25'12.22"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: No Data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix exigua*	60	Yes	FACW
2.			
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1. *Melilotus albus*	50	Yes	FACU
2.			
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Lepidium latifolium*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	60	x 2 =	120
FAC species	20	x 3 =	60
FACU species	50	x 4 =	200
UPL species		x 5 =	0
Column Totals:	130 (A)		380 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	80	7.5YR 5/8	20	C	M	Loamy clay	
3-18	10YR 2/1	70	7.5YR 4/6	30	C	M	Loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: 2 layers, sample pit in road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☒ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Some salt crust present around soil pit.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-13

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): flood plain terrace | Local relief (concave, convex, none): flat | Slope (%): <1

Subregion (LRR): C - Mediterranean California | Lat: 33°58'5.58"N | Long: 117°25'1.59"W | Datum: WGS-84

Soil Map Unit Name: Dello fine loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Out pit.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix exigua*	5	Yes	FACW
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *Rosa californica*	45	Yes	FAC
2. *Baccharis salicina*	20	Yes	FACW
3.			
4.			
5.			
Total Cover:	65 %		
Herb Stratum			
1. *Ambrosia psilostachya*	5	Yes	FACU
2. *Anemopsis californica*	10	Yes	OBL
3. *Melilotus albus*	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	25	x 2 =	50
FAC species	45	x 3 =	135
FACU species	10	x 4 =	40
UPL species		x 5 =	0
Column Totals:	90 (A)		235 (B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	99	10YR 5/6	1	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators above 12". More redox present below 16".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No additional hydrology indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-14

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): low area | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'3.89"N | Long: 117°24'53.10"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: No Data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Test pit taken at edge of Baccharis/ Anemopsis stands, just within Baccharis zone.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	40	Yes	FAC
2. *Pluchea sericea*	10	Yes	FACW
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Anemopsis californica*	40	Yes	OBL
2. *Distichlis spicata*	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	41 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	10	x 2 =	20
FAC species	41	x 3 =	123
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	91 (A)		183 (B)

Prevalence Index = B/A = 2.01

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: No additional comments.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20+	10YR 4/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-15

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): low area | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'4.21"N | Long: 117°24'53.50"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Test pit with Anemopsis stand surrounded by Baccharis stand. Lower depression than surrounding area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Anemopsis californica*	75	Yes	OBL
2. *Ambrosia psilostachya*	15	No	FACU
3. *Distichlis spicata*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species		x 5 =	0
Column Totals:	95 (A)		150 (B)

Prevalence Index = B/A = 1.58

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.5	10YR 2/1	100					Loam	
0.5-7	10YR 4/2	90	10YR 4/6	10	C	M	Sandy loam	
7-18+	10YR 4/2	90	10YR 4/6	10	C	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: 0-0.5" layer has high component of organic material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Drainage pattern = slight depression.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-16

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): low flow channel | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRR): C - Mediterranean California | Lat: 33°58'11.93"N | Long: 117°24'48.16"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Within drainage, on upstream section of willow/riparian stand.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	60	Yes	FACW
2. *Salix lasiolepis*	5	Yes	FACW
3.			
4.			
Total Cover:	65 %		
Sapling/Shrub Stratum			
1. *Arundo donax*	1	Yes	FACU
2. *Ficus carica*	1	Yes	FACU
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	30	Yes	FAC
2.			
Total Cover:	30 %		

% Bare Ground in Herb Stratum 20 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	65	x 2 =	130
FAC species	30	x 3 =	90
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	97 (A)		228 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Closed canopy lacking herb stratum.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	90	7.5YR 4/6	10	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Multiple low flow channels within wetland area.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-17

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Low flow channel | Local relief (concave, convex, none): convex | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'12.07"N | Long: 117°24'46.80"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: No Data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Vegetation has more tree of heaven and less canopy cover.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ailanthus altissima*	30	Yes	FACU
2. *Ficus carica*	10	Yes	FACU
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Salix lasiolepis*	15	Yes	FACW
2. *Salix gooddingii*	30	Yes	FACW
3.			
4.			
5.			
Total Cover:	45 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	40	Yes	FAC
2. *Rubus armeniacus*	30	Yes	FAC
Total Cover:	70 %		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	45	x 2 =	90
FAC species	70	x 3 =	210
FACU species	40	x 4 =	160
UPL species		x 5 =	0
Column Totals:	155 (A)		460 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: No herb stratum present.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-18

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): low flow channel | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'10.52"N | Long: 117°24'53.85"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	20	Yes	FACW
2. *Salix gooddingii*	10	Yes	FACW
3.			
4.			
Total Cover:	30 %		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	20	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Distichlis spicata*	70	Yes	FAC
2. *Anemopsis californica*	25	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1. *Vitis girdiana*	20	Yes	FAC
2.			
Total Cover:	20 %		

% Bare Ground in Herb Stratum ~5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	50	x 2 =	100
FAC species	90	x 3 =	270
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	165 (A)		395 (B)

Prevalence Index = B/A = 2.39

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-25	10YR 4/1	90	5YR 4/6	10	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Area supported a depleted matrix. Redox found throughout matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-19

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): low terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'10.15"N | Long: 117°24'52.99"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Although the area supports wetland vegetation (as with the majority of the site), the area did not support wetland hydrology or hydric soils.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Distichlis spicata*	80	Yes	FAC
2. *Anemopsis californica*	18	No	OBL
3. *Heliotropium curassavicum*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	18	x 1 =	18
FACW species		x 2 =	0
FAC species	80	x 3 =	240
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	100 (A)		266 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-25	10YR 4/3	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox was observed within this area. Area did not support hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point upland, no indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-20

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'10.26"N | Long: 117°25'0.44"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Arrow weed stand, no drainage pattern associated with this area to indicate that this area flows.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Pluchea sericea*	50	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Croton californica*	10	No	Not Listed
2. *Distichlis spicata*	80	Yes	FAC
3. *Phacelia ramosissima*	4	No	FACU
4. *Stephanomeria*	1	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 2 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	50	x 2 =	100
FAC species	80	x 3 =	240
FACU species	4	x 4 =	16
UPL species	11	x 5 =	55
Column Totals:	145 (A)		411 (B)

Prevalence Index = B/A = 2.83

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-25	10YR 4/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox or other hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-21

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'6.95"N | Long: 117°24'38.29"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: No Data

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Ditch, has some small pockets of wetland, however mostly nonwetland water.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Washingtonia robusta*	25	Yes	FACW
2.			
3.			
4.			
Total Cover:	25 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bassia hyssopifolia*	15	Yes	FACU
2. *Cyperus eragrostis*	25	Yes	FACW
3. *Melilotus albus*	5	No	FACU
4. *Echinochloa crus-galli*	10	Yes	FACW
5. *Polypogon monspeliensis*	2	No	FACW
6.			
7.			
8.			
Total Cover:	57 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	62	x 2 =	124
FAC species		x 3 =	0
FACU species	20	x 4 =	80
UPL species		x 5 =	0
Column Totals:	82 (A)		204 (B)

Prevalence Index = B/A = 2.49

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y 4/1	100					Sandy loam	
14-16	2.5Y 5/1	70	2.5Y 5/6	30	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point in ditch, no wetland indicators observed other than FAC- neutral test.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-22

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'9.43"N | Long: 117°24'55.37"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	35	Yes	FACW
2. *Populus deltoides*	15	Yes	FAC
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	20	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Bromus madritensis*	5	No	UPL
2. *Distichlis spicata*	40	Yes	FAC
3. *Croton californica*	2	No	Not Listed
4.			
5.			
6.			
7.			
8.			
Total Cover:	47 %		
Woody Vine Stratum			
1. *Vitis girdiana*	20	Yes	FAC
2.			
Total Cover:	20 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	55	x 2 =	110
FAC species	75	x 3 =	225
FACU species		x 4 =	0
UPL species	7	x 5 =	35
Column Totals:	137 (A)		370 (B)

Prevalence Index = B/A = 2.70

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					sandy loam	
10-14+	2.5Y 4/2	70	2.5Y 4/3	30	C	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Almost meets for F3 but redox/matrix contrast is faint. Redox is +/- diffuse throughout 10-14+ layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland hydrology indicators observed.

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-23

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): low area | Local relief (concave, convex, none): flat | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°58'9.01"N | Long: 117°24'55.52"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: No distinct OHWM however, there is a clear distinction between upland and wetland based on vegetation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	45	Yes	FACW
2.			
3.			
4.			
Total Cover:	45 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	15	Yes	FAC
2. *Rubus ursinis*	5	Yes	FAC
Total Cover:	20 %		

% Bare Ground in Herb Stratum: % | % Cover of Biotic Crust: %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	45	x 2 =	90
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	65 (A)		150 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: A lot of leaf litter.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Sandy loam	
4-8	10YR 3/1	100					Sandy loam	
8-16	10YR 4/2	85	7.5YR 4/6	15	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology indicators +/- weak however, hydrology assumed due to landscape position and obvious change in composition/ cover.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/ Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-24

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'11.88"N | Long: 117°24'59.66"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	30	Yes	FACW
2. *Populus deltoides*	30	Yes	FAC
3. *Fraxinus velutina*	10	Yes	FAC
4. *Sambucus nigra*	5	No	FACU
Total Cover:	75 %		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	5	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Distichlis spicata*	40	Yes	FAC
2. *Ambrosia psilostachya*	60	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *Vitis girdiana*	40	Yes	FAC
2.			
Total Cover:	40 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	35	x 2 =	70
FAC species	120	x 3 =	360
FACU species	65	x 4 =	260
UPL species		x 5 =	0
Column Totals:	220 (A)		690 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Location upland of test 5, ~5ft. higher in elevation.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-26	10YR 4/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road City/County: Riverside Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD State: CA Sampling Point: SP ADFR-25

Investigator(s): Team 1 Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33°58'12.49"N Long: 117°24'58.92"W Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	55	Yes	FACW
2. *Populus deltoides*	20	Yes	FAC
3.			
4.			
Total Cover:	75 %		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	30	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	30 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	15	Yes	FAC
2.			
Total Cover:	15 %		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	85	x 2 =	170
FAC species	35	x 3 =	105
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	120 (A)		275 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Unknown ORN tree not included in veg. strata.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Organics	
1-8	10YR 4/2	100					Sandy Loam	
8-17	10YR 5/2	85	10YR 5/8	15	D	M	Sandy Loam	Redox at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Area supported a depleted matrix. Redox found at eight inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology assumed due to landscape position, hydric soils and wetland vegetation present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-26

Investigator(s): Team 1 | Section, Township, Range: undefined

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'10.26"N | Long: 117°25'0.44"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Freshwater forested/shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	80	Yes	FACW
2. *Salix lutea*	20	Yes	OBL
3.			
4.			
Total Cover:	100%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	20	Yes	FAC
2.			
Total Cover:	20 %		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	80	x 2 =	160
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	120 (A)		240 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	100					Sandy Loam	
8-11	10YR 3/2	97	5YR 4/6	3	C	M	Clay	
11-30	10YR 6/2	80	10YR 5/6	20	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Sample point in low point drainage and supported redox at 8 inches and deeper.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point within drainage at the toe of slope, obvious bank.

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/1/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-27

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): River bottom | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'25.59"N | Long: 117°25'6.11"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sample point adjacent to low flow; Sandy floodplain.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Salix gooddingii*	20	Yes	FACW
2. *Tamarix ramossima*	20	Yes	FAC
3. *Baccharis salicifolia*	25	Yes	FAC
4.			
5.			
Total Cover:	65 %		
Herb Stratum			
1. *Melilotus albus*	5	Yes	FACU
2. *Nasturtium officinale*	5	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	10 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 25 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	20	x 2 =	40
FAC species	45	x 3 =	135
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	75 (A)		200 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/1	70	7.5YR 4/4	30	C	M	Sand	
2-16+	10YR 5/1	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Area met for Depleted Matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 4"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-28

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'12.02"N | Long: 117°25'21.35"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy fine sand | NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	40	Yes	FACW
2.			
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Nicotiana gluaca*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	80	Yes	FAC
2.			
Total Cover:	80 %		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	40	x 2 =	80
FAC species	90	x 3 =	270
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	130 (A)		350 (B)

Prevalence Index = B/A = 2.69

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: No herb stratum present.

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
25+	10YR 4/2	100					Fine Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrological indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-29

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'51.52"N | Long: 117°25'35.62"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicina*	40	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	40 %		
Herb Stratum			
1. *Urtica dioica*	10	No	FAC
2. *Conium maculatum*	90	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *Vitis girdiana*	30	Yes	FAC
2.			
Total Cover:	30 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	130	x 2 =	260
FAC species	40	x 3 =	120
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	170 (A)		380 (B)

Prevalence Index = B/A = 2.24

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Could not dig past 6 in. due to rip rap and fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrological indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/3/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-30

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Drainage Floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°57'52.05"N | Long: 117°25'35.50"W | Datum: WGS-84

Soil Map Unit Name: Grangeville fine sandy loam | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	40	Yes	FACW
2. *Salix laevigata*	40	Yes	FACW
3.			
4.			
Total Cover:	80 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Arundo donax*	20	Yes	FACW
2. *Cyperus sp.*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	25 %		
Woody Vine Stratum			
1. *Vitis girdiana*	30	Yes	FAC
2.			
Total Cover:	30 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	105	x 2 =	210
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	135 (A)		300 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					Loamy clay	
8-12	10YR 2/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: 4" saturation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 4"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 4" saturation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-31

Investigator(s): Team 1 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): In drainage | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 33°58'11.61"N | Long: 117°25'12.14"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	20	Yes	FACW
2. *Salix gooddingii*	20	Yes	FACW
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Melilotus albus*	2	Yes	FACU
2.			
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1. *Baccharis salicina*	5	Yes	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5 %		
Woody Vine Stratum			
1. *Vitis girdiana*	80	Yes	FAC
2.			
Total Cover:	80 %		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	40	x 2 =	80
FAC species	80	x 3 =	240
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	122 (A)		328 (B)

Prevalence Index = B/A = 2.69

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Sandy loamy clay	
6-8	Gley 1 4/5GY	100					Sandy loam	
8-12	5Y 3/1	100					Sandy loamy clay	mixed with gley sand from 6-8"
12-24	Gley 1 4/5GY	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 12"
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 6"

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-32

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'4.96"N | Long: 117°25'42.05"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	35	Yes	FACW
2. *Fraxinus sp.*	10	Yes	FACU
3.			
4.			
Total Cover:	45 %		
Sapling/Shrub Stratum			
1. *Salix exigua*	5	Yes	FACW
2. *Ricinus communis*	5	Yes	FACU
3.	15	Yes	FAC
4.			
5.			
Total Cover:	25 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1. *Vitis girdiana*	2	Yes	FAC
2.			
Total Cover:	2 %		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	40	x 2 =	80
FAC species	17	x 3 =	51
FACU species	15	x 4 =	60
UPL species		x 5 =	0
Column Totals:	72 (A)		191 (B)

Prevalence Index = B/A = 2.65

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/1	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Sandbar recently deposited, problem soils sand bar

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Anza Drain/Old Farm Road | City/County: Riverside County | Sampling Date: 8/2/2016

Applicant/Owner: San Bernardino Valley MWD | State: CA | Sampling Point: SP ADFR-33

Investigator(s): Team 2 | Section, Township, Range: Undefined

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 33°58'4.72"N | Long: 117°25'41.86"W | Datum: WGS-84

Soil Map Unit Name: Dello loamy sand | NWI classification: Freshwater Forested/Shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	5	Yes	FAC
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Bromus Diandrus*	95	Yes	Not Listed
2. *Heterotheca grandiflora*	5	No	Not Listed
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species		x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	115 (A)		545 (B)

Prevalence Index = B/A = 4.74

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: SP ADFR

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/1	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Outside of ordinary high, not deposited from stream

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators, upslope from ordinary high water mark

US Army Corps of Engineers

Appendix E

Focused Surveys for Rare Plants

December 2, 2022

Matt Romero
Senior Associate
Studio MLA
251 South Mission Road
Los Angeles, CA 90033

Subject: **Rare Plant Focused Survey Results in Support of the City of Riverside Gateway Project, in Riverside County, California**

Dear Mr. Romero:

This report documents the findings of a focused survey effort to determine the presence or absence of sensitive and rare plant species in support of the Riverside Gateway Project (Project) proposed by the City of Riverside Parks, Recreation, and Community Services Department (PRCSD) in the City of Riverside (City), Riverside County, California. This effort was performed under the survey guidelines of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), as implemented by the City. Portions of the Project fall within the MSHCP narrow-endemic plant survey area. ICF biologists performed focused surveys in April 2022.

Project Description

The Project involves a multidisciplinary effort for the planning, design, engineering, and associated community outreach and environmental compliance for California Environmental Quality Act (CEQA) review for nine identified park sites in the City, in Riverside County, California. The Santa Ana River Trail, adjacent to the Santa Ana River, is completed throughout its length in the City. After completing the 2018 update to the *Citywide Parks System Master Plan*, the PRCSD proposes to complete planning and design for improvements and enhancement to existing and proposed park areas located along the Santa Ana River and the 4.7 miles of the Santa Ana River Parkway from Fairmount Park to Martha McLean Anza Narrows Park. These park sites were initially identified as part of the planning process in development of the *Santa Ana River Parkway and Open Space Plan* completed in 2018. Development of these park sites would comply with the City's overarching goal to "put the river back into Riverside" by providing diverse recreational and educational opportunities, access to open space, and restoration of natural habitat for people and wildlife.

The entire 11-mile northern edge of the City fronts the Santa Ana River. In Riverside, the Santa Ana River is a juxtaposition of a natural and scenic riparian corridor running through an urban setting. The Santa Ana River is a vital resource in the City, and it supports several important functions for the City, including providing natural habitat that serves wildlife, recharging the groundwater basin that supplies water to residences and businesses, and providing recreational opportunities to

connect people to natural resources. There is also a need to provide no-cost and low-cost parks and recreational resources, open space access, and active transportation resources to support the disadvantaged communities identified near the project area in the City.

Conceptual improvement and engagement opportunities have been identified for each of the nine individual park sites, including, but not limited to, habitat conservation areas, woodland restoration, parking lots, an amphitheater, restroom and drinking water facilities, nature trails, active recreation and exercise stations, passive park amenities, camping, picnic areas, community garden and incubator farm, vista points, public art, interpretive and wayfinding signage, landscaping, irrigation, lighting, shade enhancements, equestrian facilities, and bicycle repair station and bike racks, among others. The nine park sites in the City are (1) Camp Evans; (2) Loring Park; (3) Carlson Park; (4) St. Francis Falls; (5) Santa Ana River Greenway; (6) Tequesquite Extension North; (7) Tequesquite Extension South; (8) Martha McLean Anza Narrows Park; and (9) Jurupa Avenue Trailhead, shown on Figure 2 (Appendix A).

The Project is a forward-looking proposal to recover, reconceive and re-engage with the Santa Ana River to deliver ecological, recreational, cultural, social, and economic value to the City's inhabitants. The Project is funded by a grant provided by the State Coastal Conservancy, a California state agency established in 1976 to protect and improve natural lands and waterways, help people get to and enjoy the outdoors, and sustain local economies along California's coast. The State Coastal Conservancy acts with others to protect, restore, and increase public access to California's coast, ocean, coastal watersheds, and the San Francisco Bay Area. Its vision is of a beautiful, restored, and accessible coast for current and future generations of Californians.

Location

The project is along the southern side of the Santa Ana River floodplain in the City, in Riverside County, California, as shown on Figure 2 (Appendix A). The Project occurs within the Cities of Riverside/Norco Area Plan and Jurupa Area Plan of the MSHCP. Portions of the Anza Creek/Old Ranch Creek and Lower Hole Creek sites are within the MSHCP Area Plan Subunits (SU) *SU1-Santa Ana River South, Cities of Riverside/Norco Area Plan* and *SU1-Santa Ana River North, Jurupa Area Plan* within Criteria Cells 187, 443, 534, 617, and 621 (Figure 2). Also shown on Figure 2, the Project overlaps with MSHCP Public/Quasi-Public Conserved Lands, which comprise a subset of the MSHCP Conservation Area identified for open space value and contribute to the conservation of Covered Species. The project sites are also within the MSHCP Existing Core A and Core Linkage area. Portions of the Project occur within the MSHCP Narrow Endemic Plant Species Survey Area for San Diego ambrosia (*Ambrosia pumila*), Brand's star phacelia (*Phacelia stellaris*), and San Miguel savory (*Clinopodium chandleri*).

Survey Areas

The rare plant survey areas include all portions of the project limits and 50-foot buffer for six of the nine park sites: Camp Evans, Loring Park, Santa Ana River Greenway, Tequesquite Extension North, Tequesquite Extension South, and Jurupa Avenue Trailhead. The remaining three park sites (Carlson Park, Martha McLean Anza Narrows Park, and St. Francis Falls), consist primarily of ornamental

landscape and development and were determined to have no suitable habitat to support rare plant species known from the region; therefore, focus surveys were not conducted at those three locations.

The survey area includes a variety of natural vegetation communities, many of which are riparian shrublands, forests and woodlands as well as ruderal and developed land covers. Descriptions of each vegetation community found within the survey areas are provided in the vegetation section below.

Vegetation

The vegetation communities identified in the survey areas are described below and illustrated on Figures 3a through 3d in Attachment A. The vegetation communities are classified using the plant community definitions provided by *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) and revised by Oberbauer et al (2008). However, vegetation communities encountered that were not accurately described by the Holland classification system were characterized by the California Native Plant Society (CNPS) *Manual California of Vegetation* (MCVCNPS 2022).

Arrow Weed Scrub

Arrow weed scrub is a dense riparian shrub community dominated or co-dominated by arrow weed (*Pluchea sericea*), with associated species present, such as mulefat (*Baccharis salicifolia*), sandbar willow (*Salix exigua*), quail bush (*Atriplex lentiformis*), coyote bush (*Baccharis pilularis*), and arroyo willow (*Salix lasiolepis*). The shrub cover is variable, typically less than 3 meters in height, and emergent trees may be present at low cover. Within the project area, this community is characterized by dense, monotypic stands of arrow weed. The understory is typically bare to sparsely populated with nonnative grasses and mustards; however, saltgrass (*Distichlis spicata*) dominates the herbaceous portions of this community within the Santa Ana River Greenway.

Mulefat Scrub

Mulefat scrub is typically a dense, riparian shrub community dominated or co-dominated by mulefat. Within the project area, this community is strongly dominated by mulefat and varied from open canopy between dense patches of mulefat to densely closed shrub cover reaching heights of 3 meters. Associated species found in this community include arroyo willow, mugwort (*Artemisia douglasiana*), wild tarragon (*Artemisia dracunculus*), toyon (*Heteromeles arbutifolia*), and elderberry (*Sambucus nigra*). Disturbed mulefat within the project area has a generally more-open canopy and a heavily weedy herbaceous cover between patches of mulefat and other native shrubs and trees.

Southern Arroyo Willow Riparian Forest

Southern arroyo willow riparian forest is a dense growth of broadleaf, winter-deciduous riparian species dominated or co-dominated by arroyo willow. Within the project area, arroyo willow is the dominant species, but associated shrubs and trees, such as sandbar willow, mulefat, red willow

(*Salix laevigata*), and elderberry, are present. The tall shrub canopy is intermittent to closed, reaching heights of 4 to 6 meters. The low shrub layer is predominantly sparse and includes mugwort and wild tarragon. The herbaceous understory is also predominantly sparse and composed of ragweeds (*Ambrosia psilostachya/acanthicarpa*), nonnative grasses and mustards. This community only occurs within a small portion of the Santa Ana River Greenway project area.

Southern Coastal Live Oak Riparian Forest

Southern live oak riparian forest is a stream or lake associated community dominated by dense stands of coast live oak. It is found above the willow riparian zone, and the understory is usually denser than that found under oak woodland. This community within the project area is characterized by coast live oak (*Quercus agrifolia*) being dominant or co-dominant with California black walnut (*Juglans californica;* California Native Plant Society [CNPS] California Rare Plant Rank [CRPR] 4.2) within the tree canopy and can reach heights of 8 meters. California black walnut was observed within this vegetation community in the Camp Evans project area (Figure 4b, Appendix A). Associated small trees and tall shrubs, such as elderberry, arroyo willow, mulefat, poison oak (*Toxicodendron diversilobum*), and toyon, are also present within this community, as well as nonnative tree species, such as edible ficus (*Ficus carica*), mulberry (*Morus alba*), giant reed (*Arundo donax*), Mexican fan palm (*Washingtonia robusta*), and Tree-of-Heaven (*Ailanthus altissima*). Nonnative trees are typically present at low cover, but contributed to greater cover within portions of this community; furthermore, the shrub layer may be absent or sparse due to the high level of disturbance within the understory for portions of this community. The herbaceous layer, where present, is sparse and composed primarily of native ragweed, dwarf nettle (*Urtica urens*), and nonnative grasses and mustards.

Southern Cottonwood–Willow Riparian Forest

Southern cottonwood–willow riparian forest is a dense, multi-canopy growth of broadleaf, winter-deciduous riparian trees and shrub species dominated or co-dominated by Fremont cottonwood (*Populus fremontii*) within the tree layer. Within the project area, this community is often a highly disturbed community consisting of a codominant alliance of Fremont cottonwood and Goodding's willow (*Salix gooddingii*) that can reach heights of up to 20 meters. Associated native tree species within this vegetation community include species such as red willow, coast live oak, and arroyo willow. The shrub layer is intermittent to continuous and includes species such as southern California grape (*Vitis girdiana*), mugwort, mulefat, sandbar willow, poison oak, California blackberry (*Rubus ursinus*), and wild tarragon. The herbaceous understory is composed primarily of native ragweed, yerba mansa (*Anemopsis californica*), stinging nettle (*Urtica dioica*), and nonnative grasses and mustards. Due to the urban setting and past frequent fire disturbance, this community has a considerable cover of nonnative and invasive forbs and grasses, as well as perennial exotic trees and shrubs, which includes species such as Mexican fan palm, salt cedar (*Tamarix ramosissima*), giant reed, shamel ash (*Fraxinus uhdai*), pecan (*Carya illinoinensis*), and eucalyptus trees (*Eucalyptus* spp.). Furthermore, the shrub layer may be absent or sparse due to the high level of disturbance, such as in the Tequesquite South Extension portion of the project area, which lacks a developed understory of shrubs and was dominated by nonnative grasses and ruderal forbs in the herbaceous layer.

Southern Riparian Forest

Southern riparian forest is similar in structure to southern cottonwood–willow riparian forest but lacks cottonwoods within the tall tree canopy. This community is restricted to the Jurupa Avenue Trailhead portion of the project area. Southern riparian forest is highly disturbed within the project area, and willow species are co-dominant with nonnative trees, such as shamel ash, mulberry, and Mexican fan palm. The shrub layer is intermittent to continuous and includes species such as arroyo willow, mulefat, sandbar willow, and poison oak, as well as nonnative species, such as edible ficus and tobacco tree (*Nicotiana glauca*). The herbaceous understory is composed primarily of ragweed, stinging nettle, and nonnative grasses and mustards.

Southern Riparian Woodland

Southern riparian woodland is a moderately dense riparian woodland typically dominated by small trees or shrubs, with scattered taller riparian trees. Within the project area, this community has an open-to-intermittent tree canopy, and the understory is less developed compared to a riparian forest. Within the Camp Evans portion of the project area, Goodding's willow is the dominant tree species and reaches heights of 8 meters. The shrub layer is absent or nearly so, and the herbaceous layer is composed of nonnative ruderal mustards and thistles. Within the Tequesquite North Extension, this community is dominated by black elderberry and reaches heights of 4 meters, with scattered mulefat in the shrub canopy and an herbaceous layer composed of nonnative ruderal species.

Nonnative Riparian (Mexican Fan Palm Dominated)

This nonnative riparian community is dominated by Mexican fan palm. Within the project area, willows, cottonwoods, and native riparian shrubs may occur, but at very low cover within this community, or nonnative palms may occur as monospecific stands. These nonnative species are considered invasive, and cumulation of dead fronds on the ground can create a fire hazard. The herbaceous layer, where present, consists of nonnative mustards and grasses.

Nonnative Riparian (Tree-of-Heaven Dominated)

This nonnative riparian community is dominated by tree-of-heaven, a fast-growing, invasive tree whose roots emit an allelopathic poison to deter growth of neighboring trees and can form clonal monocultural stands by lateral root sprouting. Within the project area, this community is strongly dominated by Tree-of-Heaven, with associated trees, such as willows, cottonwoods, and other nonnative trees, present at very low cover or occurs as a monospecific stand of trees. The shrub layer if present, consists of scattered native and nonnative species at very low cover, and the herbaceous layer is composed of ruderal weedy species or is bare.

Disturbed Riparian (Arundo Dominated)

This nonnative riparian community is dominated by giant reed. A relative of bamboo and other grasses, giant reed is a tall, robust perennial that forms dense stands in riparian areas. Giant reed occurs as a small, dense, monospecific patch within the Jurupa Trailhead portion of the project area.

Tamarisk Scrub

Tamarisk scrub is a nonnative riparian shrub or tree community characterized by salt cedar or other *Tamarix* spp. being strongly dominant within the tall shrub or tree canopy. Tamarisk scrub occurs within the Camp Evans portion of the project area as a dense patch of athel trees (*Tamarix aphylla*) that reach 5 meters in height. This stand of athel trees is disconnected from the larger riparian corridor within the Camp Evans project area. The herbaceous layer is absent to sparse and composed of nonnative mustards and grasses.

Southern Riparian Scrub

Southern Riparian Scrub occurs along seasonally and temporarily flooded streams, levee banks, and other riparian or riparian ecotonal areas. It is typically dominated by small trees or shrubs and generally lacks taller riparian trees. Within the project area, this vegetation community is largely dominated by southern California grape, a perennial shrub that climbs on other plants and covers the ground with twisted, woody vines, trailing stems, and tendrils. Southern California grape dominated shrubland is associated with disturbed riparian habitats within the project area where it forms thick mats over scattered riparian shrubs and trees. The herbaceous layer is not present due to the dense, mat-like cover of the grape vines and leaves. Within the Camp Evans portion of the project area, a small thicket of western indigo bush (*Amorpha fruticosa*) associated with a small drainage is also defined as part of this riparian vegetation community.

Meadows and Marshes

Alkali Meadow

Alkali meadow is a dense-to-open growth of perennial grasses and sedges, composed of relatively few species, typically occurs in areas where the water table is shallow, and soils are alkaline. Within the project area, alkali meadows are strongly dominated by dense flats of saltgrass. Scattered native shrubs, such as arrow weed and mulefat, are present, but a very low cover, and associated annuals are primarily composed of nonnative grasses and ruderal forbs.

Uplands

Riversidean Alluvial Fan Sage Scrub

Riversidean alluvial fan sage scrub is a Mediterranean shrubland type that occurs in washes and on gently sloping alluvial fans throughout many drainages within western Riverside County. This community is a subset of coastal sage scrub composed predominantly of drought-deciduous, soft-

leaved shrubs. Scalebroom (*Lepidospartum squamatum*) is generally regarded as a primary indicator of this community, with associated species, such as white sage (*Salvia apiana*), redberry (*Rhamnus crocea*), Spanish bayonet (*Yucca whipplei*), California croton (*Croton californicus*), cholla (*Opuntia* spp.), wild tarragon, yerba santa (*Eriodictyon trichocalyx*), mulefat, and mountain-mahogany (*Cercocarpus betuloides*). Within the project area, this community is dominated by California croton and/or yerba santa that reach heights of 2.5 meters. The herbaceous layer is sparsely composed of native annual herbs, such as California sun cup (C*amissoniopsis bistora*), common phacelia (*Phacelia distans*), ragweeds, and Thurber eriogonum (*Eriogonum therberi)*. Federally and state-listed Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*; CNPS CRPR 1B.1) was observed within this vegetation community within the Tequesquite North Extension of the project area (Appendix A, Figure 4a). Santa Ana River woolly star are endemic to alluvial scrub vegetation in western Riverside County..

Eucalyptus Woodland

This nonnative woodland community is characterized by one or several different eucalyptus trees being dominant within the tree canopy. Within the project area, eucalyptus trees typically form monospecific stands with a continuous tree canopy reaching heights up to 40 meters. Within the project area this community has little to no shrub layer, and the herbaceous layer, where present, is sparse and primarily composed of nonnative grasses.

Fourwing Saltbush Scrub

Saltbush scrub is typically characterized as xerophytic vegetation community dominated by *Atriplex* spp. and generally associated with alkaline or saline conditions in arid environments. Fourwing saltbush is a type of saltbush scrub that can also exist as an early successional plant community within disturbed areas throughout southern California. Within the project area, this community is associated with disturbed slopes and dominated by fourwing saltbush (*Atrixplex canescens*), with little-to-no shrub diversity. The shrub canopy is open to intermittent and reaches heights of 1.5 meters, and the herbaceous layer is composed of nonnative grasses and mustards. Fourwing saltbush scrub is an MCV-defined vegetation community because this classification best characterizes the structure and composition of this vegetation community within the project area.

Nonnative Grassland

Nonnative grassland is an annual community dominated or co-dominated by any of several nonnative wild oat (*Avena* spp.) and/or annual brome (*Bromus* spp.) grass species and typically forms a continuous herbaceous cover that may reach heights of 1 meter. Within the project area, shrubs, such as California buckwheat (*Eriogonum fasciculatum*) and broom baccharis (*Baccharis sarothroides*), and native forbs, such as fiddleneck (*Amsinckia* spp.) and common phacelia, are present at very low cover. Invasive species, such as tobacco tree, Russian thistle (*Salsola tragus*), and ruderal upland mustards, are also common within this community. Within the project area, this community occurs on hillsides and terraces outside of riparian habitat.

Riversidian Coastal Sage Scrub

Riversidian sage scrub differentiates interior cismontane coastal sage scrub type from coastal forms and is the typical coastal sage type encountered in western Riverside County. This habitat type is the most xeric expression of coastal sage scrub and dominated by a characteristic suite of low-statured, aromatic, drought-deciduous shrubs and subshrub species. Characteristic species within this community include California sagebrush (*Artemisia californica*), California buckwheat, laurel sumac (*Malosma laurina*), California encelia (*Encelia californica*), and several species of sage (*Salvia* spp.). Within the Santa Ana River Greenway project area, this community is co-dominated by brittlebush and California sagebrush and also includes species found commonly in the desert, such as sweet bush (*Bebbia juncea*) and desert brickellia (*Brickellia desertorum*). Within the Jurupa Trailhead project area, this community is dominated by California buckwheat. Within both project areas, the shrub canopy is closed to intermittent and reaches heights of up to 1.25 meters. The herbaceous layer is primarily composed of nonnative grasses and mustards.

Ruderal Upland Mustards And Forbs

This ruderal herbaceous vegetation community is characterized by various invasive, annual, or biennial mustards, such as black mustard (*Brassica nigra*), small-podded mustard (*Hirschfeldia incana*), or radish (*Raphanus sativus*), and/or star thistle (*Centaurea solstitialis*/*melitensis*) or similar nonnative forbs being dominant (CNPS 2022). Within the project area, this community is typically dominated by small-podded mustard that forms a continuous herbaceous cover that reaches heights of 1 meter. Native forbs, such as fiddleneck and *Phacelia* spp., and shrubs, such as broom baccharis, mulefat, and California buckwheat, are present within this community, but at very low cover. Ruderal upland mustards and forbs is an MCV vegetation classification and would be considered a disturbed habitat according to the Holland classification.

Russian Thistle–Five Hook Bassia Fields

This ruderal herbaceous vegetation community is co-dominated by Russian thistle and five hook bassia fields (*Bassia hyssopifolia*). Scattered native trees and shrubs, such as four-wing saltbush and elderberry, are present at very low cover. Russian Thistle–Five Hook Bassia Fields is a CNPS MCV vegetation classification and would be considered a disturbed habitat according to the Holland classification.

Nonnative Woodland

Nonnative woodland comprises ornamental trees, such as pepper trees (*Schinus* spp.), ornamental pine trees (*Pinus* spp.), or Ngaio groves (*Myoporum laetum*) or other nonnative species. The tree canopy is open to continuous and may reach heights of 18 meters or taller. The shrub layer is sparse to intermittent, and the herbaceous layer is simple to diverse. Within the project area, this community is strongly dominated by pepper trees, with little diversity. The shrub layer is sparse to bare, and the herbaceous layer is sparsely composed of nonnative grasses and mustards or is bare.

Other Land Cover Types

Developed

Areas mapped as developed include paved roadways, buildings, residential housing, commercial development, golf courses, and parks, as well as landscaped areas.

Disturbed

Areas mapped as disturbed are mostly devoid of vegetation and have evidence of frequent human disturbance, such as waste areas, as well as dirt roads and areas of ground disturbance. These areas may have very sparse vegetation, typically composed of nonnative ruderal forbs or nonnative grassland species, but the cover is much reduced compared to areas mapped as ruderal vegetation types or nonnative grassland.

Open Water

Areas mapped as open water are free of vegetation and consist of typically year-round standing bodies of water. Open water exists as a small impoundment of water at the outlet end of a large box culvert at the Jurupa Avenue Trailhead project area.

Survey Methods

ICF lead botanist Shawn Johnston conducted focused surveys, assisted by ICF botanists Brian Cropper, Cole Sutter, and Jean-Luc Brullot, on April 5, 6, and 7, 2022. Resumes of the surveying botanists are provided in Attachment B.

Table 1. Rare Plant Survey Dates, Personnel, and Weather Conditions

Date	Time	Personnel	Conditions
4/6/22	0700–1530	Shawn Johnston Cole Sutter	70–96°F, winds 1–10 mph, clear, good visibility
4/7/22	0700–1545	Shawn Johnston Cole Sutter Brian Cropper	72–98°F, winds 1–12 mph, clear, good visibility
4/8/22	0630–1300	Shawn Johnston Jean-Luc Brullot	76–95°F, winds 1–6 mph, clear, good visibility

°F = degrees Fahrenheit; mph = miles per hour.

Prior to field surveys, ICF biologists conducted a literature and database review to identify the special-status plant species known to occur in the vicinity of the project area. *Sensitive plant species* are those species that have been given special recognition by federal, state, or local conservation agencies and organizations because of limited, declining, or threatened population sizes. This includes those species listed by the federal and state government as threatened or endangered, those species proposed for federal and/or state listing or candidates, those plant species found on Lists 1A, 1B, or 2 of the CNPS's Inventory of Rare and Endangered Plants of California (CNPS 2022),

and plant species found on the MSHCP Endemic Plant List. CNPS List 3 or List 4 species were included in discussions only when incidentally encountered during the field surveys.

The available data reviewed included:

- California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (2022) search of the project area and within a 1-mile radius
- CNPS *Inventory of Rare and Endangered Plants* nine-quad search centered on USGS 7.5-minute Riverside West topographic quadrangle (CNPS 2022)
- Consortium of California Herbaria online database (Consortium of California Herbaria 2022)
- Information for Planning and Consultation resource list from the U.S. Fish and Wildlife Service (USFWS 2022)
- The Calflora database (Calflora 2022)
- *The Jepson Manual, Vascular Plants of California* (Baldwin et al. 2012)
- *Western Riverside County Multiple Species Habitat Conservation Plan – 2019 Rare Plant Survey* (Biological Monitoring Program 2020)

Based on the above literature and database reviews, a list of potentially occurring sensitive plant species was developed for the project area. A table of potentially occurring species is provided in Attachment C and also provides the preferred habitat for each species and evaluates the potential for occurrence within the survey areas.

The survey for the sensitive plant species were based on: (1) the habitat preference, habit, and phenology for each species; (2) professional experience; and (3) any other additional information gathered from those sources listed above and in Attachment C. The survey for sensitive rare plants was conducted by walking meandering belt transects throughout the survey areas. The distance between transects was adjusted when necessary to provide adequate coverage and account for ground-surface visibility, terrain, vegetation density, and access. Surveys efforts were targeted within unique portions of the project area where microhabitats had an increased potential to support special-status species and followed the CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). The locations of special-status plants discovered in the project area and the number of individuals observed were recorded with a Trimble GNSS R1 global positioning system receiver with sub-meter accuracy in conjunction with ArcGIS Field Maps software application on tablets.

Prior to the survey, reference population checks were conducted to confirm phenology of rare plants species with the potential to occur within the survey area and included Santa Ana River woolly star (*Eriastrum densifolium* var. *sanctorum*), San Diego Ambrosia, and Brand's phacelia. Table 2 provides the details of the reference population checks.

Table 2. Rare Plant Reference Population Site Visits

Species	Date	Location	Status/Phenology
Brand's Phacelia (*Phacelia stellaris*)	4/7/2022	West of Santa Ana River, southeast of Flabob Airport, and south of Crestmoore Road, Riverside, County	Species was not detected at the only known extant population of Brand's phacelia in western Riverside. The last documented observation of this species was in 2019, when one individual was detected (Biological Monitoring Program 2020).
San Diego Ambrosia (*Ambrosia pumilla*)	4/5/2022	Approximately 0.25 mile due west of I-15 off Nichols Road, Lake Elsinore, California	Large population, with many plants observed. Phenology approximately 100%, vegetative, 0% budding/ flower
Santa Ana River Woolly-Star (*Eriastrum densifolium* ssp. *sanctorum*)	4/7/2022	Santa Ana River wash, from 0.2 mile north to 0.6 mile south of SR 60 and west of Fairmount Park Golf Course, Riverside California	Historically small population, two plants observed north of SR 60. Phenology approximately 100%, vegetative: 0% budding/flower

I- = Interstate; SR = State Route.

All plant species encountered during the field surveys were identified and recorded for inclusion in Attachment D. Latin and common names of plants follow *The Jepson Manual* (Baldwin et al. 2012). Where not listed in Baldwin, common names were taken from The Calflora Database (Calflora 2022).

Results

Based on the literature and database searches, 14 special-status plant species were identified as occurring or potentially occurring within the region of the Project (Attachment C). Two special-status species were observed during the focused survey: Santa Ana River woolly Star (federally and state-listed endangered, CRPR 1B.1, MSHCP narrow endemic plant) and California black walnut (CRPR 4.2 and MSCHP-Covered species). The locations of these special-status plant species are shown in Figures 4a and 4b (Appendix A). The location of Santa Ana River woolly star occurs within alluvial scrub habitat within the Tequesquite Extension North portion of the project area. Santa Ana River woolly star is not expected to occur elsewhere within the project area because of the lack of suitable habitat outside of the Tequesquite Extension North. A California black walnut grove and individuals were observed within the Camp Evans project component in Southern Cottonwood–Willow Riparian Forest, Southern Coast Live Oak Riparian Forest, Southern Riparian Scrub, and Mulefat Scrub.

Eight of the 14 identified species were determined to have suitable habitat within the project area, but were not detected during focused surveys conducted in 2022 (Attachment C). The remaining

four species were determined to have no suitable or marginally suitable habitat within the survey area.

If there are questions or clarifications needed regarding this report, please contact ICF Senior Botanist Shawn Johnston.

Sincerely,



Shawn Johnston
ICF Senior Botanist
Shawn.Johnston@icf.com

Enclosed:
Attachment A: Figures
Attachment B: Resumes
Attachment C: Special-Status Plant Species Potential for Occurrence Table
Attachment D: Observed Plant Species

Literature Cited

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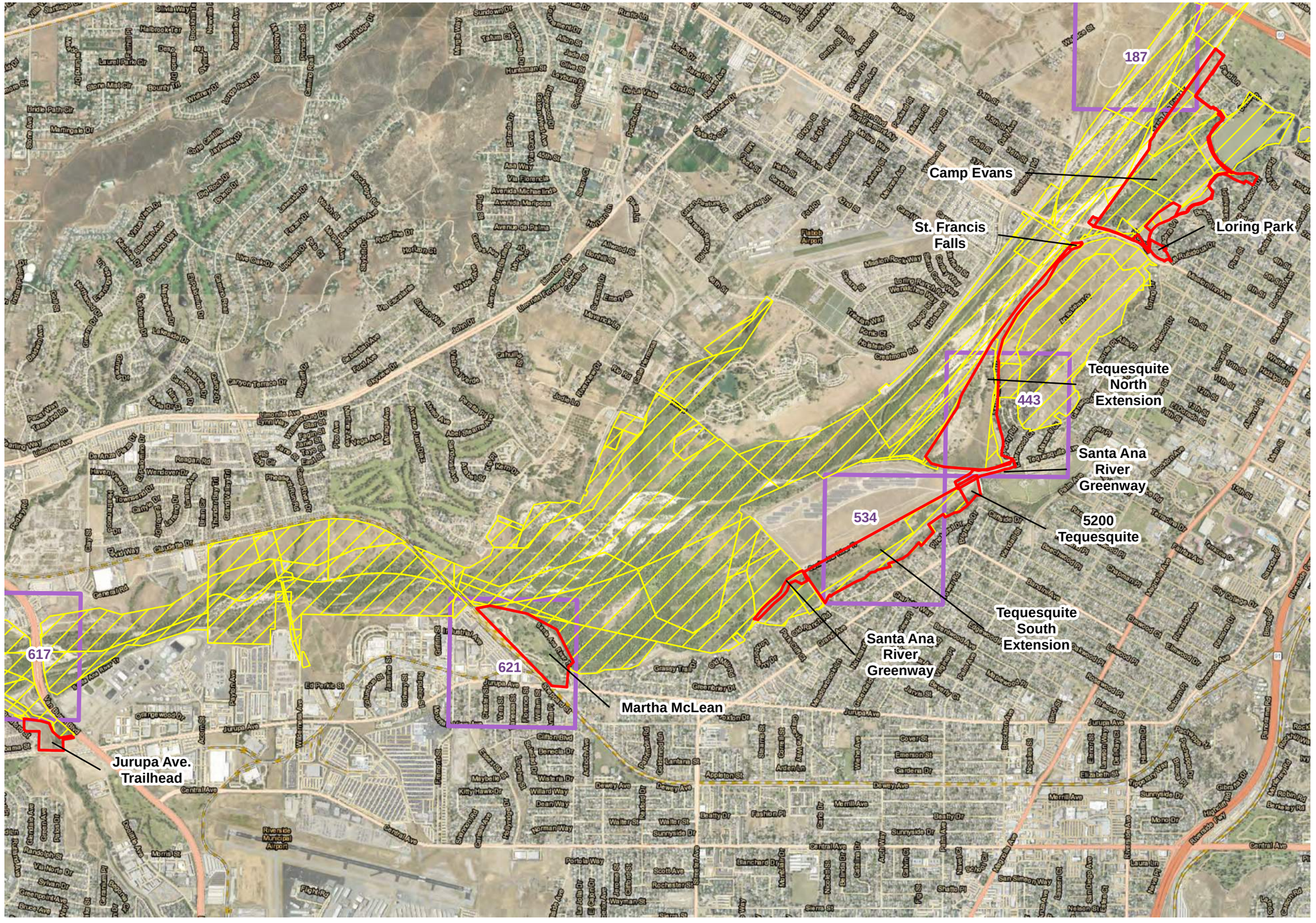
\PDCCITRDSGIS01\Projects 1\City of Riverside\P0766 20 Riverside Gateway\Figures\Doc\RarePlants\1 Vicinity.mxd Date: 11/21/2022 38834

Figure 1
Vicinity Map
Riverside Gateway

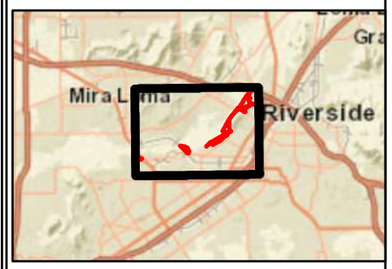


Legend

- Riverside Gateway Project Limits

WRMSHCP Units

- Criteria Area Cells
- Public/Quasi-public Conserved Lands



Source: ICF, USFWS, USGS; CNDDB 2019

0 1,050 2,100 Feet

1:26,000

N

Figure 2
Project Overview
Riverside Gateway



Legend

Riverside Gateway Project Limits

Uplands

- Nonnative Grassland [NNG]
- Riversidean Sage Scrub [RSS]
- Ruderal Upland Mustard and Forbs [RUD]

Riparian

- Mule Fat Scrub [MFS]
- Non-native Riparian (Arundo Dominated) [NNR1]
- Open Water [OW]
- Southern Riparian Forest (Disturbed) [SRF-d]
- Tamarisk Scrub [TAM]

Other

- Developed
- Disturbed

WRMSHCP Units

- Criteria Area Cells
- Public/Quasi-public Conserved Lands
- Narrow Endemic Plants Survey Area



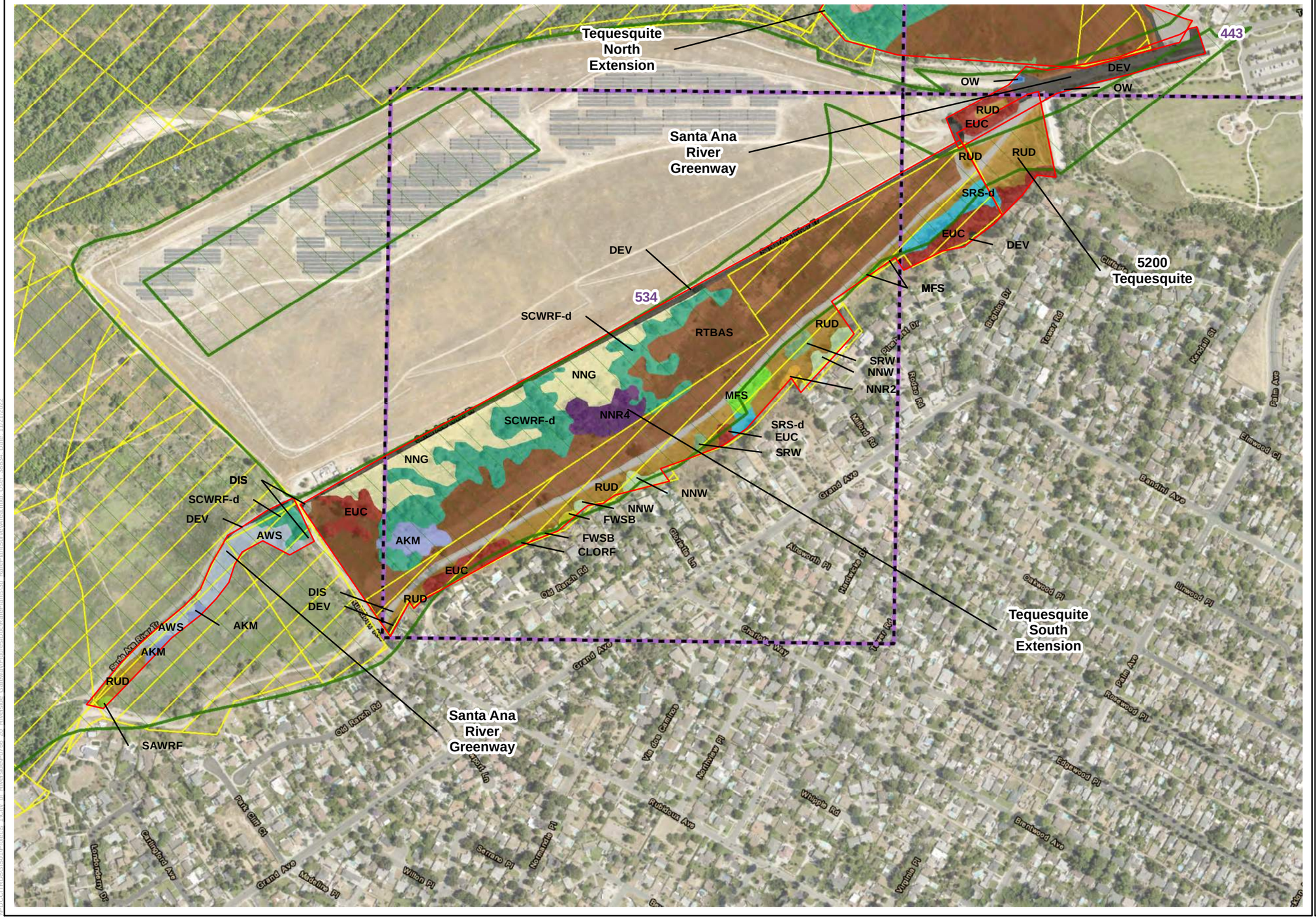
Source: ICF, USFWS, USGS; CNDDB 2019

0 150 300 Feet

1:3,600

N

Figure 3a
Vegetation and Land Cover
Riverside Gateway



Legend

Riverside Gateway Project Limits

WRMSHCP Units

- Criteria Area Cell
- Public/Quasi-public Conserved Lands
- Narrow Endemic Plants Survey Area

Uplands

- Eucalyptus Woodland [EUC]
- Fourwing Saltbush Scrub [FWSB]
- Nonnative Grassland [NNG]
- Nonnative Woodland [NNW]
- Riversidean Alluvial Fan Sage Scrub [RAS]
- Ruderal Upland Mustard and Forbs [RUD]
- Russia Thistle - Five Hook Bassisa Fields [RTBAS]

Riparian

- Arrowweed Scrub (AWS)
- Mule Fat Scrub (MFS)
- Non-native Riparian (Mexican Fan Palm Dominated) [NNR2]
- Nonnative Riparian (Tree of Heaven Dominated) [NNR4]
- Open Water [OW]
- Southern Arroyo Willow Riparian Forest [SAWRF]
- Southern Coast Live Oak Riparian Forest [CLORF]
- Southern Cottonwood - Willow Riparian Forest (Disturbed) [SCWRF-d]
- Southern Riparian Scrub (Disturbed) [SRS-d]
- Southern Riparian Woodland [SRW]

Meadows and Marshes

- Alkali Meadow (AKM)

Other

- Developed (DEV)
- Disturbed (DIS)



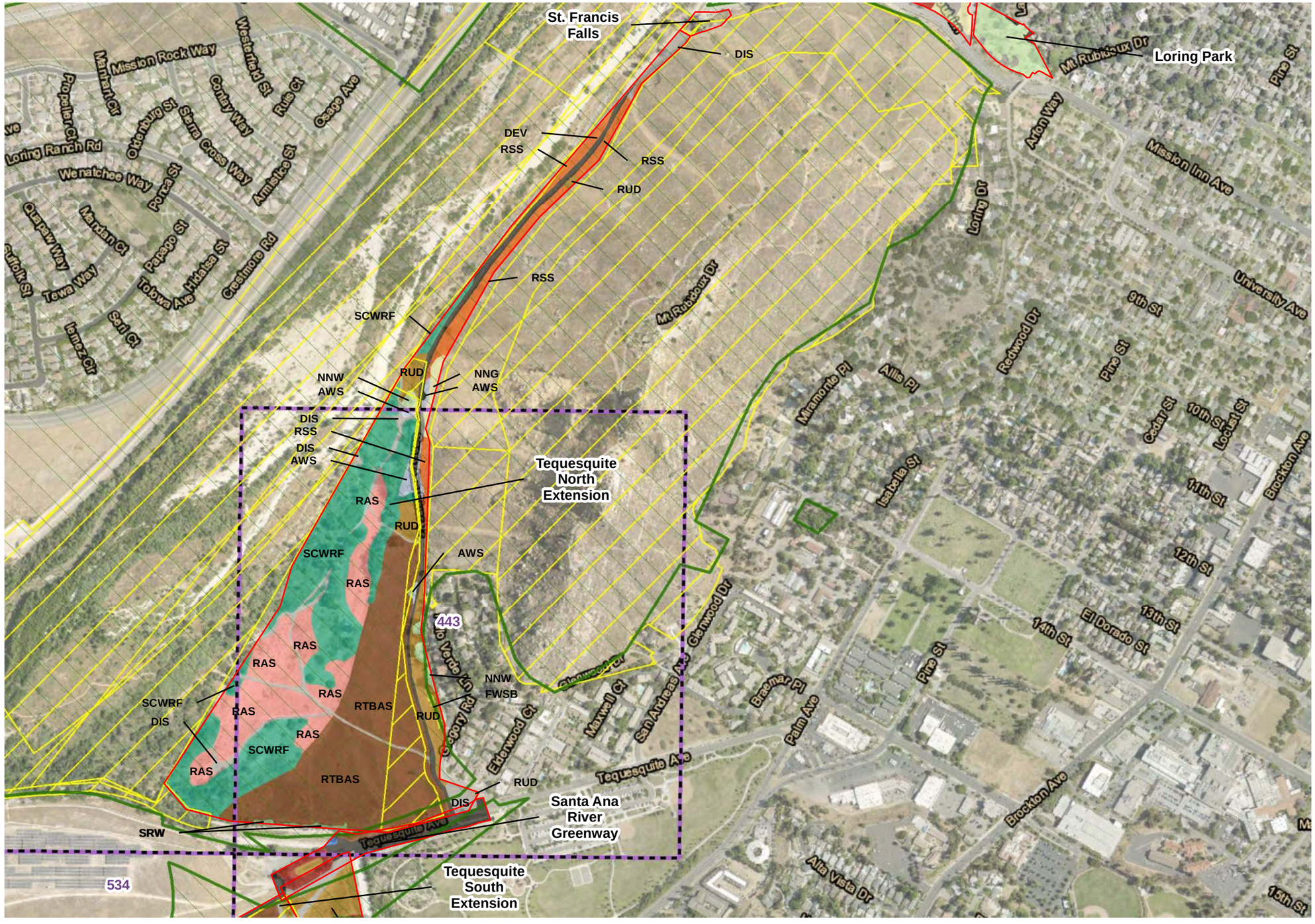
Source: ICF, USFWS, USGS; CNDDB 2019

0 250 500 Feet

1:6,000

N

Figure 3b
Vegetation and Land Cover
Riverside Gateway





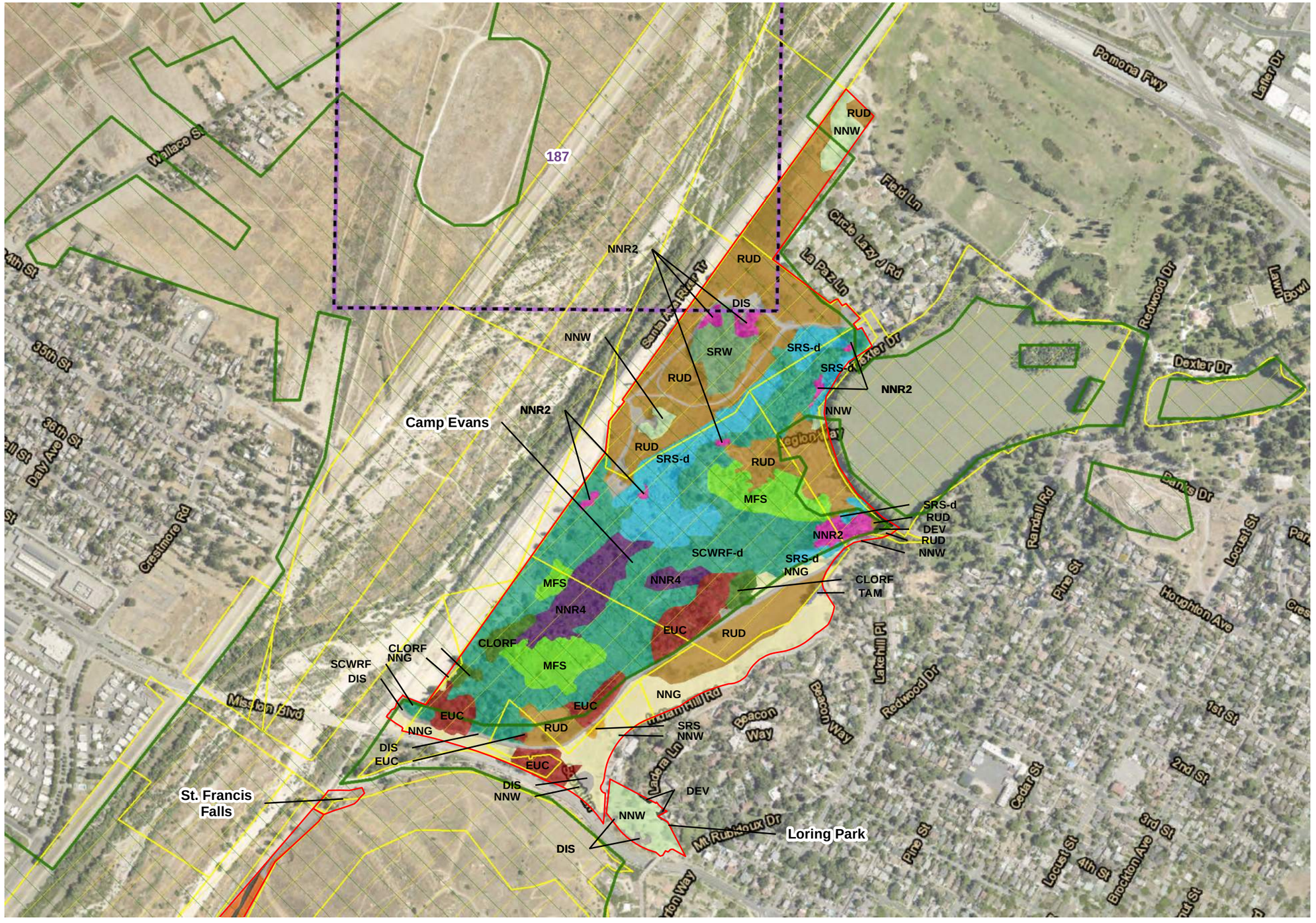
Source: ICF, USFWS, USGS; CNDDB 2019

0 300 600 Feet

1:7,200

N

Figure 3c
Vegetation and Land Cover
Riverside Gateway



Legend

Riverside Gateway Project Limits

WRMSHCP Units

- Criteria Area Cell
- Public/Quasi-public Conserved Lands
- Narrow Endemic Plants Survey Area

Uplands

- Eucalyptus Woodland [EUC]
- Nonnative Grassland [NNG]
- Nonnative Woodland [NNW]
- Riversidean Sage Scrub [RSS]
- Ruderal Upland Mustard and Forbs [RUD]

Riparian

- Mule Fat Scrub [MFS]
- Non-native Riparian (Mexican Fan Palm Dominated) [NNR2]
- Nonnative Riparian (Tree of Heaven Dominated) [NNR4]
- Southern Coast Live Oak Riparian Forest [CLORF]
- Southern Cottonwood - Willow Riparian Forest (Disturbed)
- Southern Riparian Scrub [SRS]
- Southern Riparian Scrub (Disturbed) [SRS-d]
- Southern Riparian Woodland [SRW]
- Tamarisk Scrub [TAM]

Other

- Developed [DEV]
- Disturbed [DIS]



Source: ICF, USFWS, USGS; CNDDB 2019

0 300 600 Feet

1:7,200

N

Figure 3d
Vegetation and Land Cover
Riverside Gateway



Legend

- Riverside Gateway Project Limits

Rare Plants

- Santa Ana woolly-Star (*Eriastrum densifolium ssp. sanctorum*)

WRMSHCP Units

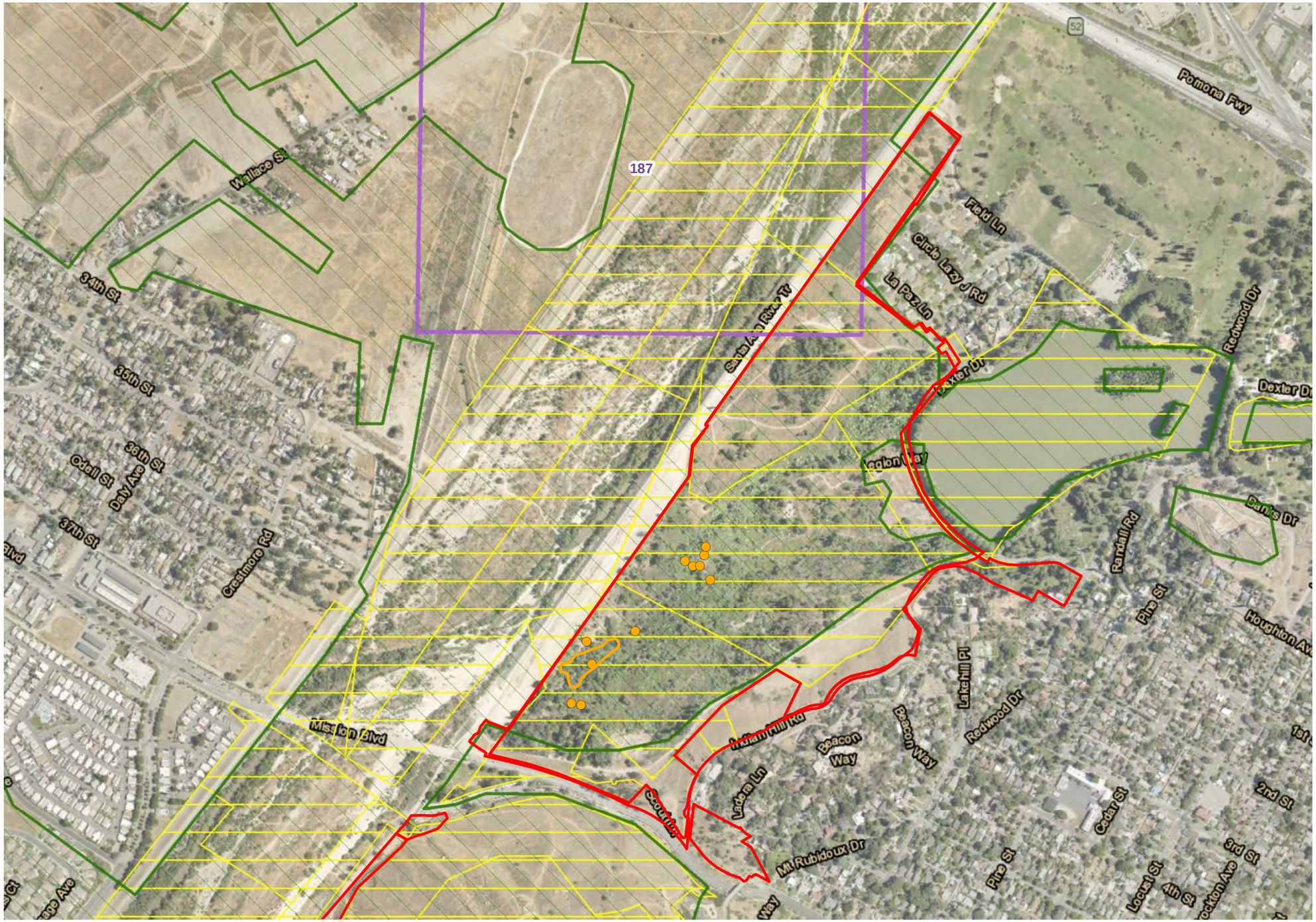
- Criteria Area Cells
- Public/Quasi-public Conserved Lands
- Narrow Endemic Plants Survey Area

Source: ICF, USFWS, USGS; CNDDB 2019

0 300 600 Feet

1:7,200

Figure 4a
Rare Plant 2022 Survey Results
Riverside Gateway



Legend

Riverside Gateway Project Limits

RarePlants

Southern Black Walnut (*Juglans californica*)

Southern Black Walnut (*Juglans californica*)

WRMSHCP Units

Criteria Area Cells

Public/Quasi-public Conserved Lands

Narrow Endemic Plants Survey



Source: ICF, USFWS, USGS; CNDDB 2019

ICF

N

0 300 600 Feet

1:7,200

Figure 4b
Rare Plant 2022 Survey Results
Riverside Gateway

SHAWN JOHNSTON

Senior Botanist and Restoration Ecologist

Shawn Johnston has over 20 years of biological consulting experience with expertise and specialization in rare and special-status plant surveys, vegetation community characterization and biological habitat assessment. His botanical and taxonomic expertise encompasses a wide range of plant communities including desert scrubs and woodlands, coastal and inland scrubs, clay and hardpan vernal pools, chaparrals, grasslands, wetlands and riparian habitats.

In addition to his botanical expertise, Shawn has implemented and monitored both large- and small-scale ecological restoration projects in a myriad of habitats which has furthered his regional knowledge and understanding of the flora, ecology, and micro-habitats within southern California.



Years of Experience

- Professional start date: 06/2001
- ICF start date: 05/2016

Education

- BS, Biology (emphasis in Evolution and Systematics), San Diego State University

Representative Project Experience

Tule Wind Energy Project—Avangrid Renewables, San Diego County, California

Restoration Ecologist. Shawn is currently serving as a restoration ecologist for the revegetation of temporary impacts associated with the construction of the Tule Wind Project. Shawn supervises the execution of mitigation plans by the restoration contractor including remedial hydroseed application and transplanting of salvaged plants. In addition, he oversees on-going restoration site maintenance and weed abatement activities and provides annual vegetation sampling and performance reporting for the project. 2020 - Present

Lake Evans Riverside Gateway Park Project— Riverside County, California

Lead Botanist and Restoration Ecologist. Shawn led rare and special-status plant surveys, vegetation community mapping, and evaluation of habitat restoration potential for the proposed enhancement and development of Fairmont Park and additional open space areas located within the Santa Ana River riparian corridor within the City of Riverside. 2021 – 2022.

I-15 Express Lane Southern Extension—RCTC, Multiple Cities, Riverside County, California

Lead Botanist. Shawn led rare and special-status plant surveys and vegetation community mapping for the I-15 Express Lane between the cities of Lake Elsinore and Corona in support of a Natural Environmental Study. Survey habitats included Diegan and Riversidian sage scrub, alluvial fan scrub, riparian forests and shrublands, woodlands and marshes. 2020 and 2021.

Tehachapi Renewable Transmission Project (TRTP) Restoration Program Management, Segments 7, 8, and Underground Segment 6—Southern California Edison (SCE), Los Angeles County, California

Lead Restoration Ecologist. Shawn served as the led restoration ecologist for the revegetation of temporary impacts associated with the construction of SCE's TRTP Segments 6, 7 and 8, which includes portions of the179-mile 500kv transmission line form the southern edge of Angeles National Forest to Chino California. Shawn supervised the execution of restoration plans by the restoration contractor including hydroseed application, soil decompaction and installation of irrigation systems and container plants. He also oversaw the maintenance, remedial treatments, and weed abatement activities for the restoration project and provided annual vegetation monitoring and reporting. 2015 through 2020.

Mountain Meadow Preserve—County of San Diego DPR, San Diego County, California

Botanist. Shawn served as the lead botanist for a special status plant and vegetation mapping survey for a 768-acre San Diego County open space preserve. Shawn conducted focused surveys within mix-chaparral, coastal sage scrub, oak woodland and riparian habitats, and reported on the finding within an environmental assessment report. 2019.

Cities of Highland and Redlands Regional Connector—Highland and Redlands, San Bernardino County, California

Lead Botanist. Shawn led focused rare plant surveys for state and federally endangered slender-horned spineflower (*Dodecahema leptocerus*) and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*) for a proposed bike trail alignment adjacent to Orange Street over the Santa Ana River and Plunge Creek. 2018.

Big Beau Solar Project—EDF Renewables, kern County, California

Lead Botanist. Shawn served as the lead botanist for focused rare and special status plant surveys and vegetation mapping for a proposed 3000-acre photovoltaic site and associated transmission corridors near Rosamond, California. 2018.

State Route 210 Mixed Flow Lane Addition Project— San Bernardino Associated Governments (SANBAG), San Bernardino County, California

Lead Botanist. Conducted reference site visits, habitat assessments, and focused rare plant surveys for slender-horned spineflower (*Dodecahema leptocerus*) and Santa Ana River Wooly Star (*Eriastrum densifolium* ssp. *sanctorum*) within portions of the Santa Ana River, Plunge Creek, and City Creek floodplains. Focused surveys for slender-horned spineflower were negative during the survey and approximately 140 individuals of Santa Ana River Wooly star were mapped and documented. 2017.

Otay Valley River Mitigation Bank Expansion (Phase 2)— City of Chula Vista, California

Lead Botanist. Shawn led rare and special-status plant surveys, and vegetation community mapping for an open space preserve and riverine restoration project. focused surveys were conducted within a wide range of habitats including mix-chaparral, coastal sage scrub, oak woodland, vernal pool and riparian. 2017 and 2018.

Pio Pico Energy Center Project Environmental Site Assessment—City of Chula Vista, California

Lead Botanist. While employed by URS, Shawn conducted rare plant surveys in coastal sage scrub, vernal pool, oak woodland, Tecate cypress woodland, and southern willow scrub habitats for a 250-acre environmental assessment study for a proposed power plant project near Otay Lakes in Chula Vista. 2010.

Hollenbeck Canyon Wildlife Area Land Management Plan—CDFW, South Coast Region, San Diego County, California

Botanist. While employed by AECOM (formerly EDAW), Shawn conducted rare plant surveys and vegetation community mapping within the proposed 3,200-acre Hollenbeck Canyon Wildlife Area. Habitats surveyed included coastal sage scrub, native and non-native grasslands, oak woodlands, chaparral, and mixed chaparral. 2006.

San Diego State Herbarium—San Diego State University, California

Herbarium/Research Assistant. Shawn served as herbarium assistant at San Diego State University. Under the guidance of Dr. Michael G. Simpson, he conducted research on Woolyleaf ceanothus (*Ceanothus tomentosus*) for potential subspecies determination based off distinct morphological characteristics correlated with geographical isolated groups within the species range. His additional herbarium work included collecting, cataloging, mounting, and managing specimens for the San Diego State University Herbarium. 2000 through 2001.

JEAN-LUC BRULLOT

Senior Habitat Restoration Specialist / Arborist

Mr. Brullot oversees maintenance crew scheduling, co-ordinates with project managers and restoration ecologists, and conducts restoration implementation and maintenance. Mr. Brullot is experienced with the restoration implementation and maintenance of desert, chaparral, vernal pool, wetland/riparian, and coastal sage scrub habitat. Mr. Brullot was a successful landscaper and served as project coordinator for native habitat restoration in Chollas Creek in the City of San Diego.



Years of Experience

- Professional start date: 06/2010
- ICF start date: 10/2016

Education

- AS, Landscape Architecture, Cuyamaca College, 2010

Certifications

- Qualified Applicator License (QAL) 129259 Category: Landscape Maintenance (B) Department Of Pesticide Regulation, CA, 01/01/2021-12/31/2022
- C-27 Landscaping Business License
- GIS Certificate of Accomplishment
- ISA Arborist Certificate
- ISA Tree Risk Assessment Qualification

Professional Development

- Propagation, Pest + Disease on Trees and Shrubs

Project Experience

Lake Evans Creek Restoration—SBVMWD, California, 07/2021 – 07/2021

Habitat Restoration Specialist / Arborist Lead: Jean-Luc led the Arborist survey and mapping of over 900 tree species and palms. Trees were mapped using a GPS device and a submeter to improve the accuracy and assist with the vegetation mapping. The mapping will be used for future habitat restoration designs. Also, installed water wells for future water table measurements. Jean-Luc monitor the water wells on a monthly basis.

Gateway Project, Riverside , City of Riverside. 08/2021-08/2021.

Habitat Restoration Specialist / Arborist Lead: Surveyed over 2,000 trees and palms at 10 different locations for future recreation park designs. Assist with the vegetation mapping including rare plant species. The survey included mapping, species identification, and overall health. Tree Reports including the results of the surveys submitted to the City of Riverside.

USACE, Corona , Santa Ana River. 11/2019-02/2022.

Habitat Restoration Specialist / Project Manager: Jean-Luc managed and monitored the implementation and maintenance of 425 acres. The restroration consisted of planting, watering, hydroseeding, and herbicide treatment. Protected present rare plants and seeded to increase the

density. Jean-Luc also led the annual transects data collection and wrote quarterly memos to be submits to the USACE [redacted]

[redacted]

USACE, Newport Beach , Santa Ana River. 07/2013-08/2016.

Habitat Restoration Specialist: Jean-Luc scheduled and oversee the progress of the weed removal and maintenance of the Tern Island. Led crew of 5-10 technicians spaying herbicide. Jean-Luc led the herbicide training, supervised the application, reported the amount used to the County, and scheduling.

USACE, Cornona , Santa Ana River, Prado Dam. 12/2020-Present.

Project Manager/Arborist. Jean-Luc is leading the mitigation of 500 coast live oak (Quercus agrifolia). Jean-Luc collected the acorns and had them germinate at a local nursery. Later, Jean-Luc supervised the proper planting installation. Jean-Luc tagged the trees and recorded their location using a GPS. Jean-Luc monitor the trees on quarterly basis, schedule the maintenance and watering visits for a period of five years. Write annual reports and quarterly memos to be submitted to USACE.

SR-125 South Vernal Pool and Quino Checkerspot Butterfly Habitat Restoration—Caltrans and South Bay Expressway, San Diego County, California, 6/2010-6/2012

Field Director / Habitat Restoration Specialist. Jean-Luc oversaw maintenance of the 100 acre site that includes upland and vernal pools for a period of two years. Main tasks were herbicide dispensing supervision and training, tracked herbicide levels, reported to the County of San Diego on a monthly basis, removed non-native plants, seeding, protect rare plants, scheduled crew, ordered materials, and wrote daily progress reports as part of mitigation for the SR-125 South project.

Otay and Sweetwater Rivers Revegetation Projects —Caltrans, San Diego County, California, 6/2010-7/2015

Field Director/Restoration Ecologist. Revegetation of portions of the Sweetwater and Otay Rivers that were temporarily impacted by construction of the State Route (SR) 125 South project, including 10 acres of wetland and upland habitats, was required as mitigation per the project permits. Performed field crew scheduling and oversight, as well as long-term maintenance of the revegetation areas.

Otay River Restoration Project and Mitigation Bank—HomeFed, Chula Vista, California, 2014 – 2021:

Habitat Restoration Specialist: Jean-Luc schedule, oversaw the progress, and success criteria. Lead crew of 5-10 technicians planting plants and trees, salvaging plants and trees, weed abatement, and maintaining the 148 acres site quality for a period of 5 years. Report weekly to project managers.

San Diego Thornmint, Wright Field Preserve, Alpine, 2013-2016. [redacted]

Habitat Restoration Specialist: Performed and supervised weed abatement to promote San Diego thornmint (endangered species) propagation. Collected seeds and propagated San Diego thormint. Habitiat maintained: Native grassland, Engelmann oak woodland, riparian habitat, coastal sage scrub/chaparral, vernal pools. 230 acres.

Sweetwater Regional Park Preserve, San Diego, 2012-2013.

Habitat Restoration Specialist: Performed and supervised weed abatement for the entire area. Habitiat: Native grassland, riparian habitat, vernal pools, and coastal sage scrub/chaparral. 500 acres.

Employment History

Groundwork Chollas Creek. Project Coordinator. San Diego, CA . 01/2010 – 05/2010.

AECOM. Habitat Restoration Specialist. San Diego, CA. 06/2010 – 10/2016.

ICF. Senior Habitat Restoration Specialst, Arborist. San Diego, CA. 10/2016– Present.



1.7 Years of Experience

Professional start date: 04/2021
ICF start date: 04/2021

Education

BS, Organismal Biology, California State University Long Beach, 2020

Professional Development

Field Herpetology of the Southwest, American Museum of Natural History
- July 2017, July 2018

Amphibians of the San Francisco Bay Area Workshop, Laguna de Santa Rosa Foundation
- November 2021

Introduction to the Mojave Desert Tortoise, Online Lecture Course & Field Workshop
- November 2022

NICHOLAS (COLE) SUTTER

Biologist

Cole Sutter's professional experience includes a variety of focused wildlife surveys, nesting bird surveys, rare plant surveys, vegetation mapping, restoration monitoring, construction monitoring, protected species and general habitat assessments, implementation and maintenance of wildlife cameras, wetland delineations, as well as bio and wetlands environmental clearance. In addition to relevant project experience, Cole has participated in a wide variety of biologically related projects in a volunteer capacity such as invasive plant removal and restoration monitoring efforts at Audubon Starr Ranch Sanctuary, restoration facilitation and nursery support at local wetlands, and avian vocalization analysis work at Cal State Long Beach.

Restoration Monitoring & Botanical Work:

SCE Remote Grids — Southern California Edison, Multiple Counties, California*

Biologist (Mar 2022-Apr 2022, November 2022) The purpose of this project is to build remote-power systems that will help mitigate wildfire risk and reduce impacts on customers during Public Safety Power Shut-off (PSPS) events. Cole performed baseline biological surveys and vegetation mapping for three different sites located in the Angeles National Forest. Cole also performed a rare plant survey and assisted with a jurisdictional delineation for one of the sites. All findings were later compiled into a habitat assessment and avoidance measures document provided to SCE.

Devil's Gate Reservoir Restoration Project — LACFCD, Pasadena, Los Angeles County, California

Biologist (Apr 2022-September 2022) The Devil's Gate Reservoir Restoration Project was a large-scale effort which aimed to increase flood protection for communities downstream of Devil's Gate Dam via sediment removal and restore habitat within a popular section of the Arroyo Seco Watershed. Cole provided restoration monitoring for a landscaping crew of 10+ people tasked with maintaining native vegetation communities and planted riparian sections on the eastern portion of the watershed. Cole also provided daily reporting and CNDDB submissions for any special status species located on site.

Tehachapi Renewable Transmission Project — SCE, Multiple Counties, California*

Biologist (Dec 2021, May 2022-September 2022) Massive project focused on creating new and upgraded high-voltage electric transmission lines and substations to carry electricity across multiple counties in Southern California spanning many years and costing hundreds of millions of dollars. Project construction was completed in 2016 and is now in its Restoration phase. Cole was trained by Rancho Santa Ana Botanic Garden employees at an SCE nursery in Auberry and aided in phytophthora and other pathogen testing for SCE nursery raised oaks. Cole later worked on the ANF annual performance monitoring (APM) for sections 6 and 11, which involved visiting restoration sites in the Angeles National

Forest to document the native plant composition and cover, and fill out rare plant datasheets or tree monitoring sheets where necessary. Following the APM, Cole assisted with quantitative site sampling involving laying down sample plots in natural areas to compare with restoration plots. Cole also assisted in long term monitoring (LTM) focused on progression of plant coverage, erosion, and anthropogenic disturbance. Rare plant and tree installations were given health assessments and soil moisture was documented where necessary. Cole also gained experience in using SCE's FRED form submission site for APM and LTM forms.

Dominguez Gap Wetlands Maintenance Program — LACFCD, Los Angeles County, California

Biologist (Oct 2021- Feb 2022, November 2022-Ongoing) Project involved vegetation control, clearing trash and debris, removing fallen or dead trees and shrubs, restoring open water areas to as-built condition, conducting repairs to bank stabilization, and surrounding wetland maintenance. Cole provided monitoring for vegetation removal, BMPs, animal mortalities, and water levels. Cole also recorded notable bird sightings and ensured no active nesting was occurring in any of the project's disturbance areas.

Sandrini Solar Project — EDP Renewables, Community of Mettler, Kern County, California

Biologist (Jan 2022) Proposed solar project to develop, construct, and operate a 300 MW solar facility on approximately 3,447 acres of privately owned land. Cole assisted in mapping the area's vegetation and running 25, 50m representative transects. Area was partially classified as sensitive valley sink scrub, and involved working around multiple occurrences of several rare plant species.

Lane Channel Maintenance Project — Orange County Public Works, MA-080-21010550, Irvine, Orange County, California

Biologist (Jun 2021, Mar 2022) Project consisted of repairing the eroded banks of the channel back to plan conditions. ICF provides restoration monitoring and reporting support for the approximate 8-acre restoration site. Cole provided qualitative restoration monitoring involving identifying hydroseeded and recruited natives as well as invasives and potentially problematic exotic species alongside follow-up reporting.

Wagon Wheel Creek Restoration and Stormwater Management Project — Orange County Parks, MA-080-21010550, Unincorporated Orange County, California

Biologist (May 2021, May 2022) Project consisted of installing structures to decrease velocity of storm water flows, reduce erosion, and restore portions of the severely incised Wagon Wheel Creek. ICF provides restoration monitoring and reporting support for the approximate 4-acre habitat restoration site. Cole provided annual quantitative monitoring support through use of established transects identifying plant species while organizing and producing data sheets used later in reporting.

Wildlife Surveys & Habitat Assessments:

I-215 Harley Knox Interchange — RCTC, Perris, Riverside County, California

Biologist (Apr 2022-June 2022) Project focused on expanding the Harley Knox Interchange to better facilitate traffic. Cole assisted with the pre-construction Burrowing Owl habitat assessment and following protocol surveys as outlined by the Western Riverside Multiple Species Habitat Conservation Plan Area (MSHCP).

I-210/Victoria Ave Interchange — SBCTA, Highland, San Bernardino County, California

Biologist (Apr 2022-June 2022) The SR 210 Lane Addition/Base Line Interchange project will widen a large stretch of the SR 210 to provide increased traffic flow throughout this corridor to eliminate the

existing bottleneck and provide lane continuity. Cole assisted with the pre-construction Burrowing Owl habitat assessment and four protocol surveys following.

I-405 Improvement Project — OCTA, Orange County, California

Biologist (Apr 2022-August 2022) A massive 16-mile widening project including a whole host of other transportation and infrastructure improvement elements. Cole provides as-needed routine nesting bird surveys for the stretches running along the highway and on/off-ramps as well as one-off surveys for other sections that may be affected by smaller efforts throughout the area.

Routine Line Clearing Support — Southern California Edison, Multiple Counties, California

Biologist (Feb 2022-Apr 2022) Project involves providing environmental inspections along electrical lines and poles/towers prior to the start of work of electrical maintenance activities. Cole provides nesting bird survey support as well as habitat assessments and identification of sensitive and protected species which may be impacted by maintenance work. Also provides pre-construction form reporting for surveyed areas.

Metro Purple Line Extension, Section 3 — Los Angeles Metropolitan, Los Angeles County, California

Biologist (Jan 2022-August 2022) The project involves providing environmental and cultural support for the expansion of the D Line of Metro's rail system to the Westside region. Cole provided nesting bird survey support for surrounding construction in Section 3, and follow-up biological reporting.

Riverside Gateway Project — Studio MLA, Riverside, Riverside County, California*

Biologist (Dec 2021, April 2022-July 2022) The project aims to improve and expand upon park infrastructure alongside the Santa Ana River in downtown Riverside. Cole staked suitable locations and called in the dig-alerts for soil pit testing, and later assisted wetlands staff in running the delineation while gaining experience filling out wetland data forms. Cole later assisted with 8 Least Bell's Vireo protocol surveys on site, 5 Southwestern Willow Flycatcher protocol surveys and a Southwestern Willow Flycatcher and Yellow-billed Cuckoo habitat assessment alongside a permitted biologist. Cole also assisted in mapping suitable burrows and conducting Burrowing Owl surveys for portions of the site. Additionally, Cole helped with rare plant surveys of the site, which led to multiple rare species detections, and associated mapping.

Oso Parkway and Crown Valley Parkway Bridge Bat Surveys — Orange County public works, MA-080-21010550, Mission Viejo, Orange County, California

Biologist (Nov 2021) A small project aimed to determine the level of bat usage in two bridges scheduled for maintenance work inside the cells. Assisted with the visual surveys and audio collection for later Anabat analysis over the course of two early mornings and late evenings.

On-Call Biological Task Orders — Caltrans District 5, Santa Barbara and San Benito County, California

Projects aimed to improve highway functionality and capacity. Cole served as a biologist assisting in pre-construction California Tiger Salamander surveys and field labor/burrow excavation for the task orders including:

- **TO 27, San Benito Route 156 Project.**
- **TO 20, Solomon Canyon Rumble Strip/Shoulder Widening.**

Physical and Camera Trapping:

On-Call Biological Task Orders — Caltrans District 5, Santa Barbara and San Benito County, California

Project aims to assess the usage of culverts, bridges, and other passageways under and along highway 101 running through Gaviota Pass by animals to later propose wildlife crossing solutions to reduce animal mortality. Cole assisted in installing 20 wildlife cameras throughout the pass to best capture nearby animal movement. He has continually supported documentation of further camera installation as well as data and photo processing.

- TO 29, US 101 Gaviota Pass Wildlife Connectivity Study

Santa Ysabel Preserve — County of San Diego Department of Parks and Recreation, Santa Ysabel, San Diego County, California

Biologist (May-Jun 2021) This project involved a variety of baseline biological and cultural resource surveys focused on a newly acquired parcel of land for the Santa Ysabel Preserve. Cole assisted with the baseline herpetological surveys utilizing funnel traps alongside a senior biologist, later providing insight for the biodiversity report, and assisted with wildlife camera trapping.

Bullhead Solar Project — EDF Renewables, Rosamond, Kern County, California*

Biologist (May 2021, June 2022) Conducted several focused biological technical surveys under supervision of the lead field biologists for a proposed solar project consisting of nearly 2,000 acres and over 30 miles in the western Mojave Desert. Help conduct two of four focused burrowing owl surveys, which resulted in detection of one burrowing owl pair, several desert kit fox dens, and hundreds of potential burrowing owl burrows. Also supported the Mohave ground squirrel biologist during two 5-day camera-trapping sessions throughout the project area. Set up, installed, maintained, baited, and downloaded the memory cards from 15 game cameras over the 10-day period. During all of these surveys, recorded any Joshua trees observed in the project area. Cole later assisted with a vegetation mapping effort aimed to gain information for Swainson's Hawk mitigation approach.

Construction Monitoring:

OCPW On-Call Tasks — Various Cities, Orange County, California*

- **Talbert Ocean Outlet Emergency Sand Removal (June 2022)** — Project was focused on clearing the Talbert Outlet to restore tidal flushing. Cole monitored the work to ensure the nearby nesting Least Terns were not disturbed as well as ensured no Snowy Plovers nor any other wildlife wandered into the work area.
- **San Diego Creek Sediment Removal (Oct 2022)** — Project involved removing sediment from a partially channelized stretch of creek. Cole performed compliance checks on Southwestern Pond Turtle exclusion fencing and BMP measures.
- **Santa Ana River Outlet Sediment Removal (Oct-Nov 2022)** — Project involved dredging sand from the Santa Ana River Outlet and hauling it further down the beach. Cole performed pre-construction Snowy Plover surveys and compliance checks.

Caltrans On-Call Biological Task Orders — District 5, Santa Barbara and San Benito County, California

Project adding one high-occupancy vehicle lane in each direction on US 101 from 0.2 mile south of Bailard Avenue in the City of Carpinteria to Sycamore Creek in the City of Santa Barbara. Cole monitored a landscaping crew during the removal and trimming of willows growing in a draining running along the construction site.

- **TO 28, South Coast Highway 101 HOV Lanes**

Environmental Clearance and Permitting:

SCE Desktop Support/EHSync Environmental Clearance — Southern California Edison, Multiple Counties, California

Bio and Wetlands SME (August 2022 – Ongoing) SCE Project planners/managers/personnel enter O&M projects in EHSync for environmental review if the project involves ground, vegetation, and/or overland travel disturbance activities. EHSync is used to manage the environmental review/support process. Cole acted as a bio and wetlands subject matter expert and was involved in writing and submitting desktop reviews within EHSync for a variety of Edison work.

Waters:

Aliso Creek at Trabuco Road Project — Orange County Public Works, Lake Forest, Orange County, California

Biologist (Jun 2021) The project will consist of repairing the eroded banks of Aliso Creek near Trabuco Road. Cole assisted with the delineation of U.S. Army Corps of Engineer (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdictions in the study area.

* Project involves more than one type of work

Attachment C. Special-Status Plant Species Potential to Occur Table, City of Riverside Gateway Project

Common / Scientific Name	**[a]Status (Federal/ State/ CNPS/ MSHCP)**	**Habitat Description**	**[+]Habitat Present /Habitat Absent /Species Present/Species Absent**	**Rationale**
San Diego Ambrosia *(Ambrosia pumila)*	E/-/1B.1/ MSHCP	Occurs in open floodplain terraces or in the watershed margins of vernal pools. This species occurs in a variety of associations that are dominated by sparse nonnative grasslands or ruderal habitat in association with river terraces, vernal pools, and alkali playas. San Diego ambrosia generally occurs at low elevations generally less than 1,600 ft in the Riverside populations and less than 600 ft in San Diego County.	HP/A	Suitable habitat is present in the project area; however, this species was not detected in 2022 during focused rare plant surveys for the project.
Marsh Sandwort *(Arenaria paludicola)*	E/E/1B.1/-	Occurs in wetland and freshwater marshes and grows up through dense mats of Typha sp., Juncus spp. and Scirpus spp. within freshwater marshes. Elevation ranges from sea level to 558 ft. Species was historically documented within the Santa Ana River; however, the species is now believed to be extirpated from southern California (USFWS 2020).	HA/A	Project area lacks suitable freshwater marshes; furthermore, this species is considered extirpated from southern California, and is not expected to occur.
Nevin's Barberry (*Berberis nevinii)*	E/E/1B.1/ MSHCP	This evergreen shrub is very rare and local; found on steep north facing slopes or in low-grade sandy washes in chaparral, coastal sage scrub, riparian scrub, and cismontane woodland from 968 ft to 2700 ft. In western Riverside County; known only in the vicinity of Vail Lake and Timoteo Canyon (USFW 2009).	HP/A	This large evergreen conspicuous species was not detected during surveys conducted in 2022 and is not expected to occur.
Smooth Tarplant (*Centromadia pungens ssp. laevis)*	-/-/1B.1/ MSHCP	Found in fine or alkaline soils of seasonally wet chenopod scrub, meadows and seeps, playas, riparian woodland, fallow fields, drainage ditches, and moist situations within valley and foothill grasslands below about 1,575 ft elevation. Tolerant of rural and agricultural land use. Found primarily in southwestern Riverside County, but also a few sites in the interior valleys of San Bernardino, Los Angeles, and San Diego Counties.	HP/A	Marginally suitable habitat is present in project area but generally lacks the combination of suitable mesic habitat and fine or alkaline soils. A focused rare plant survey was performed in 2022, and the species was not detected within the project area.

Attachment C. Special-Status Plant Species Potential to Occur Table, City of Riverside Gateway Project

Salt Marsh Bird's-beak (*Chloropyron maritimum ssp. maritimum)*	E/E/1B.2/-	Occurs within coastal dunes, salt marshes, and coastal swamps, but has been documented inland in the San Bernardino Valley within alkaline meadows. Elevations range from sea level to 99 ft.	HA/A	Suitable mesic alkaline habitat is not present within the project area. This species is not expected to occur within the project area and was not detected during surveys in 2022.
Peninsular Spineflower (*Chorizanthe leptotheca)*	-/-/4.2/MSHCP	Found on alluvial fans and granitic soils within chaparral, coastal scrub, and lower montane coniferous forests. Elevations range from 980 to 6,235 ft and the species blooms between May and August. Closely related to and difficult to distinguish from C. staticoides.	HP/A	Suitable alluvial and coastal scrub habitat is present in the rare plant study area. A focused rare plant survey was performed in 2022, and the species was not detected within the project area.
San Miguel Savory (*Clinopodium chandleri)*	-/-/1B.2/MSHCP	Associated with rocky, gabbroic, and metavolcanic substrates in valley and foothill grassland, coastal sage scrub, chaparral, cismontane woodland, and riparian woodland. The majority of populations and individuals are associated with the Santa Rosa Plateau and the Santa Ana Mountains. Known from 3 miles south of De Luz Road in the Santa Ana Mountains and 3 miles southwest of Murrieta near Warner's Ranch. Expected within the vicinity of the Santa Rosa Plateau, the Hogbacks, and the Santa Ana Mountains. Elevation range for this species is 65–3,530 ft, and blooming period is from March to July.	HA/A	Suitable habitats with rocky, gabbroic or metavolcanic soils are not present in the project area. This species is not expected to occur within the project area and was not detected during surveys in 2022.
Santa Ana River Woollystar (*Eriastrum densifolium ssp. sanctorum*)	E/E/1B.1/MSHCP	A perennial herb known from a single extended but heavily fragmented population in Riverside and San Bernardino Counties; it formerly extended into Orange County. An inhabitant of alluvial fan sage scrub in sandy to gravelly soils and typically blooms during the period of June through August. Can be found from 450 to 2,000 ft.	P	Santa Ana River woolly-star is present within alluvial scrub habitat Tequesquite Extension North (Figure 4a) portion of the project area.
Southern California Black Walnut (*Juglans californica)*	-/-/4.2/-	Found in alluvial areas within chaparral, cismontane woodlands, coastal scrub, and riparian woodlands. Known to occur between 160 and 2,955 ft, and bloom from September to May. Walnut forest is a much fragmented, rare, and declining vegetation community. Threatened by urbanization,	P	This species was observed within the Camp Evans portion of the project area (Figure 4b).

		grazing, nonnative plants, and possibly by lack of natural reproduction.		
Coulter's Goldfields (*Lasthenia glabrata ssp. coulteri*)	-/-/1B.1/ MSHCP	Wide-ranging herb in southern California, with known occurrences including Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, among others. This is an annual herb, blooming from February through June. Floodplains (seasonal wetlands) dominated by alkali scrub, alkali plays, vernal pools, and alkali grasslands provide potential habitat for this species. Found on clay and alkaline, silty-clay soils. In Riverside County, primarily restricted to alkali floodplains of the San Jacinto River, Mystic Lake, and Salt Creek in association with Willows, Domino, and Traver Soils. Also known in the alkali flats between Alberhill and Lake Elsinore. Found in grasslands, playas, and vernal pools in these areas, below about 4,002 feet.	HA/A	Suitable mesic alkaline habitat is not present within the project area. This species is not expected to occur within the project area and was not detected during surveys in 2022.
Robinson's Pepper-Grass (*Lepidium virginicum var. robinsonii*)	-/-/1B.2/-	Found in dry soils in chaparral and coastal sage scrub openings up to 3,100 ft.	HP/A	Suitable habitat is present in the project area within coastal sage scrub. A focused rare plant survey was performed in 2022, and the species was not detected within the rare plant study area.
Brand's Phacelia (*Phacelia stellaris*)	-/-/1B.1/ MSHCP	This species occurs within coastal dunes and coastal scrub habitats at elevations ranging between 3 and 131 ft. Blooms from March through June. The last known documented observation within Western Riverside County for this species was in 2019 where 1 individual was detected within the Santa Ana Wilderness Area (Biological Monitoring Program 2020). Suitable habitat for Brand's phacelia includes coastal dunes and/or coastal scrub in sandy openings, sandy benches, dunes, sandy washes, or flood plains of rivers and is restricted to clay soils at elevations between 0 and 1,350 ft.	HP/A	Suitable sandy floodplain habitat is present within the rare plant study area. A focused rare plant survey was performed in 2022, and the species was not detected within the rare plant study area.
Chaparral Ragwort	-/-/2.2/-	Found in chaparral, cismontane woodland, and coastal scrub	HP/A	Suitable habitat is present in the project area.

Attachment C. Special-Status Plant Species Potential to Occur Table, City of Riverside Gateway Project

Senecio aphanactis)		habitats from 49 to 2,625 ft. Also associated with alkaline soils.		A focused rare plant survey was performed in 2022, and the species was not detected.
Praire wedge grass (*Spenopholis obtusata*)	-/-/2.2/-	Found in meadows and seeps and mesic sites within cismontane woodlands from 985 to 6560 ft.	HP/A	Suitable habitat is present in the project area. A focused rare plant survey was performed in 2022, and the species was not detected.

a Status Codes

Federal

E = Federally listed; Endangered

PE = Proposed Endangered

T = Federally listed; Threatened

State

T = State listed; Endangered

E = State listed; Threatened

SC = State Candidate for Listing

R = Rare (Native Plant Protection Act)

CSC = California Species of Special Concern

CFP = California Fully Protected Species

MSHCP = Covered species

CNPS

1A = Plants presumed extinct in California

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

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

3 = Plants about which we need more information

4 = Limited distribution (Watch List)

0.1 = Seriously endangered in California

+Habitat Presence/Absence Codes

P= The species is present.

HP=Habitat is or may be present. The species may be present.

HA= No habitat present and no further work needed.

A= This species is absent.

Work Cited

Biological Monitoring Program. 2020. *Western Riverside County MSHCP Biological Monitoring Program 2019 Rare Plant Survey Report*. Prepared for the Western Riverside County Multiple Species Habitat Conservation Plan. Riverside, CA. Available: 2019 Rare Plants Report (wrc-rca.org). Accessed: April 2022.

U.S. Fish and Wildlife Service (USFWS). 2009. *Berberis nevinii (*Nevin's barberry*) 5-Year Review: Summary and Evaluation*. Carlsbad, CA: Carlsbad Fish and Wildlife Office.

U.S. Fish and Wildlife Service (USFWS). 2020. *Arenaria paludicola (*Marsh Sandwort*) 5-Year Review: Summary and Evaluation*. Ventura, CA: Ventura Fish and Wildlife Office.

Attachment D - Riverside Gateway Project: Plant Species List

Scientific Name	Common Name	Special Status
FERNS		
Equisetaceae - Horsetail family		
Equisetum hyemale ssp. affine	Winter horsetail	
GYMNOSPERMS		
Pinaceae - Pine family		
Pinus pinea	Italian stone pine	
MAGNOLIIDS		
Saururaceae - Lizard's-tail family		
Anemopsis californica	Yerba mansa	
EUDICOTS		
Adoxaceae - Muskroot family		
Sambucus nigra ssp. caerulea	Blue elderberry	
Anacardiaceae - Sumac Or Cashew family		
* *Pistacia chinensis*	Chinese pistachio	
* *Schinus molle*	Peruvian pepper tree	
* *Schinus polygamus*	Chilean pepper tree	
* *Schinus terebinthifolius*	Brazilian pepper tree	
Toxicodendron diversilobum	Western poison oak	
Apiaceae - Carrot family		
* *Anthriscus caucalis*	Bur-chervil	
* *Conium maculatum*	Poison hemlock	
Apocynaceae - Dogbane family		
* *Nerium oleander*	Oleander	
Asteraceae - Sunflower family		
Ambrosia acanthicarpa	Annual bur-sage	
Ambrosia psilostachya	Western ragweed	
Artemisia californica	California sagebrush	
Artemisia douglasiana	Douglass' sagebrush	
Artemisia dracunculus	Tarragon sagebrush	
Artemisia tridentata ssp. tridentata	Big sagebrush	
Baccharis salicifolia ssp. salicifolia	Mule fat	
Baccharis salicina	Emory's baccharis	
Baccharis sarothroides	Broom baccharis	
* *Carduus pycnocephalus ssp. pycnocephalus*	Italian thistle	

Scientific Name	Common Name	Special Status
* *Centaurea melitensis*	Tocalote	
* *Cirsium vulgare*	Bull thistle	
Corethrogyne filaginifolia	Common sand aster	
Encelia farinosa	Brittlebush	
Erigeron canadensis	Horseweed	
Erigeron foliosus var. foliosus	Leafy daisy	
Eriophyllum confertiflorum	Golden woolly sunflower	
Helianthus annuus	Annual sunflower	
* *Helminthotheca echioides*	Bristly ox-tongue	
Heterotheca grandiflora	Telegraph weed	
* *Hypochaeris glabra*	Smooth cat's-ear	
* *Lactuca serriola*	Prickly lettuce	
* *Logfia gallica*	French cottonrose	
* *Oncosiphon piluliferum*	Stinknet	
Pluchea sericea	Arrow-weed	
Pseudognaphalium californicum	California everlasting	
* *Pulicaria paludosa*	Spanish false fleabane	
* *Sonchus asper ssp. asper*	Prickly sow thistle	
* *Sonchus oleraceus*	Common sow thistle	
Stephanomeria virgata	Rod wire-lettuce	
Stephanomeria virgata ssp. virgata	Rod wire-lettuce	
Uropappus lindleyi	Silver puffs	
* *Verbesina encelioides ssp. exauriculata*	Golden crownbeard	
Xanthium strumarium	Cocklebur	
Boraginaceae - Borage family		
Amsinckia intermedia	Common fiddleneck	
Cryptantha intermedia var. intermedia	Nievitas Cryptantha	
Cryptantha sp.	Cryptantha	
Eriodictyon trichocalyx	Hairy yerba santa	
Heliotropium curassavicum var. oculatum	Alkali heliotrope	
Phacelia distans	Wild heliotrope phacelia	
Phacelia ramosissima	Branching phacelia	
Brassicaceae - Mustard family		
* *Brassica nigra*	Black mustard	

Scientific Name	Common Name	Special Status
* *Hirschfeldia incana*	Shortpod mustard	
* *Lepidium latifolium*	Perennial pepper-grass	
* *Raphanus raphanistrum*	Jointed charlock	
* *Raphanus sativus*	Radish	
* *Sisymbrium altissimum*	Tumble mustard	
* *Sisymbrium irio*	London rocket	
Cactaceae - Cactus family		
Cylindropuntia californica var. parkeri	Cane cholla	
* *Opuntia ficus-indica*	Mission prickly pear	
Opuntia littoralis	Coastal prickly pear	
Caryophyllaceae - Pink family		
* *Spergularia rubra*	Red sand-spurrey	
Chenopodiaceae - Goosefoot family		
Atriplex canescens	Four-wing saltbush	
* *Atriplex semibaccata*	Australian saltbush	
* *Bassia hyssopifolia*	Fivehorn smotherweed	
* *Chenopodium album*	Lamb's quarters	
Kochia americana	American Fireweed	
* *Salsola tragus*	Prickly russian thistle	
Convolvulaceae - Morning-glory family		
Cuscuta californica	Chaparral dodder	
Cuscuta californica var. californica	Chaparral dodder	
Cucurbitaceae - Gourd family		
Cucurbita palmata	Coyote melon	
Marah macrocarpa	Large fruit wild cucumber	
Euphorbiaceae - Spurge family		
Croton californicus	California croton	
Croton setigerus	Doveweed	
* *Euphorbia maculata*	Spotted spurge	
Euphorbia polycarpa	Many seed spurge	
* *Ricinus communis*	Castorbean	
Fabaceae - Legume family		
Acmispon americanus var. americanus	Spanish-Clover	
Acmispon glaber	Deerweed	
Acmispon strigosus	Strigose lotus	

Scientific Name	Common Name	Special Status
Amorpha fruticosa	Desert false indigo	
Astragalus douglasii var. parishii	Parish's milkvetch	
Lupinus bicolor	Miniature lupine	
Lupinus hirsutissimus	Stinging lupine	
* *Melilotus albus*	White sweetclover	
* *Melilotus indicus*	Indian sweetclover	
* *Parkinsonia aculeata*	Mexican palo verde	
* *Robinia pseudoacacia*	Black locust	
* *Trifolium hirtum*	Rose clover	
* *Vicia villosa*	Winter vetch	
Fagaceae - Oak family		
Quercus agrifolia	Coast live oak	
Hamamelidaceae - Witch Hazel family		
* *Liquidsambar styraciflua*	Liquid Amber	
Juglandaceae - Walnut family		
* *Carya illinoinensis*	Pecan	
Juglans californica	Southern California black walnut	CRPR 4.2
Lamiaceae - Mint family		
* *Lamium amplexicaule*	Henbit	
* *Marrubium vulgare*	Horehound	
Salvia apiana	White sage	
Malvaceae - Mallow family		
* *Malva parviflora*	Cheeseweed	
Montiaceae - Purslane family		
Claytonia perfoliata	Round leaf miner's lettuce	
Moraceae - Mulberry family		
* *Ficus carica*	Edible fig	
* *Morus alba*	White mulberry	
Myrsinaceae - Myrsine family		
* *Anagallis arvensis*	Scarlet pimpernel	
Myrtaceae - Myrtle family		
* *Eucalyptus camaldulensis*	Red gum	
* *Eucalyptus globulus*	Blue gum	
Oleaceae - Olive family		
Fraxinus uhdei	Shamel Ash	

Scientific Name	Common Name	Special Status
Fraxinus velutina	Velvet ash	
* *Olea europaea*	Olive	
Onagraceae - Evening Primrose family		
Camissoniopsis bistorta	California sun cup	
Oenothera elata	Great marsh evening primrose	
Papaveraceae - Poppy family		
Eschscholzia californica	California poppy	
Plantaginaceae - Plantain family		
* *Plantago lanceolata*	English plantain	
Platanaceae - Plane Tree, Sycamore family		
Platanus racemosa	Western sycamore	
Polemoniaceae - Phlox family		
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	FE, SE, CRPR 1B.1
Gilia diegensis	San Diego gilia	
Polygonaceae - Buckwheat family		
Eriogonum fasciculatum	California buckwheat	
Eriogonum thurberi	Thurber's buckwheat	
* *Rumex conglomeratus*	Clustered dock	
* *Rumex crispus*	Curly dock	
Rosaceae - Rose family		
Heteromeles arbutifolia	Toyon	
Prunus ilicifolia	Holly leaf cherry	
Rosa californica	California rose	
Rubus ursinus	California blackberry	
Rubiaceae - Madder family		
Galium aparine	Common bedstraw	
Salicaceae - Willow family		
Populus fremontii ssp. fremontii	Fremont cottonwood	
Salix exigua	Sand bar willow	
Salix gooddingii	Goodding's black willow	
Salix laevigata	Red willow	
Salix lasiolepis	Arroyo willow	
Simaroubaceae - Quassia Or Simarouba family		
* *Ailanthus altissima*	Tree of heaven	
Solanaceae - Nightshade family		
Datura wrightii	Wright's jimsonweed	

Scientific Name	Common Name	Special Status
* *Nicotiana glauca*	Tree tobacco	
Solanum douglasii	Douglas' nightshade	
Tamaricaceae - Tamarisk family		
* *Tamarix aphylla*	Athel tamarix	
* *Tamarix chinensis*	Chinese tamarix	
Urticaceae - Nettle family		
Urtica dioica	Stinging nettle	
* *Urtica urens*	Dwarf nettle	
Vitaceae - Grape family		
Vitis girdiana	Desert wild grape	
Zygophyllaceae - Caltrop family		
* *Tribulus terrestris*	Puncturevine	
MONOCOTS		
Agavaceae - Century Plant family		
* *Agave americana*	American century plant	
Hesperoyucca whipplei	Chaparral yucca	
* *Yucca gloriosa*	Garden yucca	
Arecaceae - Palm family		
* *Phoenix canariensis*	Canary Island palm	
* *Washingtonia robusta*	Mexican fan palm	
Cyperaceae - Sedge family		
* *Cyperus involucratus*	Umbrella flatsedge	
Schoenoplectus californicus	California bulrush	
Juncaceae - Rush family		
Juncus mexicanus	Mexican rush	
Juncus sp.	Rush	
Poaceae - Grass family		
* *Arundo donax*	Giant reed	
* *Avena barbata*	Slender wild oat	
* *Bromus diandrus*	Ripgut brome	
* *Bromus hordeaceus*	Soft brome	
* *Bromus madritensis*	Compact brome	
* *Cortaderia selloana*	Pampas grass	
* *Cynodon dactylon*	Bermuda grass	
Distichlis spicata	Salt grass	

Scientific Name	Common Name	Special Status
* *Ehrharta calycina*	Perennial veldt grass	
* *Festuca myuros*	Rattail fescue	
* *Festuca perennis*	Rye grass	
Hordeum jubatum ssp. jubatum	Foxtail barley	
* *Hordeum murinum*	Wall barley	
Melica imperfecta	Coast range onion grass	
* *Polypogon monspeliensis*	Rabbit foot beard grass	
* *Schismus barbatus*	Mediterranean schismus	
Stipa cernua	Nodding needle grass	
* *Stipa miliacea var. miliacea*	Smilo grass	
Themidaceae - Brodiaea family		
Dichelostemma capitatum	Blue dicks	
Typhaceae - Cattail family		
Typha latifolia	Broad-leaved cattail	

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened

CRPR – California Rare Plant Rank
1A. Presumed extinct in California and elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extinct in California, more common elsewhere
2B. Rare or Endangered in California, more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

Threat Ranks
.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

Appendix F

Focused Surveys for Western Burrowing Owl

December 2, 2022

Matt Romero, ASLA
Senior Associate
Studio MLA
251 South Mission Road
Los Angeles, CA 90033

Subject: **Burrowing Owl Focused Survey Results in Support of the City of Riverside Gateway Project, in Riverside County, California**

Dear Mr. Romero:

This report documents the findings of a focused survey effort to determine presence or absence of burrowing owl (*Athene cunicularia*) in support of the Riverside Gateway Project (Project) proposed by the City of Riverside Parks, Recreation, and Community Services Department (PRCSD) in the City of Riverside, Riverside County, California (Figure 1). This effort was performed under the survey guidelines of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), as implemented by the City of Riverside. Portions of the Project falls within the MSHCP habitat assessment area for burrowing owl. Focused surveys were conducted by ICF International (ICF) biologists in July and August 2022.

Project Description

The Project involves a multidisciplinary effort for the planning, design, engineering, and associated community outreach and environmental compliance for California Environmental Quality Act (CEQA) review for nine identified park sites in the City, in Riverside County, California. The Santa Ana River Trail, adjacent to the Santa Ana River, is completed throughout its length in the City. After completing the 2018 update to the *Citywide Parks System Master Plan*, the PRCSD proposes to complete planning and design for improvements and enhancement to existing and proposed park areas located along the Santa Ana River and the 4.7 miles of the Santa Ana River Parkway from Fairmount Park to Martha McLean Anza Narrows Park. These park sites were initially identified as part of the planning process in development of the *Santa Ana River Parkway and Open Space Plan* completed in 2018. Development of these park sites would comply with the City's overarching goal to "put the river back into Riverside" by providing diverse recreational and educational opportunities, access to open space, and restoration of natural habitat for people and wildlife.

The entire 11-mile northern edge of the City fronts the Santa Ana River. In Riverside, the Santa Ana River is a juxtaposition of a natural and scenic riparian corridor running through an urban setting. The Santa Ana River is a vital resource in the City, and it supports several important functions for the City, including providing natural habitat that serves wildlife, recharging the groundwater basin

that supplies water to residences and businesses, and providing recreational opportunities to connect people to natural resources. There is also a need to provide no-cost and low-cost parks and recreational resources, open space access, and active transportation resources to support the disadvantaged communities identified near the project area in the City.

Conceptual improvement and engagement opportunities have been identified for each of the nine individual park sites, including, but not limited to, habitat conservation areas, woodland restoration, parking lots, an amphitheater, restroom and drinking water facilities, nature trails, active recreation and exercise stations, passive park amenities, camping, picnic areas, community garden and incubator farm, vista points, public art, interpretive and wayfinding signage, landscaping, irrigation, lighting, shade enhancements, equestrian facilities, and bicycle repair station and bike racks, among others. The nine park sites in the City are (1) Camp Evans; (2) Loring Park; (3) Carlson Park; (4) St. Francis Falls; (5) Santa Ana River Greenway; (6) Tequesquite Extension North; (7) Tequesquite Extension South; (8) Martha McLean Anza Narrows Park; and (9) Jurupa Avenue Trailhead, shown on Figure 2 (Appendix A).

The Project is a forward-looking proposal to recover, reconceive and re-engage with the Santa Ana River to deliver ecological, recreational, cultural, social, and economic value to the City's inhabitants. The Project is funded by a grant provided by the State Coastal Conservancy, a California state agency established in 1976 to protect and improve natural lands and waterways, help people get to and enjoy the outdoors, and sustain local economies along California's coast. The State Coastal Conservancy acts with others to protect, restore, and increase public access to California's coast, ocean, coastal watersheds, and the San Francisco Bay Area. Its vision is of a beautiful, restored, and accessible coast for current and future generations of Californians.

Location

The Project is along the southern side of the Santa Ana River floodplain in the City, in Riverside County, California, shown on Figure 2 (Appendix A). Portions of the Project that fall within MSHCP burrowing owl survey area include Jurupa Avenue Trailhead, Santa Ana River Greenway, Tequesquite Extension South, Tequesquite Extension North, Carlson Park and St. Francis Falls, and Camp Evans, shown on Figures 3a–3c (Appendix A).

The burrowing owl survey area is depicted within Township 2 South, Range 6 West, Sections 25 and Unsectioned areas around Mount Rubidoux in Township 2 South, Range 5 West of the Riverside West, California, U.S. Geological Survey 7.5-minute quadrangle map (USGS 2022).

Survey Area

The burrowing owl survey area includes all portions of the Project limits that fall within the MSHCP burrowing owl survey area, plus an additional 500-feet where the MSHCP burrowing owl survey area extends beyond the project limits, shown on Figures 3a–3c (Appendix A). No areas outside the MSHCP burrowing owl survey area were surveyed.

Some portions of the Project's burrowing owl survey area provided suitable conditions for burrowing owl in the form of open areas, bare ground, or low-growing vegetation and numerous

potentially suitable burrowing features. such as California ground squirrel burrows, debris piles, and piles of boulders associated with erosion-control riprap. Dominant vegetation communities within these suitable areas included nonnative grassland, disturbed, Russia thistle–five hook bassia fields, ruderal upland mustard and forbs, and California croton scrub.

Other portions of the Project's burrowing owl survey area were lacking suitable conditions for burrowing owl because these areas consisted of dense tree and/or shrub cover with little-to-no potentially suitable burrowing features. Dominant vegetation communities exhibiting poor burrowing owl conditions included riparian communities such as Arrow Weed Scrub, Southern Arroyo Willow Riparian Forest, Mulefat Scrub, Southern Riparian Woodland, Black Willow Riparian Woodland, Southern Cottonwood–Willow Riparian Forest, and non-native riparian communities dominated by Mexican fan palm (*Washingtonia robusta*), giant reed (*Arundo donax*), athel (*Tamarix aphylla*), or Tree-of-Heaven (*Ailanthus altissima*). Specifically, riparian areas associated with Camp Evans, Jurupa Avenue Trailhead, Santa Ana River Greenway, and Tequesquite Extension North.

Representative photographs of the survey area are provided in Appendix B.

Survey Methods

Surveys for burrowing owl followed the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside Environmental Programs Department 2006). Under the MSCHP, the focused survey protocol was split in two parts: (a) Focused Burrow Survey; and (b) Focused Burrowing Owl Survey. The work was conducted during the breeding season as defined under the MSCHP (March 1 to August 31). All work was conducted during weather that was conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys were not performed within 5 days following rain, during rain, high winds (i.e., >20 miles per hour), and dense fog, nor when temperatures exceeded 90 degrees Fahrenheit. For Part B, surveys were conducted in the morning between 1 hour before sunrise and 2 hours after sunrise.

The entire burrowing owl survey area consisted of approximately 492 acres. As a result, the survey area was separated into three manageable survey units, referred to as Area A, Area B, and Area C, shown in Figures 3a–3c (Appendix A). Burrowing owl survey Area A consisted of approximately 141 acres, Area B approximately 197 acres, and Area C approximately 153 acres.

Part A. Focused Burrow Survey

A systematic survey for burrows, including burrowing owl sign, was conducted by walking through potentially suitable habitat over the entire survey area (i.e., the project site and 500-foot buffer). Transects were walked to allow 100-percent visual coverage of the ground surface. The distance between transect center lines was no more than 30 meters (approximately 100 feet) and was reduced to account for differences in terrain, vegetation density, and ground-surface visibility. The locations of all suitable burrowing owl habitat, potential owl burrows, burrowing owl sign, and any owls observed were recorded and mapped, including GPS coordinates, on the ESRI Field Maps mobile application. Natural or human-made structures and debris piles that could potentially support burrowing owls also were noted and mapped.

Part B. Focused Burrowing Owl Surveys

The focused surveys consisted of site visits on four separate days. The first was conducted concurrently with Part A. All potentially suitable habitat, as well as mapped burrows and known locations of owl sign and perch locations (if any), were scanned using binoculars. Part B activities occurred prior to any walking of transects associated with Part A. Once this had been completed, a survey for owls and owl sign was conducted by walking through suitable habitat within the entire project limits and all areas within 150 meters (approximately 500 feet) of the project limits. These pedestrian surveys followed transects spaced to allow 100-percent visual coverage of the ground surface and spaced no more than 30 meters (approximately 100 feet) apart. For potentially suitable habitat within the 150-meter buffer for which legal access had not been acquired, binoculars were used to determine if owls were present.

Results

The findings of the Part A focused burrow survey revealed the Project's burrowing owl survey areas provide suitable conditions for burrowing owl. All observed California ground squirrel burrows, potential perches, debris piles, and suitable rip-rap located within the survey areas were mapped and thoroughly inspected (where access to those features was obtained) for burrowing owl sign. Figures 4a to 4c (Appendix A) depict survey boundaries and locations of observed potential burrowing features. Table 1 provides the focused burrow survey dates, personnel, and weather conditions. Appendix C provides a list of wildlife species detected during the surveys.

Table 1. Focused Burrow Survey Dates, Personnel, and Weather Conditions

Survey Area	Visit #	Date	Time	Personnel	Conditions
A	1	7/5/22	0830–1430	Phil Richard Cole Sutter Vincent Baker Brian Cropper	75–86°F, winds 1–4 mph, clear, good visibility
B	1	7/6/22	0830–1345	Phil Richards Vincent Baker Garrett Moss Brian Cropper	76–85°F, winds 1–4 mph, clear, good visibility
C	1	7/14/22	0830–1300	Phil Richards Vincent Baker Garrett Moss	72–88°F, winds 1–6 mph, clear, good visibility

°F = degrees Fahrenheit; mph = miles per hour.

The results of the Part B focused burrowing owl survey yielded no burrowing owls or potential burrowing owl sign (e.g., white wash, feathers, pellets, or tracks) within the Project's burrowing owl survey areas. Table 2 provides the focused burrowing owl survey dates, personnel, and weather conditions.

Table 2. Focused Burrowing Owl Survey Dates, Personnel, and Weather Conditions

Survey Area	Visit #	Date	Time	Personnel	Conditions
A	1	7/5/22	0535–0740	Phil Richard Cole Sutter Vincent Baker	61–70°F, winds 1–4 mph, clear, good visibility
A	2	7/18/22	0540–0750	Phil Richards Cole Sutter	73–74°F, winds 1–2 mph, partly cloudy, good visibility
A	3	7/28/22	0545–0800	Phil Richards Vincent Baker	66–68°F, winds 0–3 mph, partly cloudy, good visibility
A	4	8/09/22	0555–0800	Phil Richards James Hickman	74–75°F, winds 0–2 mph, partly cloudy, good visibility
B	1	7/6/22	0540–0745	Phil Richards Vincent Baker	63–71°F, winds 1–3 mph, clear, good visibility
B	2	7/19/22	0530–0750	Phil Richards Vincent Baker	70–76°F, winds 0–2 mph, clear, good visibility
B	3	8/2/22	0550–0800	Phil Richards James Hickman	71–73°F, winds 0–3 mph, clear, good visibility
B	4	8/11/22	0615–0805	Phil Richards Vincent Baker	69–76°F, winds 0–3 mph, clear, good visibility
C	1	7/14/22	0550–0750	Phil Richards Vincent Baker	65–68°F, winds 1–4 mph, clear, good visibility
C	2	7/26/22	0530–0755	Phil Richards Cole Sutter	66–68°F, winds 0–3 mph, clear, good visibility
C	3	8/4/22	0550–0800	Phil Richards James Hickman	72–74°F, winds 0–3 mph, clear, good visibility
C	4	8/23/22	0615–0810	Phil Richards Vincent Baker	69–71°F, winds 0–3 mph, clear, good visibility

°F = degrees Fahrenheit; mph = miles per hour.

If you have questions or need clarification regarding this report, please contact the lead biologist at (949) 333-6643 or Phillip.Richards@icfi.com.

Sincerely,



Phillip Richards
ICF Biologist

Enclosed:
Appendix A: Figures
Appendix B: Site Photographs
Appendix C: Wildlife Species Detected
Appendix D: Certification Statement

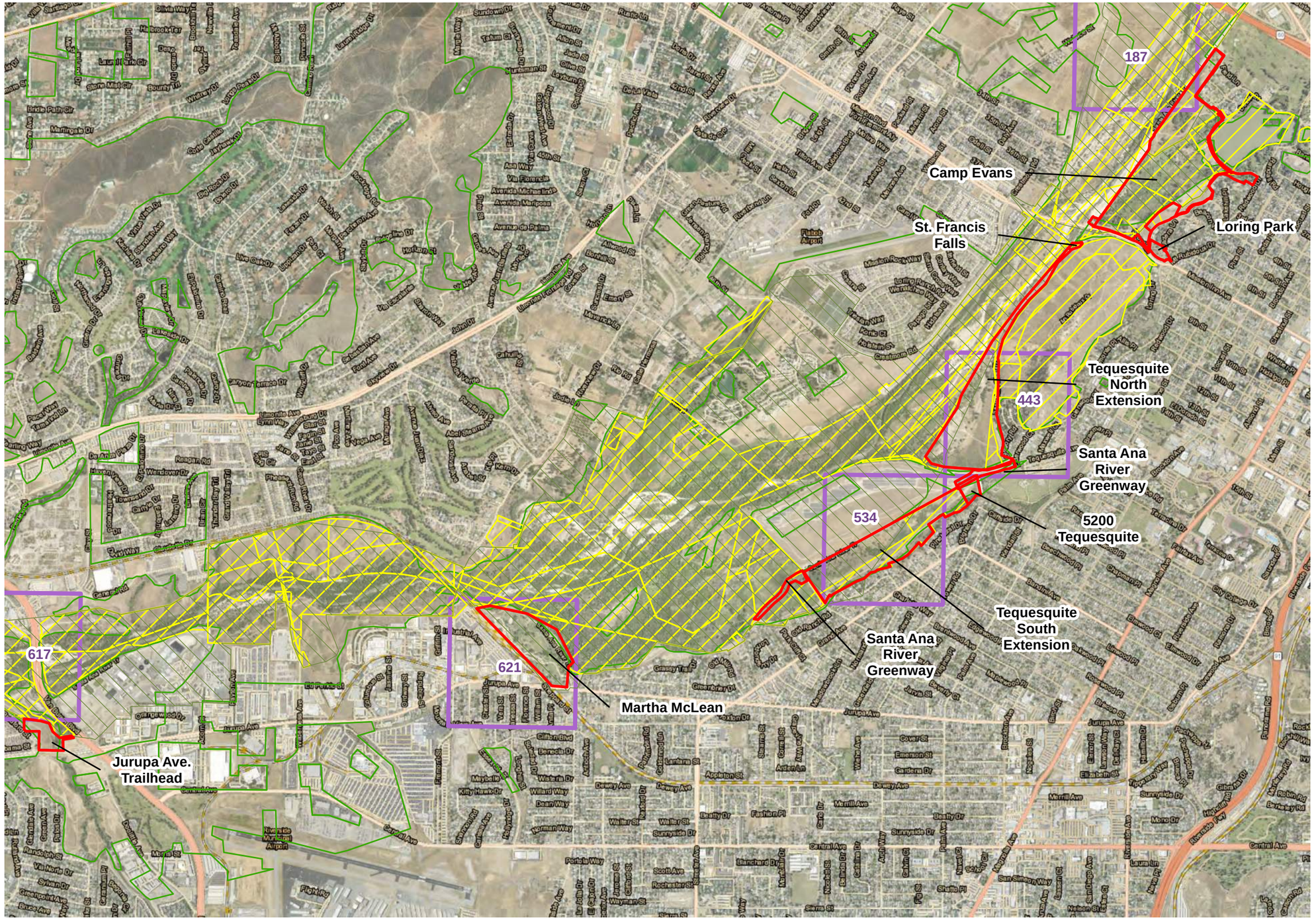
Literature Cited

County of Riverside Environmental Programs Department. 2006. *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area, March 29, 2006*.

U.S. Geological Survey (USGS). 2022. Geographic Names Information System. Available: https://www.usgs.gov/the-national-map-data-delivery. Accessed: November 9, 2022.

Appendix A

Figures

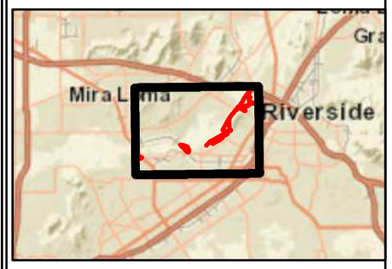


Legend

- Riverside Gateway Project Limits

WRMSHCP Units

- Criteria Area Cells
- Riverside County Core Linkage
- Public/Quasi-public Conserved Lands



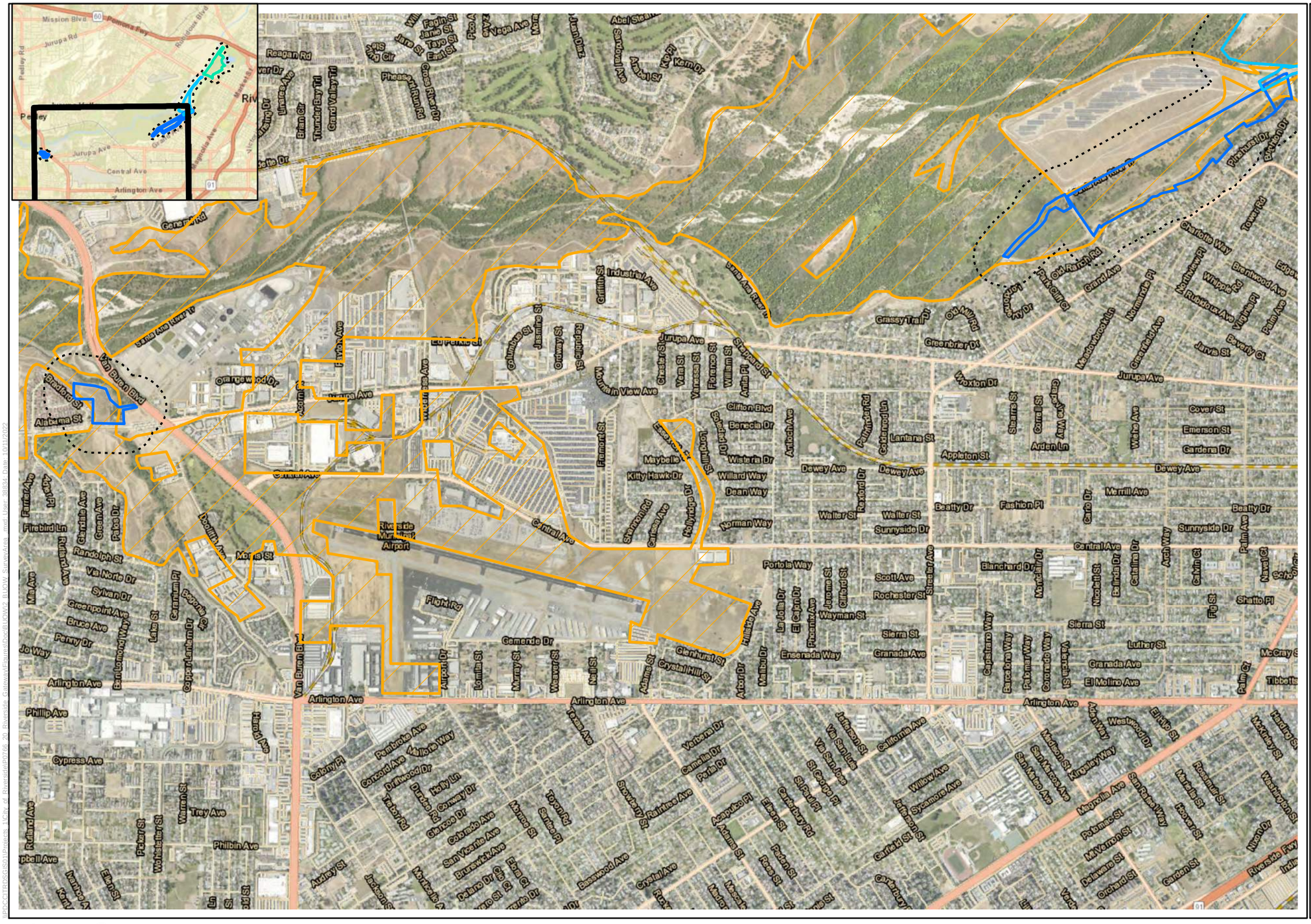
Source: ICF, USFWS, USGS; CNDDB 2019

0 1,050 2,100 Feet

1:26,000

N

Figure 1
Project Overview
Riverside Gateway



Legend

- Burrowing Owl Survey Area A
- Burrowing Owl Survey Area B
- Survey Area 500-foot Buffers

WRMSHCP Units

- Burrowing Owl Survey Area

Source: ICF, USFWS, USGS; CNDDB 2019

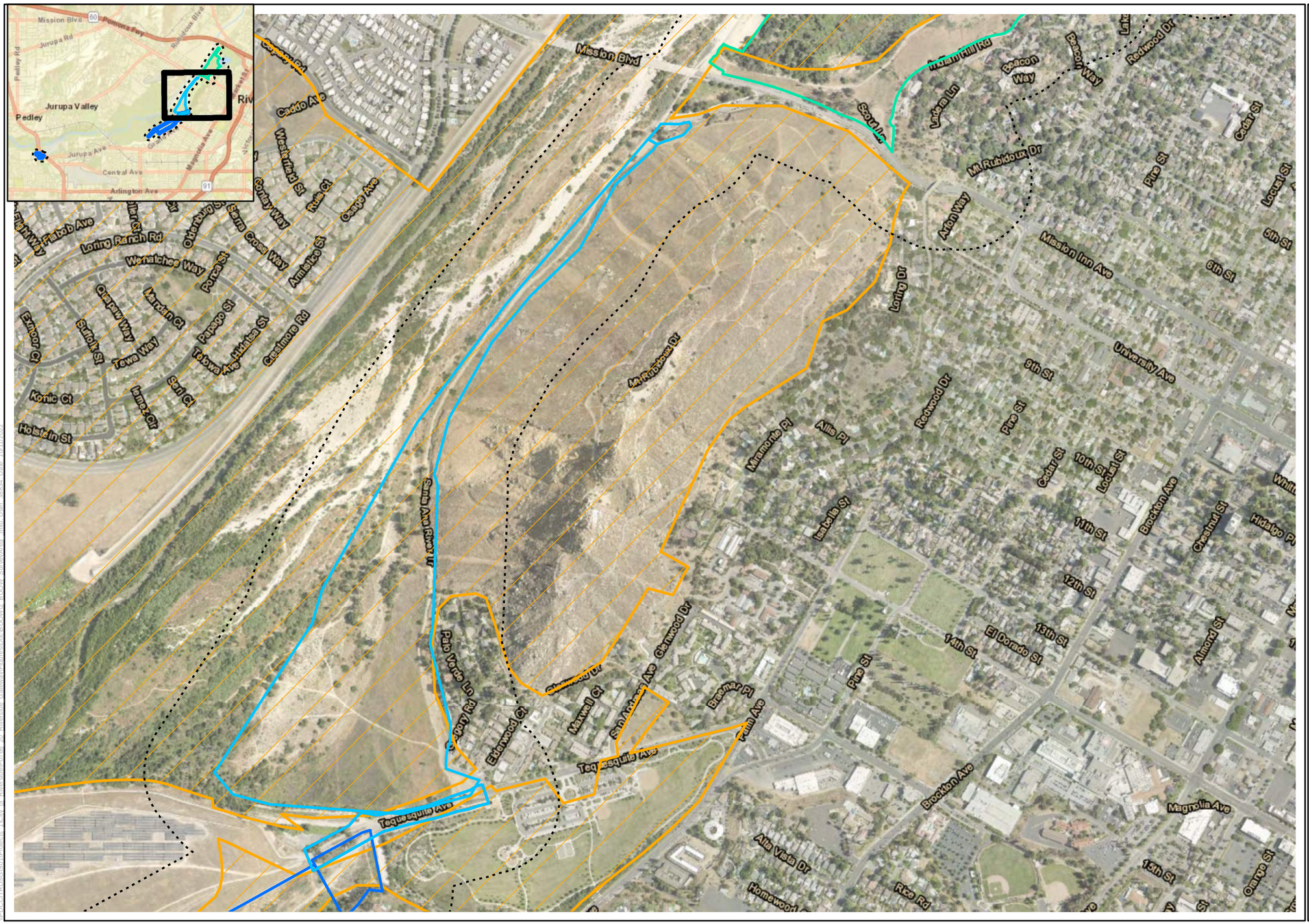
ICF

N

0 800 1,600 Feet

1:20,000

Figure 2a
Burrowing Owl 2022 Survey Area A
Riverside Gateway



Legend

- Burrowing Owl Survey Area A
- Burrowing Owl Survey Area B
- Burrowing Owl Survey Area C
- Survey Area 500-foot Buffers

WRMSHCP Units

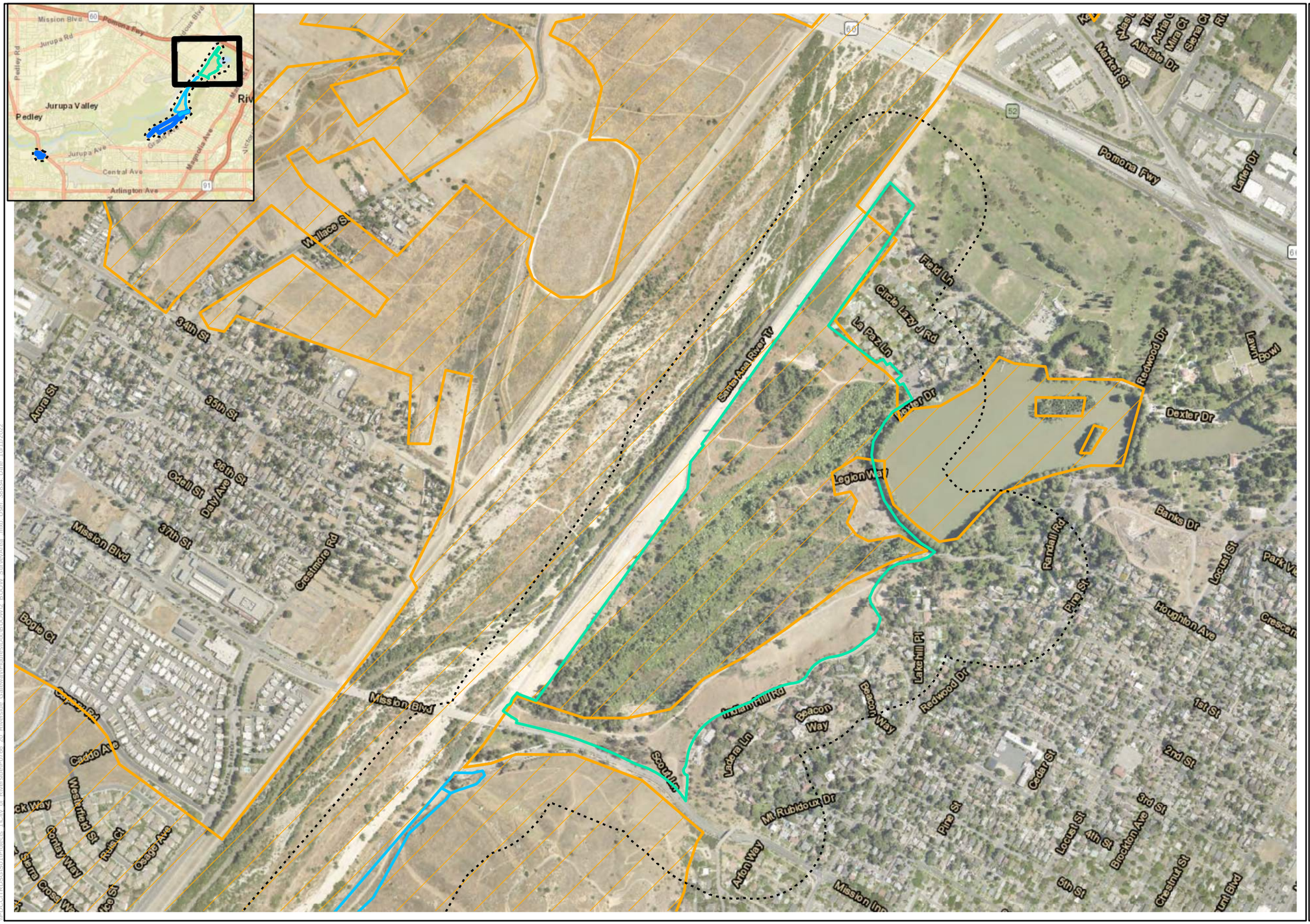
- Burrowing Owl Survey Area

Source: ICF, USFWS, USGS; CNDDB 2019

0 350 700 Feet

1:8,400

Figure 2b
Burrowing Owl 2022 Survey Area B
Riverside Gateway



Legend

- Burrowing Owl Survey Area B
- Burrowing Owl Survey Area C
- Survey Area 500-foot Buffers

WRMSHCP Units

- Burrowing Owl Survey Area

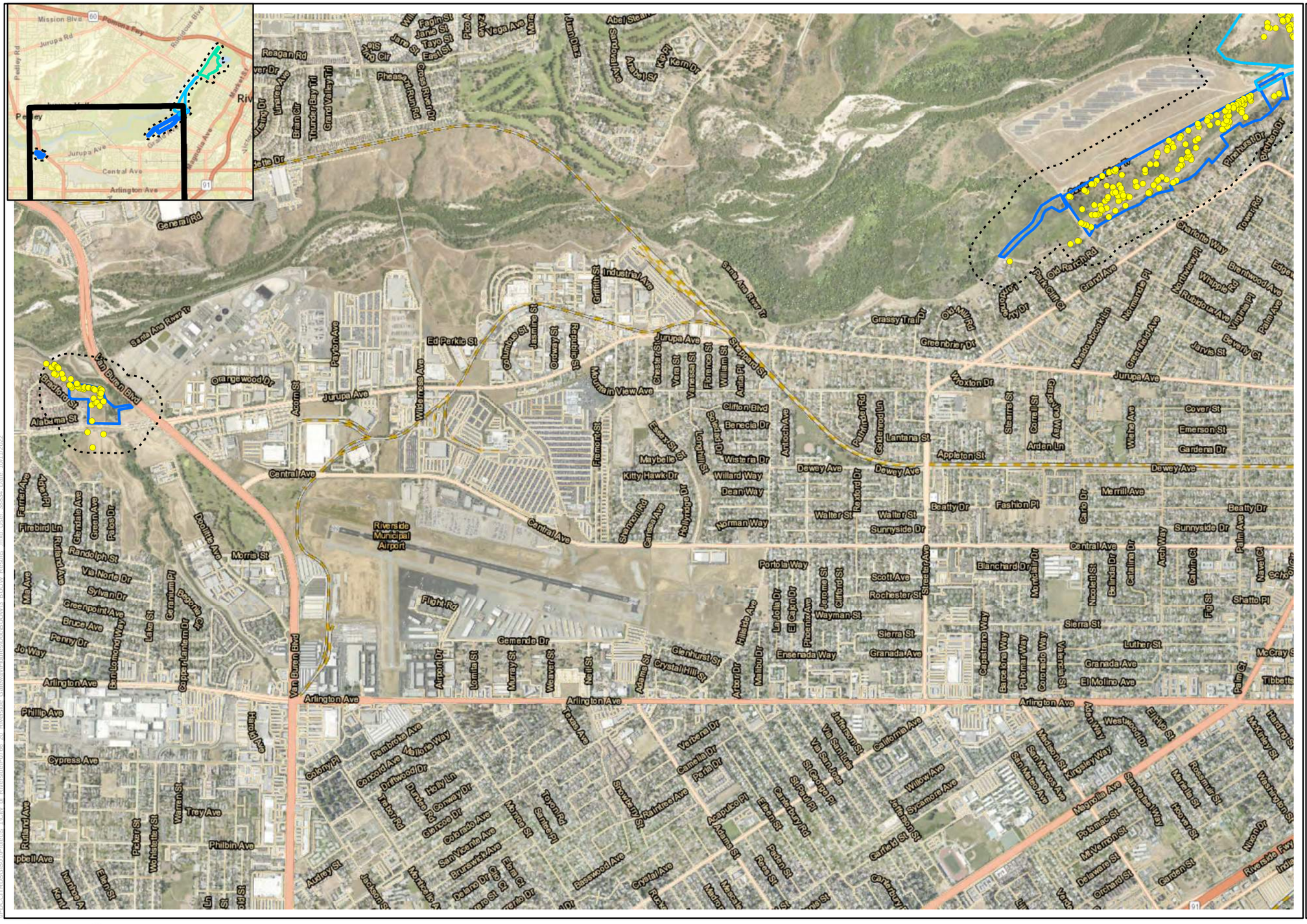
Source: ICF, USFWS, USGS; CNDDB 2019

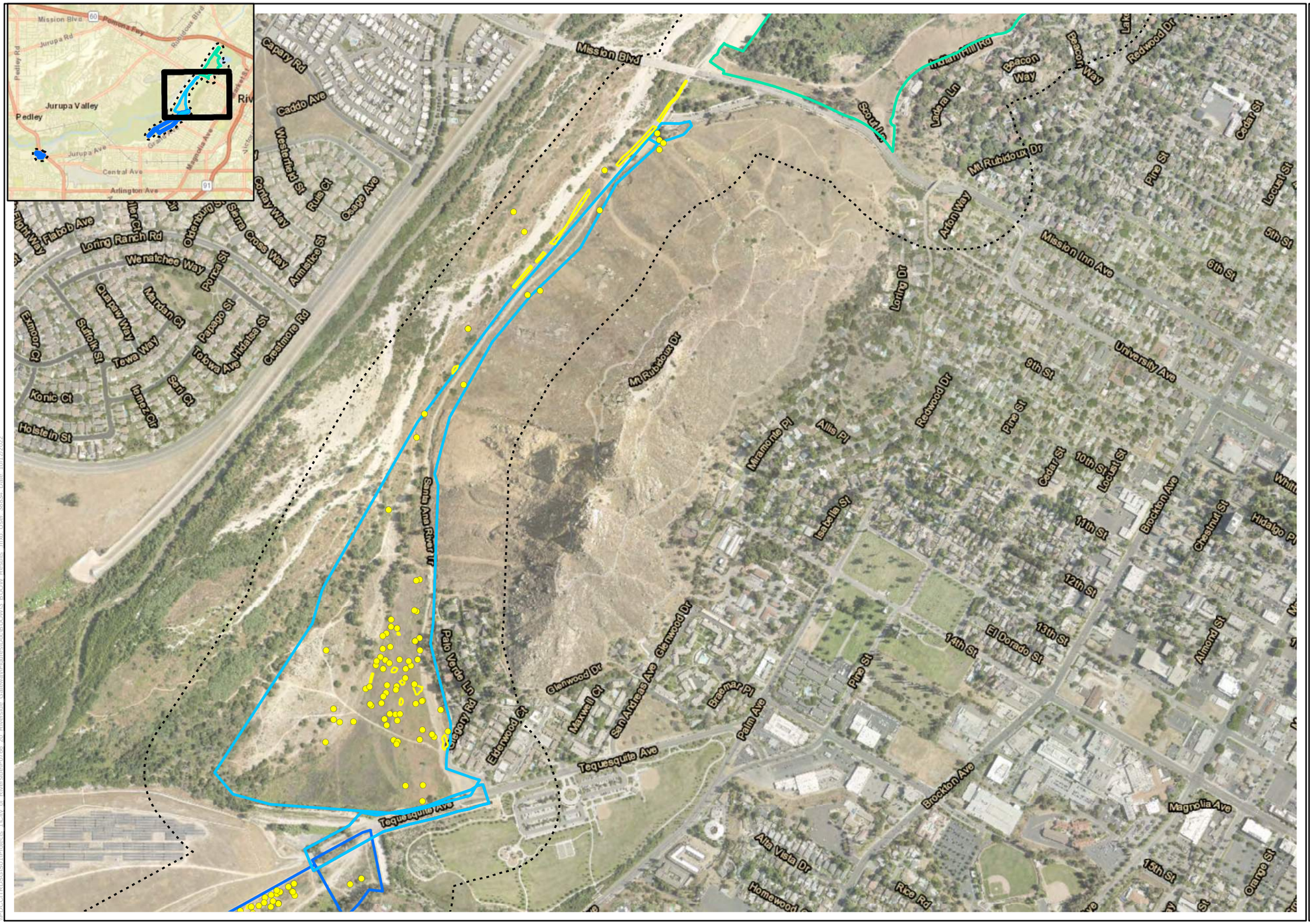
0 350 700 Feet

1:8,400

N

Figure 2c
Burrowing Owl 2022 Survey Area C
Riverside Gateway


Mission Blvd
Jurupa Rd
Pedley Rd
Jurupa Ave
Central Ave
Arlington Ave
Pedley
Riv
60
91
Reagan Rd
Fagin St
James St
Tayo St
Earl St
Jarro St
Pheasant Run Rd
Goose River Dr
Grand Valley Trl
Thunder Bay Trl
Brian Cir
Linaire Ave
Abel Steam
Vega Ave
Juan Diaz
Sargent Ave
Arbel St
Kern Dr
Pinehurst Dr
Eyerdon Dr
Towell Rd
Charlotte Way
Old Ranch Rd
Grand Ave
Whipple St
Rubidoux Ave
Brentwood Ave
Palm Ave
Beverly Ct
Jarvis St
Jurupa Ave
Greenbrier Dr
Grassy Trail Dr
Old Mill Rd
Meadowbrook Ln
Greenfield Ave
Normandie Pl
Taylor Dr
Park Glen Ct
Wroxton Dr
Lantana St
Appleton St
Dewey Ave
Cover St
Emerson St
Gardena Dr
Merrill Ave
Beatty Dr
Fashion Pl
Carlo Dr
Sunnyside Dr
Central Ave
Arch Way
Calvin Ct
Palm Ave
Shatto Pl
Sierra St
Luther St
Granada Ave
El Molino Ave
McCray St
Tibbetts
Arlington Ave
Portola Way
Scott Ave
Rochester St
Wayman St
Ensenada Way
Granada Ave
Sierra St
Blanchard Dr
Meridian Dr
Capistrano Way
Barcelona Way
Palomar Way
Coronado Way
Victoria St
Nogales St
Belinda Dr
Catalina Dr
Calvin Ct
Palm Ave
Navel Ct
Fig St
Shatto Pl
Tibbetts
McCray St
Santa Ana River Trl
Ed Perkic St
Columbus St
Jasmine St
Orangewood Dr
Payton Ave
Jurupa Ave
Acorn St
Wilderness Ave
Fairport St
Mountain View Ave
Chester St
Yuma St
Florence St
William St
Arella Pl
Shepard St
Griffith St
Industrial Ave
Santa Ana River Trl
Ivan Burton Blvd
Bradford Dr
Alabama St
Central Ave
Riverside Municipal Airport
Flight Rd
Gemende Dr
Airport Dr
Iomita St
Murray St
Weaver St
Nell St
Adams St
Glenhurst St
Crystal Hill St
Arbor Dr
Malibu Dr
Hillside Ave
La Jolla Dr
El Cajon Dr
Phoenix Ave
Jerome St
Clifford St
Van Buren Blvd
Arlington Ave
Phillip Ave
Cypress Ave
Pembroke Ave
Mallorie Way
Concord Ave
Drummond Dr
Dunbar Rd
Tabor Rd
Conway Dr
Glenoe Dr
Colorado Ave
San Vicente Ave
Brunswick Ave
Delano Dr
Ebon Ct
Ebon Dr
Ackley St
Jackson St
Montecello Ave
Celery Pl
Warren St
Trey Ave
Philbin Ave
Wentworth St
Packer St
Richard Ave
Pelton Dr
Green Ave
Cleardale Ave
Firebird Ln
Randolph St
Via Norte Dr
Sylvan Dr
Greenpoint Ave
Bruce Ave
Penny Dr
Jo Way
Mia Ave
Lake St
Bartlomeo Way
Copper Lantern Dr
Cerritos Pl
Bagdad Cir
Doolittle Ave
Morris St
Riverside Fwy
Nixon Dr
Garden St
Orchard St
Delaware St
Mt Vernon St
Palomas St
Magnolia Ave
San Rafael Way
Rosemont St
Howard St
Marcella St
Kingsley Way
Madison St
San Marcos Ave
San Marcos Dr
Arden Way
Westwood Dr
El Rio St
Arden Way
McKinley St
Washington St
Willow Ave
Sycamore Ave
Jefferson St
Carlotti St
Acapulco Pl
Adams St
Reed St
Paxton St
Carbondale Rd
Eldon St
St Paul Pl
St George Pl
Via San Luis
Via San Jose
Jefferson St
California Ave
Camellia Dr
Portola Dr
Ventana Dr
Texas Ave
Basswood Ave
Crystal Ave
Rainbow Ave
Snowberry St
Toronto Rd
Sanson Pl
Monroe St
Cedarcliff Dr
Longhill Dr
Ridgeline Dr
Rockridge Dr
Norman Way
Willard Way
Dean Way
Kitty Hawk Dr
Maybelle St
Essex St
Wisteria Dr
Benecia Dr
Clifton Blvd
Fremont St
Antioch Ave
Redondo Rd
Cedarhurst Ln
Lantana St
Dewey Ave
Walter St
Sunnyside Dr
Roxford Dr
Shannon Rd
Carissa Ave
Hollyridge Dr
Stearns St
Correll St
Garden View Way
Arden Ln
Wade Ave
Beatty Dr
Merrill Ave
Dewey Ave
Sunnyside Dr
Central Ave
Portola Way
Scott Ave
Rochester St
Wayman St
Ensenada Way
Granada Ave
Sierra St
Luther St
El Molino Ave
Arlington Ave
Tibbetts
McCray St
Palm Ave
Nevel Ct
Fig St
Shatto Pl
Sierra St
Luther St
Granada Ave
Arlington Ave
Tibbetts



Legend

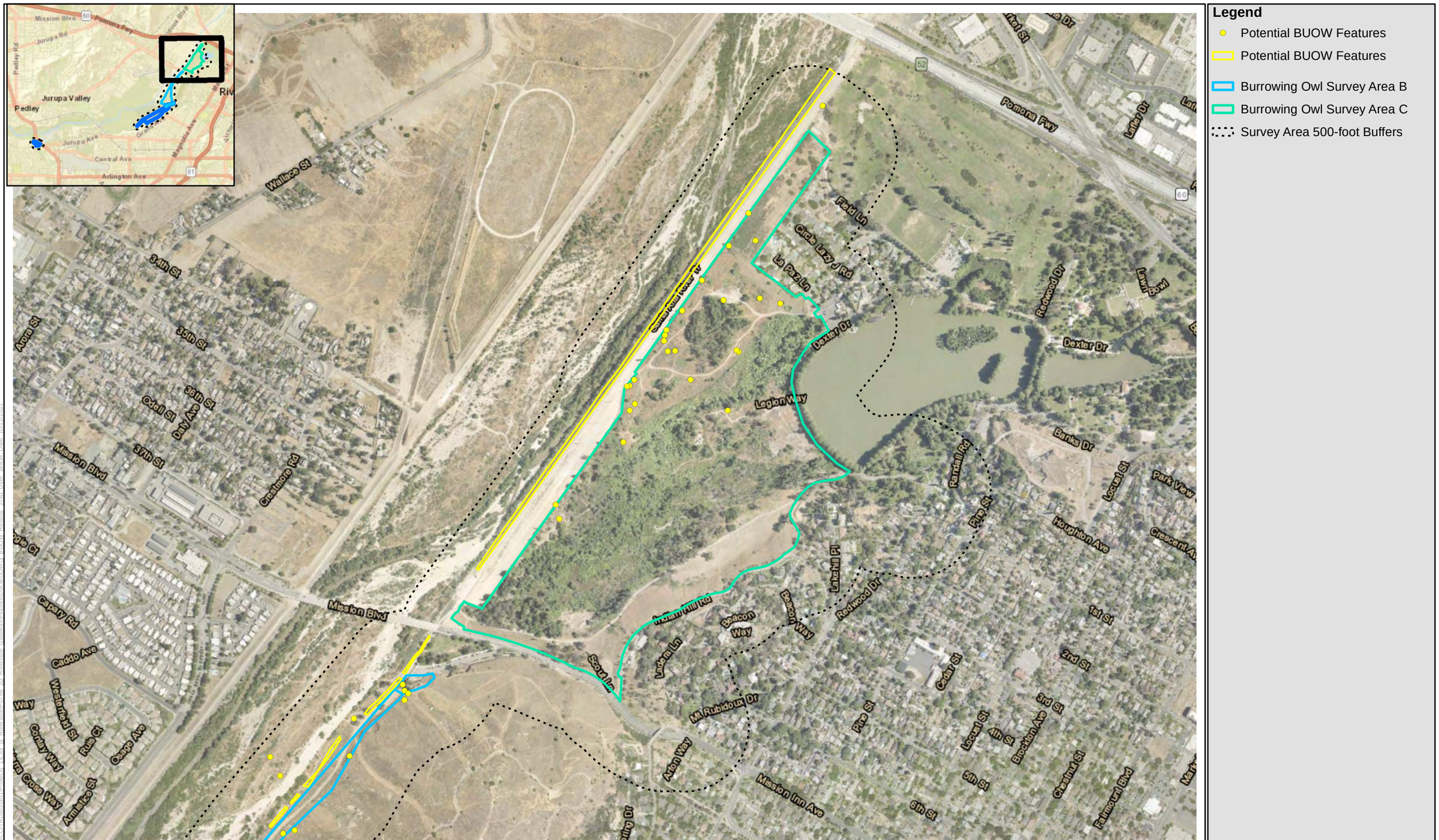
- Potential BUOW Features
- Potential BUOW Features
- Burrowing Owl Survey Area A
- Burrowing Owl Survey Area B
- Burrowing Owl Survey Area C
- Survey Area 500-foot Buffers

Source: ICF, USFWS, USGS; CNDDB 2019

0 350 700 Feet

1:8,400

Figure 3b
Burrowing Owl 2022 Survey Results - Area B
Riverside Gateway



Legend

- Potential BUOW Features
- Potential BUOW Features
- Burrowing Owl Survey Area B
- Burrowing Owl Survey Area C
- Survey Area 500-foot Buffers

Source: ICF, USFWS, USGS; CNDDB 2019

0 350 700 Feet

1:8,400

Figure 3c
Burrowing Owl 2022 Survey Results - Area C
Riverside Gateway

Appendix B

Site Photographs



Photograph: 1

Photo Date: July 5, 2022

Location: Area A – Jurupa Ave. Trailhead, south side of Jurupa Ave.

Direction: View facing southeast

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 2

Photo Date: July 5, 2022

Location: Area A – Jurupa Ave. Trailhead, north side of Jurupa Ave.

Direction: View facing north

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 3

Photo Date: October 20, 2020

Location: Area A – Jurupa Ave. Trailhead, north side of Jurupa Ave.

Direction: View facing northwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 4

Photo Date: July 5, 2022

Location: Area A – Santa Ana River Greenway (south)

Direction: View facing southwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 5

Photo Date: July 5, 2022

Location: Area A – west end of Tequesquite South Extension.

Direction: View facing north

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 6

Photo Date: July 5, 2022

Location: Area A – center part of Tequesquite South Extension.

Direction: View facing southwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 7

Photo Date: July 5, 2022

Location: Area A – northeast part of Tequesquite South Extension

Direction: View facing southwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 8

Photo Date: July 5, 2022

Location: Area A – east end of Tequesquite South Extension

Direction: View facing north

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 9

Photo Date: July 6, 2022

Location: Area B – southwest corner of Tequesquite North Extension

Direction: View facing northwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 10

Photo Date: July 6, 2022

Location: Area B – south end of Tequesquite North Extension

Direction: View facing west

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 11

Photo Date: July 6, 2022

Location: Area B – center part of Tequesquite North Extension

Direction: View facing northeast

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 12

Photo Date: July 6, 2022

Location: Area B – north end of Tequesquite North Extension

Direction: View facing southeast

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 13

Photo Date: July 14, 2022

Location: Area C – south end of Camp Evans along existing paved bike trail

Direction: View facing northeast

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 14

Photo Date: July 14, 2022

Location: Area C – center part of Camp Evans along existing paved bike trail

Direction: View facing southwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 15

Photo Date: July 14, 2022

Location: Area C – south end of Camp Evans along existing paved bike trail

Direction: View facing northwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 16

Photo Date: July 14, 2022

Location: Area C – north end of Camp Evans

Direction: View facing southwest

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 17

Photo Date: July 14, 2022

Location: Area C – center part of Camp Evans

Direction: View facing northeast

Comment: Photo depicts existing conditions at the time of the survey



Photograph: 18

Photo Date: July 14, 2022

Location: Area C – center part of Camp Evans

Direction: View facing southwest

Comment: Photo depicts existing conditions at the time of the survey

Appendix C

Wildlife Species Detected

Appendix B. Wildlife Species Detected

Scientific Name	Common Name	Special Status
VERTEBRATES		
Reptiles		
Phrynosomatidae - Spiny Lizard Family		
Sceloporus occidentalis	Western Fence Lizard	
Birds		
Anatidae - Swan, Goose, and Duck Family		
Anas platyrhynchos	Mallard	
Ardeidae - Heron Family		
Ardea herodias	Great Blue Heron	
Ardea alba	Great Egret	
Egretta thula	Snowy Egret	
Threskiornithidae - Ibis Family		
Plegadis chihi	White-faced Ibis	
Cathartidae - New World Vulture Family		
Cathartes aura	Turkey Vulture	
Accipitridae - Hawk Family		
Accipiter cooperii	Cooper's Hawk	
Buteo lineatus	Red-shouldered Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Charadriidae - Plover Family		
Charadrius vociferus	Killdeer	
Columbidae - Pigeon and Dove Family		
Patagioenas fasciata	Band-tailed Pigeon	
**Streptopelia decaocto*	Eurasian Collared-Dove	
Zenaida macroura	Mourning Dove	
Columbina passerina	Common Ground-Dove	
Cuculidae - Cuckoo and Roadrunner Family		
Geococcyx californianus	Greater Roadrunner	
Strigidae - Typical Owl Family		
Bubo virginianus	Great Horned Owl	
Apodidae - Swift Family		
Aeronautes saxatalis	White-throated Swift	
Trochilidae - Hummingbird Family		
Calypte anna	Anna's Hummingbird	
Calypte costae	Costa's Hummingbird	

Scientific Name	Common Name	Special Status
Selasphorus sasin	Allen's Hummingbird	
Picidae - Woodpecker Family		
Melanerpes formicivorus	Acorn Woodpecker	
Picoides nuttallii	Nuttall's Woodpecker	
Picoides pubescens	Downy Woodpecker	
Colaptes chrysoides	Northern Flicker	
Falconidae - Falcon Family		
Falco sparverius	American Kestrel	
Tyrannidae - Tyrant Flycatcher Family		
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Myiarchus cinerascens	Ash-throated Flycatcher	
Tyrannus vociferans	Cassin's Kingbird	
Tyrannus verticalis	Western Kingbird	
Vireonidae - Vireo Family		
Vireo bellii pusillus	Least Bell's Vireo	FE, SE
Vireo gilvus	Warbling Vireo	
Corvidae - Jay and Crow Family		
Aphelocoma californica	California Scrub-Jay	
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Alaudidae - Lark Family		
Eremophila alpestris	Horned Lark	
Hirundinidae - Swallow Family		
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Hirundo rustica	Barn Swallow	
Aegithalidae - Bushtit Family		
Psaltriparus minimus	Bushtit	
Troglodytidae - Wren Family		
Salpinctes obsoletus	Rock Wren	
Catherpes mexicanus	Canyon Wren	
Troglodytes aedon	House Wren	
Thryomanes bewickii	Bewick's Wren	
Regulidae - Kinglet Family		
Regulus calendula	Ruby-crowned Kinglet	

Scientific Name	Common Name	Special Status
Turdidae - Thrush Family		
Sialia mexicana	Western Bluebird	
Mimidae - Thrasher Family		
Toxostoma redivivum	California Thrasher	
Mimus polyglottos	Northern Mockingbird	
Sturnidae - Starling Family		
**Sturnus vulgaris*	European Starling	
Motacillidae - Pipit and Wagtail Family		
Anthus rufescens	American Pipit	
Ptilogonatidae - Silky-flycatcher Family		
Phainopepla nitens	Phainopepla	
Parulidae - Wood-Warbler Family		
Geothlypis trichas	Common Yellowthroat	
Setophaga petechia	Yellow Warbler	CSC
Setophaga coronata	Yellow-rumped Warbler	
Setophaga townsendi	Townsend's Warbler	
Cardellina pusilla	Wilson's Warbler	
Icteria virens	Yellow-breasted Chat	CSC
Emberizidae - Sparrow Family		
Pipilo maculatus	Spotted Towhee	
Melozone crissalis	California Towhee	
Melospiza melodia	Song Sparrow	
Melospiza lincolnii	Lincoln's Sparrow	
Junco hyemalis	Dark-eyed Junco	
Cardinalidae - Cardinals, Grosbeaks and Allies Family		
Pheucticus melanocephalus	Black-headed Grosbeak	
Passerina caerulea	Blue Grosbeak	
Passerina amoena	Lazuli Bunting	
Icteridae - Blackbird, Cowbird and Oriole Family		
Sturnella neglecta	Western Meadowlark	
**Molothrus ater*	Brown-headed Cowbird	
Icterus cucullatus	Hooded Oriole	
Icterus bullockii	Bullock’s Oriole	
Fringillidae - Finch Family		
Haemorhous mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	

Scientific Name	Common Name	Special Status
Carduelis tristis	American Goldfinch	
Mammals		
Leporidae - Hare and Rabbit Family		
Sylvilagus audubonii	Desert Cottontail	
Sciuridae - Squirrel Family		
Ostospermophilus beecheyi	California Ground Squirrel	
Canidae - Canid Family		
Canis latrans	Coyote	
Felidae - Cat Family		
Lynx rufus	Bobcat	

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
CSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix D

Certification Statement

I certify that the information contained in this survey report and attached exhibits fully and accurately represents my work. Should you have any questions regarding the methodology or findings in this report, please do not hesitate to contact Phillip C. Richards by email (Phillip.Richards@icfi.com) or call (949) 333-6643.

Sincerely,



Phillip C. Richards
Biologist
ICF International

Appendix G

Surveys for Southwestern Willow Flycatcher

December 2, 2022

Matt Romero
Senior Associate
Studio MLA
251 South Mission Road
Los Angeles, CA 90033

Subject: **Protocol Southwestern Willow Flycatcher and Least Bell's Vireo Survey Results in Support of the City of Riverside Gateway Project, in Riverside County, California**

Dear Mr. Romero:

This report documents the findings of protocol southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*) surveys in support of the Riverside Gateway Project (Project) proposed by the City of Riverside Parks, Recreation, and Community Services Department (PRCSD) in the City of Riverside (City), Riverside County, California (Appendix A, Figure 1). Based on the availability of suitable habitat and lack of prior focused surveys, only a portion of the overall project area received focused surveys: the Jurupa Avenue Trailhead parcel received protocol surveys for southwestern willow flycatcher; and the Tequesquite Extension South parcel received protocol surveys for least Bell's vireo. ICF biologists performed these surveys between April and July 2022.

Project Description

The Project involves a multidisciplinary effort for the planning, design, engineering, and associated community outreach and environmental compliance for California Environmental Quality Act (CEQA) review for nine identified park sites in the City, in Riverside County, California. The Santa Ana River Trail, adjacent to the Santa Ana River, is completed throughout its length in the City. After completing the 2018 update to the *Citywide Parks System Master Plan*, the PRCSD proposes to complete planning and design for improvements and enhancement to existing and proposed park areas located along the Santa Ana River and the 4.7 miles of the Santa Ana River Parkway from Fairmount Park to Martha McLean Anza Narrows Park. These park sites were initially identified as part of the planning process in development of the *Santa Ana River Parkway and Open Space Plan* completed in 2018. Development of these park sites would comply with the City's overarching goal to "put the river back into Riverside" by providing diverse recreational and educational opportunities, access to open space, and restoration of natural habitat for people and wildlife.

The entire 11-mile northern edge of the City fronts the Santa Ana River. In Riverside, the Santa Ana River is a juxtaposition of a natural and scenic riparian corridor running through an urban setting.

The Santa Ana River is a vital resource in the City, and it supports several important functions for the City, including providing natural habitat that serves wildlife, recharging the groundwater basin that supplies water to residences and businesses, and providing recreational opportunities to connect people to natural resources. There is also a need to provide no-cost and low-cost parks and recreational resources, open space access, and active transportation resources to support the disadvantaged communities identified near the project area in the City.

Conceptual improvement and engagement opportunities have been identified for each of the nine individual park sites, including, but not limited to, habitat conservation areas, woodland restoration, parking lots, an amphitheater, restroom and drinking water facilities, nature trails, active recreation and exercise stations, passive park amenities, camping, picnic areas, community garden and incubator farm, vista points, public art, interpretive and wayfinding signage, landscaping, irrigation, lighting, shade enhancements, equestrian facilities, and bicycle repair station and bike racks, among others. The nine park sites in the City are (1) Camp Evans; (2) Loring Park; (3) Carlson Park; (4) St. Francis Falls; (5) Santa Ana River Greenway; (6) Tequesquite Extension North; (7) Tequesquite Extension South; (8) Martha McLean Anza Narrows Park; and (9) Jurupa Avenue Trailhead, shown on Figure 2 (Appendix A).

The Project is a forward-looking proposal to recover, reconceive and re-engage with the Santa Ana River to deliver ecological, recreational, cultural, social, and economic value to the City's inhabitants. The Project is funded by a grant provided by the State Coastal Conservancy, a California state agency established in 1976 to protect and improve natural lands and waterways, help people get to and enjoy the outdoors, and sustain local economies along California's coast. The State Coastal Conservancy acts with others to protect, restore, and increase public access to California's coast, ocean, coastal watersheds, and the San Francisco Bay Area. Its vision is of a beautiful, restored, and accessible coast for current and future generations of Californians.

Location

The Project is along the southern side of the Santa Ana River floodplain in the City, in Riverside County, California, as shown on Figure 2 (Appendix A). The surveys were conducted where suitable riparian bird habitat was identified in the project area and where no recent riparian bird surveys had been performed. As a result, the Jurupa Avenue Trailhead parcel received protocol surveys for southwestern willow flycatcher. and the Tequesquite Extension South parcel received protocol surveys for least Bell's vireo.

The Jurupa Avenue Trailhead southwestern willow flycatcher survey area is on the northwestern corner of Jurupa Avenue and Van Buren Boulevard, as depicted within Township 2 South, Range 5 West, Section 1 of the Riverside West, California, U.S. Geological Survey 7.5-minute quadrangle map (USGS 2022), shown on Figure 3a (Appendix A).

The Tequesquite Extension South least Bell's vireo survey area is generally between Rubidoux Avenue and Tequesquite Avenue, west of Ryan Bonaminio Park, as depicted within Township 2 South, Range 5 West, Section 33 of the Riverside West, California, U.S. Geological Survey 7.5-minute quadrangle map (USGS 2022), shown on Figure 3b (Appendix A).

Survey Area

A significant area within and adjacent to the project limits is annually surveyed by the Santa Ana Watershed Association (SAWA 2021) for southwestern willow flycatcher and least Bell's vireo[1]. As a result, most potentially suitable riparian habitat for these species has been adequately surveyed; however, based on a review of the SAWA data and existing conditions within the project limits, the riparian habitat within and adjacent to the Jurupa Avenue Trailhead parcel was determined to be adequately surveyed for least Bell's vireo, but not for southwestern willow flycatcher. Similarly, a review of the SAWA data and existing conditions within the project limits, the riparian habitat within and adjacent to the Tequesquite Extension South parcel was determined not to have been adequately surveyed for least Bell's vireo (and did not provide suitable southwestern willow flycatcher habitat).

The survey area for southwestern willow flycatcher includes all potentially suitable habitat within the Jurupa Avenue Trailhead parcel, plus any additional habitat within 500 feet, shown on Figure 3a (Appendix A). The riparian habitat within this survey area consists of mostly Southern Riparian Forest, but also included Mulefat Scrub, Disturbed Riparian (Arundo dominated) , and Tamarisk Scrub. The riparian communities within this survey area are highly disturbed and dominated by Goodding's willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*). Co-dominant nonnative trees, such as Shamel ash (*Fraxinus uhdai*), mulberry (*Morus alba*), and Mexican fan palm (*Washingtonia robusta*), also were present. The shrub layer is intermittent to continuous and includes species such as mugwort (*Artemisia douglasiana*), mulefat (*Baccharis salicifolia*), sandbar willow (*Salix exigua*), and poison oak (*Toxicodendron diversilobum*), as well as nonnative species, such as edible fig (*Ficus carica*) and tobacco tree (*Nicotiana glauca*). The herbaceous understory is composed primarily of ragweed (*Ambrosia psilostachya*), yerba mansa (*Anemopsis californica*), stinging nettle (*Urtica dioica*), and nonnative grasses and mustards.

The survey area for least Bell's vireo includes all potentially suitable habitat within the Tequesquite Extension South parcel, plus any additional habitat within 500 feet, shown on Figure 3b (Appendix A). The riparian habitat within this survey area consists of a mosaic of vegetation communities, including Arrow Weed Scrub dominated by arrow weed (*Pluchea sericea*), Mulefat Scrub dominated by mulefat, Southern Arroyo Willow Riparian Forest dominated by arroyo willow with associated species, such as sandbar willow, mulefat, red willow, and elderberry (*Sambucus nigra*), Southern Coast Live Oak Riparian Forest dominated by coast live oak (*Quercus agrifolia*), Southern Cottonwood–Willow Riparian Forest dominated or co-dominated by Fremont cottonwood (*Populus fremontii*), Southern Riparian Woodland dominated by Goodding's willow, Wild Grape Shrubland dominated by wild grape (*Vitus girdiana*), and Non-native Riparian dominated by Mexican fan palm and Tree-of-Heaven (*Ailanthus altissima*).

Representative photographs of the survey area are provided in Appendix B.

[1] These annual reports are available on the SAWA website at Santa Ana Watershed Association Reports and Studies (sawatershed.org).

Survey Methods

Southwestern Willow Flycatcher

Surveys for the southwestern willow flycatcher followed the protocol outlined by Sogge et al. (2010). The 2010 protocol recommends five surveys during three survey periods, with two surveys occurring within each of the last two survey periods. These three survey periods are Period 1: May 15–31, Period 2: June 1–24, and Period 3: June 25–July 17.

Surveys were conducted within all areas of suitable habitat using a single transect along the easterly side of the survey area. Southwestern willow flycatcher vocalizations were played at approximately 100-foot intervals along each transect using an MP3 player and portable speaker system. The vocalization was played following an initial approximate 1-minute period of listening. The period of listening, followed by audio playback, was repeated with another period of listening at the end, before moving to the next 100-foot interval. The locations of willow flycatchers and any other sensitive species detections were recorded using a handheld GPS unit capable of 3- to 10-foot accuracy. Survey data were recorded in the field and copied onto Willow Flycatcher Survey and Detection Forms (Appendix C).

Least Bell's Vireo

Surveys for least Bell's vireo followed the protocol outlined in USFWS 2001. USFWS protocol for least Bell's vireo surveys specifies eight surveys spaced at least 10 days apart between April 10 and July 31 (USFWS 2001). All areas of suitable least Bell's vireo habitat within the survey area were traversed on foot, with frequent stops to look and listen for least Bell's vireos.

Results

Surveys were performed by ICF biologist Ben Smith, who is authorized to conduct protocol surveys for southwestern willow flycatcher under Federal Recovery Permit TE-67390A-2 and California Department of Fish and Wildlife (CDFW) Memorandum of Understanding. Southwestern willow flycatchers were not detected during any of the surveys. Figure 4a (Appendix A) depicts survey boundaries and locations where least Bell's vireo were incidentally detected during the southwestern willow flycatcher surveys at the Jurupa Avenue Trailhead parcel. Table 1 summarizes the dates, times, personnel, and weather conditions for each survey. Completed survey forms are included in Appendix C. Southwestern willow flycatcher surveys one through five were each conducted in one day.

Table 1. Southwestern Willow Flycatcher Survey Dates, Personnel, and Weather Conditions

Visit #	Date	Time	Personnel	Conditions
1	05/23/22	0630–0740	Ben Smith Cole Sutter	54–57°F, winds 1–3 mph, overcast, good visibility
2	06/06/22	0650–0900	Ben Smith	60–68°F, winds 1–3 mph, clear, good visibility
3	06/20/22	0620–0745	Ben Smith Cole Sutter	61–69°F, winds 1–3 mph, clear, good visibility
4	07/01/22	0620–0745	Ben Smith Cole Sutter	66–70°F, winds 1–3 mph, clear, good visibility
5	07/12/22	0620–0730	Ben Smith Cole Sutter	61–63°F, winds 1–3 mph, clear/hazy, good visibility

°F = degrees Fahrenheit; mph = miles per hour.

Within the Tequesquite Extension South parcel, two least Bell's vireo territories were confirmed and located along the southeastern and northwestern corners of the survey area (Figure 4b, Appendix A). Table 2 summarizes the dates, times, personnel, and weather conditions for each survey.

Table 2. Least Bell's Vireo Survey Dates, Personnel, and Weather Conditions

Visit #	Date	Time	Personnel	Conditions
1	04/18/22	0715–1030	Phil Richard Cole Sutter	54–67°F, winds 1–5 mph, clear, good visibility
2	05/02/22	0700–1050	Phil Richards Cole Sutter	59–66°F, winds 2–6 mph, partly cloudy, good visibility
3	05/12/22	0700–1015	Phil Richards Cole Sutter	50–73°F, winds 1–5 mph, clear, good visibility
4	05/23/22	0755–1010	Ben Smith Cole Sutter	59–62°F, winds 1–3 mph, overcast–clear, good visibility
5	06/16/22	0700–1025	Phil Richards Cole Sutter	62–78°F, winds 1–4 mph, clear, good visibility
6	06/27/22	0700–1040	Phil Richards	72–93°F, winds 1–3 mph, clear, good visibility
7	07/12/22	0755–1050	Ben Smith Cole Sutter	65–77°F, winds 1–5 mph, clear, good visibility
8	07/22/22	0705–1035	Phil Richards Cole Sutter	67–80°F, winds 1–5 mph, clear, good visibility

°F = degrees Fahrenheit; mph = miles per hour.

The southeastern territory was located between the skateboard park and Ryan Bonaminio Park. A nest associated with this pair was discovered in wild grape growing over a chain-link fence on the southern end of a stand of willows. Two least Bell's vireo fledglings were observed being fed by both adults on several occasions.

The northwestern territory was located on both sides of the existing Santa Ana River Trail, just east of Rubidoux Avenue. A pair of least Bell's vireos was confirmed at this territory, but successful nesting was not confirmed.

In addition, toward the later dates of the survey effort, several dispersing juvenile least Bell's vireos were detected within the survey area. The location of detected dispersing juveniles is shown on Figure 4b (Appendix A).

Wildlife species included on the CDFW special animals list (CDFW 2022) were incidentally observed within the survey areas. Adult and juvenile yellow warblers (*Setophaga petechia)*, a CDFW Species of Special Concern (SSC), were observed throughout both survey areas. White-faced ibises (*Plegadis chihi*), an SSC, were seen flying over the Tequesquite Extension South parcel survey area. Yellow-breasted chats (*Icteria virens*), an SSC, were observed along the western end of the Tequesquite Extension South parcel survey area. A separate list of wildlife species observed during visits to the Jurupa Avenue Trailhead parcel and Tequesquite Extension South parcel is included as Appendix D.

If you have questions or need clarifications regarding this report, please contact us at Ben.Smith@icf.com or Phillip.Richards@icf.com.

Sincerely,



Ben Smith
ICF Biologist



Phil Richards
ICF Biologist

Enclosed:
Appendix A: Figures
Appendix B: Site Photographs
Appendix C: Completed Willow Flycatcher Survey and Detection Forms
Appendix D: Wildlife Species Detected
Appendix E: Certification Statements

Literature Cited

California Department of Fish and Wildlife (CDFW). 2022. Special Animals List. Available: https://www.wildlife.ca.gov/Conservation/SSC. Accessed: November 9, 2022.

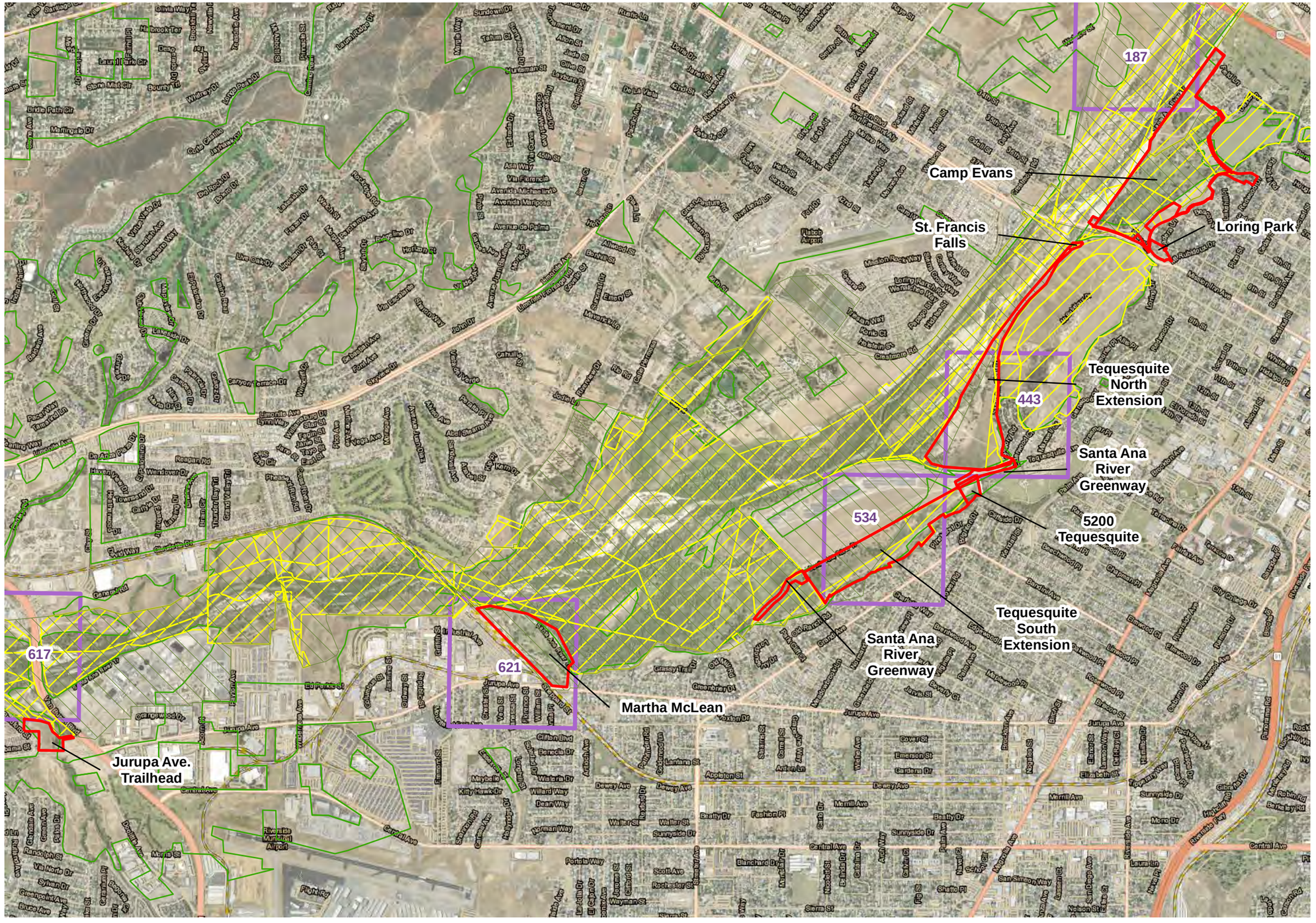
Santa Ana Watershed Association (SAWA). 2021. *Status and Management of the Least Bell's Vireo and Southwestern Willow Flycatcher in the Santa Ana River Watershed, 2021 and Summary Data by Site and Watershed-wide, 2000–2021*.

Sogge, M. K., D. Ahlers, and S. J. Sferra. 2010. *A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher*: U.S. Geological Survey Techniques and Methods 2A-10, 38 pp.

U.S. Fish and Wildlife Service (USFWS). 2001. Least Bell's Vireo Survey Guidelines. Carlsbad, CA: U.S. Department of the Interior, 3 pp.

U.S. Geological Survey (USGS). 2022. Geographic Names Information System. Available: https://www.usgs.gov/the-national-map-data-delivery. Accessed: November 9, 2022.

Appendix A
Figures

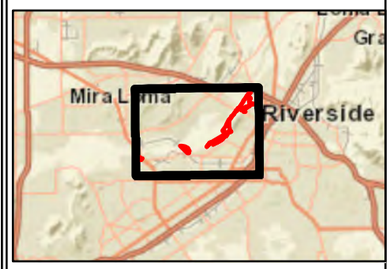


Legend

- Riverside Gateway Project Limits

WRMSHCP Units

- Criteria Area Cells
- Riverside County Core Linkage
- Public/Quasi-public Conserved Lands



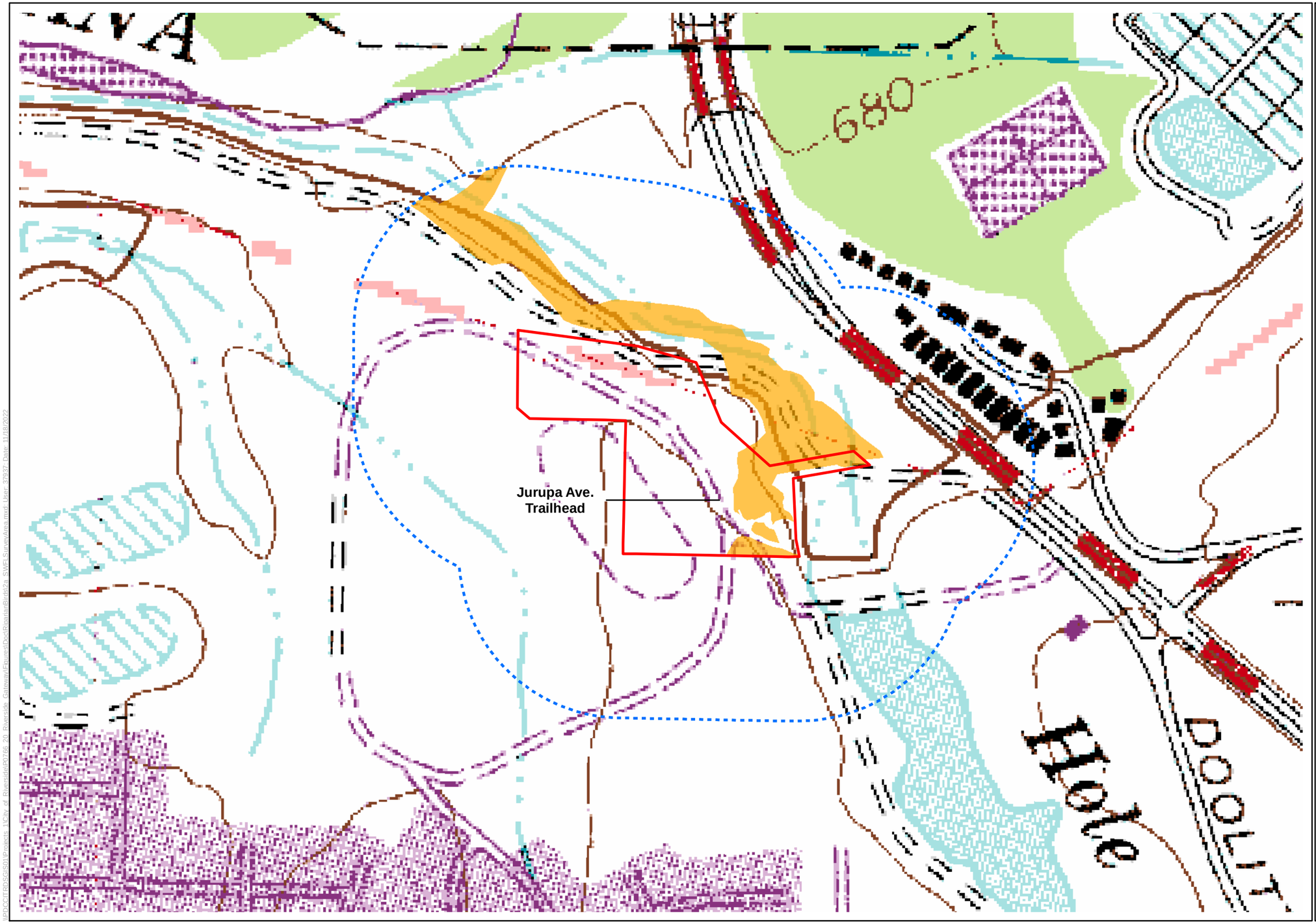
Source: ICF, USFWS, USGS; CNDDB 2019

0 1,050 2,100 Feet

1:26,000

N

Figure 1
Project Overview
Riverside Gateway



Legend

- Riverside Gateway Project Limits
- SWFL Survey Area (500-ft buffer)
- Potentially Suitable SWFL Habitat



Source: ICF, USFWS, USGS; CNDDB 2019

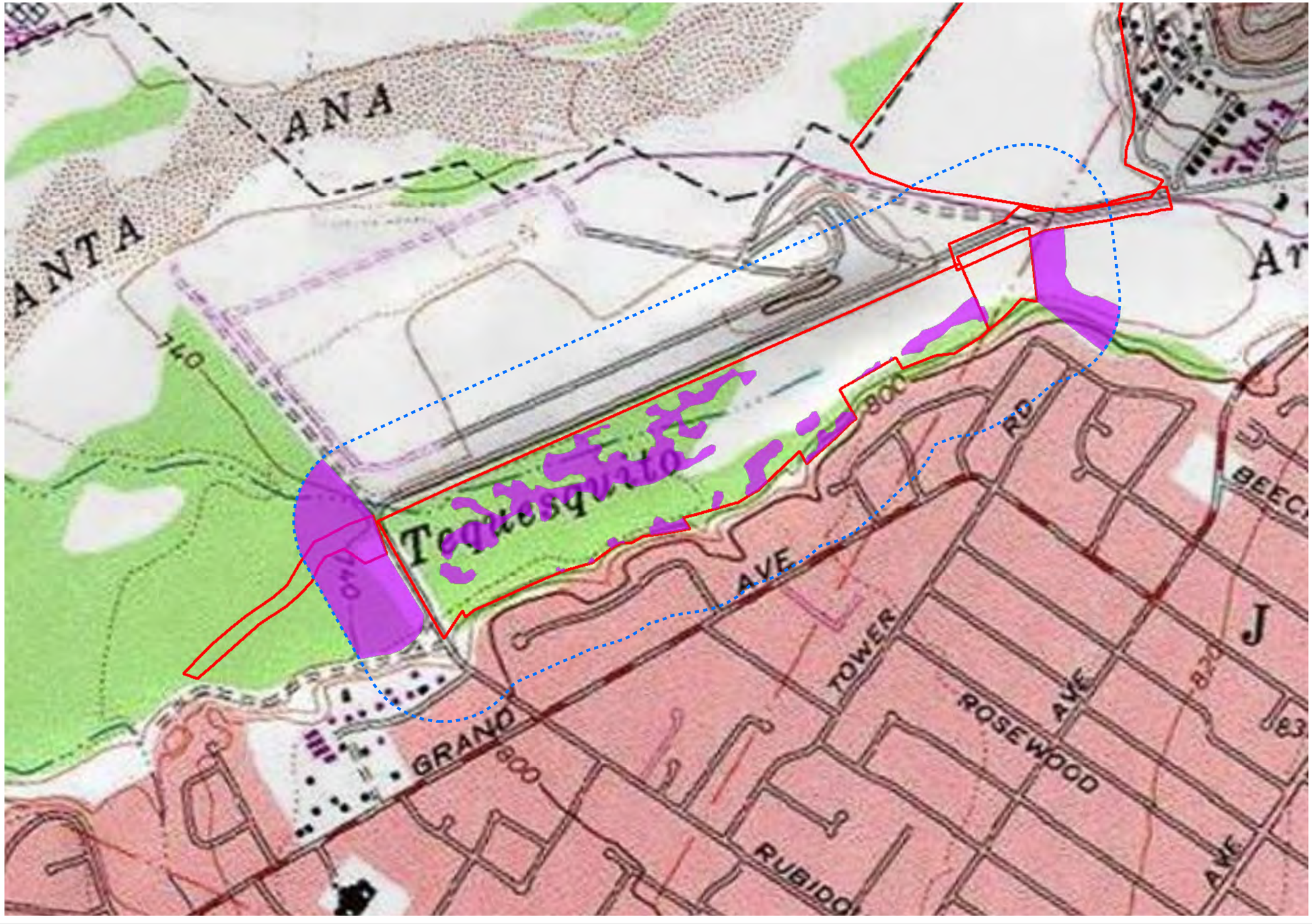
ICF

N

0 150 300 Feet

1:3,600

Figure 2a
SWFL 2022 Survey Area
Riverside Gateway



Legend

- Riverside Gateway Project Limits
- LBV Survey Area (500-ft Buffer)
- Potentially Suitable LBV Habitat



Source: ICF, USFWS, USGS; CNDDB 2019

0 300 600 Feet

1:7,200

N

Figure 2b
LBV 2022 Survey Area
Riverside Gateway



Legend

Incidental Observations (2022)

- Confirmed Adult
- Confirmed LBV Nest
- Dispersing LBV Juvenile(s)
- Riverside Gateway Project Limits
- SWFL Survey Area (500-ft Buffer)

Riparian

- Black Willow Riparian Woodland
- Giant Reed
- Mulefat Thicket (Disturbed)
- Open Water
- Tamarisk Thicket

Uplands

- Riversidian Coastal Sage Scrub (Distubed)
- Nonnative Grassland
- Ruderal Upland Mustard and Forbs (nonnative)

Other Cover Types

- Developed
- Disturbed



Source: ICF, USFWS, USGS; CNDDB 2019

0 100 200 Feet

1:2,400

N

Figure 3a
SWFL 2022 Survey Results
Riverside Gateway



Legend

LBV 2022 Survey Results

- Confirmed Adult LBV
- Confirmed LBV Nest
- Dispersing LBV Juvenile(s)
- SAWA Results (2021)
- Riverside Gateway Project Sites
- LBV Survey Area (500-ft Buffer)
- Potentially Suitable LBV Habitat

Riparian

- Arrowweed Thicket
- Arroyo Willow Scrub
- Black Willow Riparian Woodland
- Fremont Cottonwood Forest and Woodland
- Mulefat Thicket
- Open Water
- Salt Grass Flats

Uplands

- Calfornia Croton Scrub
- Elderberry Woodland
- Eucalyptus Woodland (nonnative)
- Fourwing Saltbush Scrub
- Mexican Fan Palm Grove (nonnative)
- Nonnative Grassland
- Oak Woodland
- Pepper Tree Grove (nonnative)
- Ruderal Upland Mustard and Forbs (nonnative)
- Russia Thistle - Five Hook Bassisa Fields (nonnative)
- Tree of Heaven Grove (nonnative)
- Wild Grape Shrubland

Other Cover Types

- Developed
- Disturbed



Source: ICF, USFWS, USGS; CNDDB 2019

ICF

N

0 250 500 Feet

1:6,000

Figure 3b
LBV 2022 Survey Results
Riverside Gateway

DOC:\GIS\GISProjects\City of Riverside\PD765.20 Riverside Gateway\MapsDocs\RiparianBiolab_LBV_Results.mxd User: SPIST Date: 11/10/2022

Appendix B

Site Photographs



Photograph: 1

Photo Date: March 15, 2022

Location: East side of the Jurupa Ave. Trailhead Parcel.

Direction: View facing northwest.

Comment: Photo depicts an overview of the habitat within survey area.



Photograph: 2

Photo Date: March 15, 2022

Location: Upstream end of Jurupa Ave. Trailhead Parcel.

Direction: View facing northwest.

Comment: Photo provides a representative example of habitat exterior.



Photograph: 3

Photo Date: March 15, 2022

Location: Northeast corner of Jurupa Ave. Trailhead Parcel

Direction: View facing northwest.

Comment: Photo provides a representative example of habitat exterior.



Photograph: 4

Photo Date: March 15, 2022

Location: Northeast corner of Jurupa Ave. Trailhead Parcel.

Direction: View facing southwest.

Comment: Photo provides a representative example of habitat interior.



Photograph: 5

Photo Date: March 15, 2022

Location: North side of Jurupa Ave. Trailhead Parcel.

Direction: View facing northwest.

Comment: Photo depicts provides a representative example of habitat interior.



Photograph: 6

Photo Date: May 2, 2022

Location: Southwest corner of Tequesquite South Extension LBV survey area.

Direction: View facing north.

Comment: Photo potentially suitable LBV habitat along western boundary of the survey area.



Photograph: 7

Photo Date: May 2, 2022

Location: West end of Tequesquite South Extension LBV survey area.

Direction: View facing southeast.

Comment: Photo potentially suitable LBV habitat along western boundary of the survey area.



Photograph: 8

Photo Date: May 2, 2022

Location: Northwest corner of Tequesquite South Extension LBV survey area.

Direction: View facing west.

Comment: Photo depicts potentially suitable LBV habitat along western boundary of the survey area.



Photograph: 9

Photo Date: May 2, 2022

Location: Near center of Tequesquite South Extension LBV survey area.

Direction: View facing northwest.

Comment: Photo depicts fragmented clusters of mixed riparian/non-native woodlands within interior of this survey area.



Photograph: 10

Photo Date: May 2, 2022

Location: South side of Tequesquite South Extension LBV survey area.

Direction: View facing southwest.

Comment: Photo depicts isolated willow stand along the south side of this survey area.



Photograph: 11

Photo Date: May 2, 2022

Location: Southeast corner of the Tequesquite South Extension LBV survey area, between skate park and Ryan Bonaminio Park.

Direction: View facing south.

Comment: Photo depicts conditions in area where LBV nesting was confirmed.



Photograph: 12

Photo Date: July 1, 2022

Location: North end of the survey area at Jurupa Ave. Trailhead parcel.

Direction: View facing north.

Comment: Photo depicts juvenile least Bell's vireo playing with a leaf.

Appendix C

Completed Willow Flycatcher Survey and Detection Forms

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Riverside Gateway Project State CA County Riverside
USGS Quad Name Riverside West Elevation 210 (meters)
Creek, River, Wetland, or Lake Name Tributary to Santa Ana River
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ***Yes X*** ***No____***

Survey Coordinates: Start: E 501288 3757688 UTM Datum WGS84 (See instructions)
Stop: E 501180 N 3757990 UTM Zone 11S
If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

***** Fill in additional site information on back of this page *****

Survey # / Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N / If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) Ben Smith Cole Sutter	Date5/23/22 Start 0630 Stop 0740 Total hrs 1.25	0	0	0	N					
Survey # 2 Observer(s) Ben Smith	Date 6/6/22 Start 0650 Stop 0900 Total hrs 2.25	0	0	0	N					
Survey # 3 Observer(s) Ben Smith Cole Sutter	Date 6/20/22 Start 0620 Stop 0745 Total hrs 1.5	0	0	0	N					
Survey # 4 Observer(s) Ben Smith Cole Sutter	Date 7/1/22 Start 0620 Stop 0745 Total hrs 1.5	0	0	0	N					
Survey # 5 Observer(s) Ben Smith Cole Sutter	Date 7/12/22 Start 0620 Stop 0730 Total hrs 1.25	0	0	0	N					

Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs 7.75	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.
	0	0	0	0	

Reporting Individual Benjamin Smith Date Report Completed
US Fish and Wildlife Service Permit # 67390A-3 State Wildlife Agency Permit #

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual _Benjamin Smith_____Phone # _949-922-5992_____
Affiliation ICF_____ _____E-mail Ben.Smith@icf.com
Site Name Santa Ana River tributary_____Date Report Completed _____
Was this site surveyed in a previous year? Yes___ No _X_ Unknown ____
Did you verify that this site name is consistent with that used in previous years? Yes ____ No _____ Not Applicable _X_
If site name is different, what name(s) was used in the past?_____
If site was surveyed last year, did you survey the same general area this year? Yes ____ No ____ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes ____ No ____ If no, summarize below.

Management Authority for Survey Area: Federal___Municipal/County __X__ State ____ Tribal ____ Private ____ Name of Management Entity or Owner (e.g., Tonto National Forest) _County_of_Riverside

Length of area surveyed: 0.65_ (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

__ Native broadleaf plants (entirely or almost entirely, > 90% native)

__X___ Mixed native and exotic plants (mostly native, 50 - 90% native)

_____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

_____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.
Salix gooddingii and Fraxinus velutina_____

Average height of canopy (Do not include a range): _____7_____ (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

_____
_____
_____
_____
_____
_____

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix D

Wildlife Species Detected

Appendix C: Wildlife Species Detected - Jurupa Avenue Trailhead Parcel

Scientific Name	Common Name	Special Status
VERTEBRATES		
Birds		
Columbidae - Pigeon and Dove Family		
Zenaida macroura	Mourning Dove	
Apodidae - Swift Family		
Aeronautes saxatalis	White-throated Swift	
Trochilidae - Hummingbird Family		
Archilochus alexandri	Black-chinned Hummingbird	
Calypte anna	Anna's Hummingbird	
Picidae - Woodpecker Family		
Picoides nuttallii	Nuttall's Woodpecker	
Picoides pubescens	Downy Woodpecker	
Tyrannidae - Tyrant Flycatcher Family		
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Vireonidae - Vireo Family		
Vireo bellii pusillus	Least Bell's Vireo	FE, SE
Vireo huttoni	Hutton's Vireo	
Hirundinidae - Swallow Family		
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Troglodytidae - Wren Family		
Thryomanes bewickii	Bewick's Wren	
Mimidae - Thrasher Family		
Mimus polyglottos	Northern Mockingbird	
Parulidae - Wood-Warbler Family		
Setophaga petechia	Yellow Warbler	CSC
Emberizidae - Sparrow Family		
Pipilo maculatus	Spotted Towhee	
Melozone crissalis	California Towhee	
Melospiza melodia	Song Sparrow	
Cardinalidae - Cardinals, Grosbeaks and Allies Family		
Passerina caerulea	Blue Grosbeak	
Icteridae - Blackbird, Cowbird and Oriole Family		
Icterus cucullatus	Hooded Oriole	

Scientific Name	Common Name	Special Status
Fringillidae - Finch Family		
Haemorhous mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	
Carduelis lawrencei	Lawrence's Goldfinch	
Carduelis tristis	American Goldfinch	

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
CSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix C: Wildlife Species Detected - Tequesquite Extension South

Scientific Name	Common Name	Special Status
VERTEBRATES		
Reptiles		
Colubridae - Colubrid Snake Family		
Coluber flagellum piceus	Red Racer	
Birds		
Anatidae - Swan, Goose, and Duck Family		
Anas platyrhynchos	Mallard	
Ardeidae - Heron Family		
Ardea herodias	Great Blue Heron	
Ardea alba	Great Egret	
Threskiornithidae - Ibis Family		
Plegadis chihi	White-faced Ibis	
Accipitridae - Hawk Family		
Accipiter cooperii	Cooper's Hawk	
Buteo lineatus	Red-shouldered Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Columbidae - Pigeon and Dove Family		
**Columba livia*	Rock Pigeon	
Patagioenas fasciata	Band-tailed Pigeon	
**Streptopelia decaocto*	Eurasian Collared-Dove	
Zenaida macroura	Mourning Dove	
Columbina passerina	Common Ground-Dove	
Cuculidae - Cuckoo and Roadrunner Family		
Geococcyx californianus	Greater Roadrunner	
Strigidae - Typical Owl Family		
Bubo virginianus	Great Horned Owl	
Apodidae - Swift Family		
Aeronautes saxatalis	White-throated Swift	
Trochilidae - Hummingbird Family		
Archilochus alexandri	Black-chinned Hummingbird	
Calypte costae	Costa's Hummingbird	
Selasphorus sasin	Allen's Hummingbird	
Picidae - Woodpecker Family		
Melanerpes formicivorus	Acorn Woodpecker	

Scientific Name	Common Name	Special Status
Picoides nuttallii	Nuttall's Woodpecker	
Picoides pubescens	Downy Woodpecker	
Colaptes auratus	Northern Flicker	
Falconidae - Falcon Family		
Falco sparverius	American Kestrel	
Tyrannidae - Tyrant Flycatcher Family		
Empidonax difficilis	Pacific-slope Flycatcher	
Sayornis saya	Say's Phoebe	
Myiarchus cinerascens	Ash-throated Flycatcher	
Tyrannus vociferans	Cassin's Kingbird	
Tyrannus verticalis	Western Kingbird	
Vireonidae - Vireo Family		
Vireo bellii pusillus	Least Bell's Vireo	FE, SE
Corvidae - Jay and Crow Family		
Aphelocoma californica	California Scrub-Jay	
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Hirundinidae - Swallow Family		
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Hirundo rustica	Barn Swallow	
Aegithalidae - Bushtit Family		
Psaltriparus minimus	Bushtit	
Troglodytidae - Wren Family		
Troglodytes aedon	House Wren	
Thryomanes bewickii	Bewick's Wren	
Turdidae - Thrush Family		
Sialia mexicana	Western Bluebird	
Mimidae - Thrasher Family		
Toxostoma redivivum	California Thrasher	
Mimus polyglottos	Northern Mockingbird	
Sturnidae - Starling Family		
**Sturnus vulgaris*	European Starling	
Ptilogonatidae - Silky-flycatcher Family		
Phainopepla nitens	Phainopepla	

Scientific Name	Common Name	Special Status
Parulidae - Wood-Warbler Family		
Geothlypis tolmiei	MacGillivray's Warbler	
Setophaga petechia	Yellow Warbler	CSC
Cardellina pusilla	Wilson's Warbler	
Icteria virens	Yellow-breasted Chat	CSC
Emberizidae - Sparrow Family		
Pipilo maculatus	Spotted Towhee	
Melozone crissalis	California Towhee	
Melospiza melodia	Song Sparrow	
Cardinalidae - Cardinals, Grosbeaks and Allies Family		
Piranga ludoviciana	Western Tanager	
Passerina caerulea	Blue Grosbeak	
Passerina amoena	Lazuli Bunting	
Icteridae - Blackbird, Cowbird and Oriole Family		
Icterus cucullatus	Hooded Oriole	
Icterus bullockii	Bullock's Oriole	
Fringillidae - Finch Family		
Haemorhous mexicanus	House Finch	
Carduelis psaltria	Lesser Goldfinch	
Carduelis tristis	American Goldfinch	
Mammals		
Leporidae - Hare and Rabbit Family		
Sylvilagus audubonii	Desert Cottontail	
Sciuridae - Squirrel Family		
Otospermophilus beecheyi	California Ground Squrrel	
Canidae - Canid Family		
Canis latrans	Coyote	
Felidae - Cat Family		
Lynx rufus	Bobcat	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
CSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix E

Certification Statement

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. Part of the field work conducted for this survey effort 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.

DATE: 11/10/2022 SIGNED: 

Benjamin Smith

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. Part of the field work conducted for this survey effort 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.

Sincerely,



Phillip C. Richards
Biologist
ICF International

Date: 11/10/2022

Appendix H

Cultural Resources Technical Report

Confidential

Appendix I

Noise and Vibration Analysis

Riverside Gateway Parks Program

Martha McLean Anza Narrows Park

Modeling Appendices

Construction Noise Analysis Table 2. Phase 1, Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA
Item No.	Description				
48	Saw, Concrete	89.6	0.2	1	82.6
18	Excavator	80.7	0.4	3	81.5
13	Dozer	81.7	0.4	2	80.7
	Combined Equipment				***86.5***

Construction Noise Analysis Table 3. Phase 2, Site Preparation

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA
Item No.	Description				
13	Dozer	81.7	0.4	3	82.5
29	Loader (Front End Loader)	79.1	0.4	4	81.1
	Combined Equipment				***84.9***

Construction Noise Analysis Table 4. Phase 3, Grading

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA
Item No.	Description				
18	Excavator	80.7	0.4	1	76.7
23	Grader	85	0.4	1	81.0
13	Dozer	81.7	0.4	1	77.7
29	Loader (Front End Loader)	79.1	0.4	3	79.9
	Combined Equipment				***85.2***

Construction Noise Analysis Table 5. Phase 4, Building Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA
Item No.	Description				
12	Crane	80.6	0.16	1	72.1
72	Forklift (based on front loader)	79.1	0.4	3	79.9
20	Generator	80.6	0.5	1	77.6
29	Loader (Front End Loader)	79.1	0.4	3	79.3
69	Welder/Torch	74.0	0.4	1	70.0
	Combined Equipment				***84.3***

Construction Noise Analysis Table 6. Phase 5, Paving

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA
Item No.	Description				
34	Paver	77.2	0.5	2	77.2
75	Paving Equipment (based on p	77.2	0.5	2	77.2
44	Roller	80.0	0.2	2	76.0
	Combined Equipment				***81.6***

Construction Noise Analysis Table 7. Phase 6, Architectural Coating

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA
Item No.	Description				
10	Compressor, Air	77.7	0.4	2	76.7
	Combined Equipment				***76.7***

1. Obtained or estimated from:
FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or September 2018; and/or "Noise from Construction Equipment and Operations, Building
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Construction Noise Analysis Table 8. Noise Levels at Closest Receivers

			Construction Noise Level, Leq(h), dBA					
City	Receiver	Acoustical Average	Phase 1 Demolition	Phase 2 Site Preparation	Phase 3 Grading	Phase 4 Building Construction	Phase 5 Paving	Phase 6 Architectural Coating
Riverside	Reference distance, 50 feet	50	86.5	84.9	85.2	84.3	81.6	76.7
	5681 Tucson Ct	236	70	68	68	67	65	60
	5965 Tucson Ct	234	70	68	68	68	65	60
	6027 Sheppard St	699	58	56	57	56	53	48
	6019 William St	906	55	53	54	53	50	45
Jurupa Valley	5760 Riverview Dr	2158	46	44	44	43	41	36

Operational Noise Analysis Table 1. Noise Levels Due to Martha McLean Park Play Areas at the Nearest Sensitive Receptors in the City of Riverside

Receiver/Noise Source	Reference Noise Level @ 50 feet, L_{50} dBA[1]	Reference Number of Children Playing[1]	Assumed Number of Children Playing	Noise Adjustment for Number of Children, dBA[2]	Reference Distance, feet	Distance, feet	Hard or Soft Site?	Noise Adjustment for Distance[3]	Play Noise Levels, dBA L_{50}	Combined
5681 Tucson Ct										
Water Play Arroyo	66.4	58	100	2.4	50.0	2020	Soft	-40.2	28.6	31.8
Nature Play	66.4	58	100	2.4	50.0	1950	Soft	-39.8	29.0	
5965 Tucson Ct										
Water Play Arroyo	66.4	58	100	2.4	50.0	1940	Soft	-39.7	29.0	32.2
Nature Play	66.4	58	100	2.4	50.0	1880	Soft	-39.4	29.4	
6027 Sheppard St										
Water Play Arroyo	66.4	58	100	2.4	50.0	1800	Soft	-38.9	29.9	33.2
Nature Play	66.4	58	100	2.4	50.0	1700	Soft	-38.3	30.5	
6019 William St										
Water Play Arroyo	66.4	58	100	2.4	50.0	1010	Soft	-32.6	36.1	39.3
Nature Play	66.4	58	100	2.4	50.0	980	Soft	-32.3	36.5	

1. Source data from Linda Vista Elementary School in San Diego during morning and lunchtime recess.
2. Adjustment = 10 × log (assumed # children / reference # children); i.e., 10 × log (100 / 58)
3. Assumes acoustically soft site/ground conditions with an attenuation rate of 7.5 dB per doubling of distance.

Operational Noise Analysis Table 2. Noise Levels Due to Martha McLean Park Play Areas at the Nearest Sensitive Receptors in the City of Jurupa Valley

Receiver/Noise Source	Reference Noise Level @ 60 feet, L_{max} dBA[1]	Reference Number of Children Playing[1]	Assumed Number of Children Playing	Noise Adjustment for Number of Children, dBA[2]	Reference Distance, feet	Distance, feet	Hard or Soft Site?	Noise Adjustment for Distance[3]	Play Noise Levels, dBA L_{max}	Combined
5760 Riverview Dr										
Water Play Arroyo	82.0	58	100	0.0	60.0	1610	Soft	-35.7	46.3	49.1
Nature Play	82.0	58	100	0.0	60.0	1670	Soft	-36.1	45.9	

1. Source data from Linda Vista Elementary School in San Diego during morning and lunchtime recess.
2. Max level assumed to correlate to a single noise event, such as a child screaming.
3. Assumes acoustically soft site/ground conditions with an attenuation rate of 7.5 dB per doubling of distance.

Operational Noise Analysis Table 3. Noise Levels Due to Marth McLean Park Band Shell Muscial Performances at the Nearest Sensitive Recceptors in the City of Riverside

Receiver/Noise Source	Reference Noise Level, L_{eq} dBA[1]	Reference Noise Distance, feet	Distance, feet	Hard or Soft Site?	Noise Adjustment for Distance[2]	Band Shell Noise Levels, dBA L_{50}
5681 Tucson Ct	73.3	100.0	1160	Soft	-26.6	46.7
5965 Tucson Ct	73.3	100.0	1080	Soft	-25.8	47.5
6027 Sheppard St	79.1	200.0	1050	Soft	-18.0	61.1
6019 William St	79.1	200.0	1000	Soft	-17.5	61.6

1. Source data obtained at the Irvine Regional Park Amphitheater. This venue has a permanent band shell with a solid back, roof, and sides.
2. Assumes acoustically soft site/ground conditions with an attenuation rate of 7.5 dB per doubling of distance.

Operational Noise Analysis Table 4. Noise Levels Due to Marth McLean Park Band Shell Muscial Performances at the Nearest Sensitive Receptors in the City of Jurupa Valley

Receiver/Noise Source	Reference Noise Level, L_{max}dBA[1]	Reference Noise Distance, feet	Distance, feet	Hard or Soft Site?	Noise Adjustment for Distance[2]	Band Shell Noise Levels, dBA L_{max}
5760 Riverview Dr	90.4	100.0	2400	Soft	-34.5	55.9

1. Source data obtained at the Irvine Regional Park Amphitheater. This venue has a permanent band shell with a solid back, roof, and sides.
2. Assumes acoustically soft site/ground conditions with an attenuation rate of 7.5 dB per doubling of distance.

Operational Noise Analysis Table 5. Noise Levels Due to Martha McLean Parking Lot at the Nearest Sensitive Receptors in the City of Riverside

Receiver	Sound Power Level, dBA[1]	Q[2]	Reference Noise Level @ 50 feet, L_{50} dBA[3]	Acoustical Average Distance, feet	Hard or Soft Site?	Noise Reduction Due to Distance[4]	Parking Lot Noise Levels, dBA L_{50}
5681 Tucson Ct	91.0	2	59.3	287	hard	-15.2	44.2
5965 Tucson Ct	91.0	2	59.3	504	hard	-20.1	39.3
6027 Sheppard St	91.0	2	59.3	1044	soft	-33.0	26.4
6019 William St	91.0	2	59.3	1114	Soft	-33.7	25.6

1. Sound power level estimated using SoundPLAN software based on 71 trips per hour.
2. Q = directivity factor. A value of 2 corresponds to hemispherical spreading over solid ground.
3. $Lp = Lw + 10 \times \log (Q / 4 \pi r^2)$; Lp = sound pressure (noise) level, Lw = sound power level, r = distance in meters (50' = 15.24 m)
4. Hard site calculations assume acoustically hard ground conditions with an attenuation rate of 6 dB per doubling of distance. Soft site calculations assume acoustically soft ground conditions with an attenuation rate of 7.5 dB per doubling of distance. Hard site conditions are assumed where noise propagates primarily over the parking lot surface.

Operational Noise Analysis Table 6. Noise Levels Due to Martha McLean Parking Lot at the Nearest Sensitive Receptors in the City of Jurupa Valley

Receiver	Sound Power Level, dBA[1]	Q[2]	Reference Noise Level @ 50 feet, L_{max} dBA[3]	Acoustical Average Distance, feet[4]	Hard or Soft Site?	Noise Reduction Due to Distance[5]	Parking Lot Noise Levels, dBA L_{max}
5760 Riverview Dr	98.1	2	66.5	1610	Soft	-37.7	28.8

1. Sound power level estimated using SoundPLAN software based on car door slamming.
2. Q = directivity factor. A value of 2 corresponds to hemispherical spreading over solid ground.
3. $Lp = Lw + 10 \times \log (Q / 4 \pi r^2)$; Lp = sound pressure (noise) level, Lw = sound power level, r = distance in meters (50' = 15.24 m)
4. Lmax noise levels typically occur when the loudest source is closest to the receiver. For this reason, calculations for Lmax propagation only consider the closest distance between the source and receiver.
5. Hard site calculations assume acoustically hard ground conditions with an attenuation rate of 6 dB per doubling of distance. Soft site calculations assume acoustically soft ground conditions with an attenuation rate of 7.5 dB per doubling of distance. Hard site conditions are assumed where noise propagates primarily over the parking lot surface.

Operational Noise Analysis Table 5. Noise Levels Due to Martha McLean Parking Lot at the Nearest Sensitive Receptors in the City of Riverside

Receiver	Sound Power Level, dBA[1]	Q[2]	Reference Noise Level @ 50 feet, L_{50} dBA[3]	Closest Distance, feet	Farthest Distance, feet	Acoustical Average Distance, feet	Hard or Soft Site?	Noise Reduction Due to Distance[4]	Parking Lot Noise Levels, dBA L_{50}
5681 Tucson Ct	91.0	2	59.3	35	2350	287	hard	-15.2	44.2
5965 Tucson Ct	91.0	2	59.3	110	2310	504	hard	-20.1	39.3
6027 Sheppard St	91.0	2	59.3	540	2020	1044	soft	-33.0	26.4
6019 William St	91.0	2	59.3	690	1800	1114	Soft	-33.7	25.6

1. Sound power level estimated using SoundPLAN software based on 71 trips per hour.
2. Q = directivity factor. A value of 2 corresponds to hemispherical spreading over solid ground.
3. $Lp = Lw + 10 \times \log (Q / 4 \pi r^2)$; Lp = sound pressure (noise) level, Lw = sound power level, r = distance in meters (50' = 15.24 m)
4. Hard site calculations assume acoustically hard ground conditions with an attenuation rate of 6 dB per doubling of distance. Soft site calculations assume acoustically soft ground conditions with an attenuation rate of 7.5 dB per doubling of distance. Hard site conditions are assumed where noise propagates primarily over the parking lot surface.

Operational Noise Analysis Table 6. Noise Levels Due to Martha McLean Parking Lot at the Nearest Sensitive Receptors in the City of Jurupa Valley

Receiver	Sound Power Level, dBA[1]	Q[2]	Reference Noise Level @ 50 feet, L_{max} dBA[3]	Closest Distance, feet	Farthest Distance, feet	Acoustical Average Distance, feet[4]	Hard or Soft Site?	Noise Reduction Due to Distance[5]	Parking Lot Noise Levels, dBA L_{max}
5760 Riverview Dr	98.1	2	66.5	1610	-	-	Soft	-37.7	28.8

1. Sound power level estimated using SoundPLAN software based on car door slamming.
2. Q = directivity factor. A value of 2 corresponds to hemispherical spreading over solid ground.
3. $Lp = Lw + 10 \times \log (Q / 4 \pi r^2)$; Lp = sound pressure (noise) level, Lw = sound power level, r = distance in meters (50' = 15.24 m)
4. Lmax noise levels typically occur when the loudest source is closest to the receiver. For this reason, calculations for Lmax propagation only consider the closest distance between the source and receiver.
5. Hard site calculations assume acoustically hard ground conditions with an attenuation rate of 6 dB per doubling of distance. Soft site calculations assume acoustically soft ground conditions with an attenuation rate of 7.5 dB per doubling of distance. Hard site conditions are assumed where noise propagates primarily over the parking lot surface.

Operational Noise Analysis Table 7. Combined Noise Levels Due to On Site Activity at Martha McLean Park at the Nearest Sensitive Receptors in the City of Riverside

Receiver	Play Noise Levels, dBA L_{50}	Band Shell Noise Levels, dBA L_{50}	Parking Lot Noise Levels, dBA L_{50}	Combined Noise Levels, dBA L_{50}
5681 Tucson Ct	31.8	46.7	44.2	48.7
5965 Tucson Ct	32.2	47.5	39.3	48.2
6027 Sheppard St	33.2	61.1	25.6	61.1
6019 William St	39.3	61.6	25.6	61.7

Operational Noise Analysis Table 8. Combined Noise Levels Due to On Site Activity at Martha McLean Park at the Nearest Sensitive Receptors in the City of Jurupa Valley

Receiver	Play Noise Levels, dBA L_{max}	Band Shell Noise Levels, L_{max}	Parking Lot Noise Levels, dBA L_{max}	Combined Noise Levels, dBA L_{max}
5760 Riverview Dr	49.1	55.9	28.8	56.7

Construction Vibration Analysis Table 1. Potential Building Damage

Vibration attenuation constant (n):			1.1					
		Building Category:	**Extremely fragile historic buildings, ruins, ancient monuments**	**Fragile buildings**	**Historic and some old buildings**	**Older residential structures**	**New residential structures**	**Modern industrial/ commercial buildings**
Equipment Item	**Reference PPV at 25 feet, in/s [a]**	**Vibration Damage Impact Criteria, PPV, in/s:**	**0.08**	**0.1**	**0.25**	**0.3**	**0.5**	**0.5**
Vibratory roller	0.21	Distance to Impact Criteria, feet:	61	50	22	19	12	12
Large bulldozer[b]	0.089		28	23	10	9	6	6
Small bulldozer[c]	0.003		2	2	1	1	1	1

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

[b] Considered representative of any full size/large excavator, dozer, backhoe, etc.

[c] Considered representative of any small excavator, dozer, backhoe, etc.

Construction Vibration Analysis Table 2. Human Perception

Vibration attenuation constant (n):	1.1					
		Perceptibility Classification:	**Barely perceptible**	**Distinctly perceptible**	**Strongly perceptible**	**Severe**
Equipment Item	**Reference PPV at 25 feet, in/s [a]**	**Perceptibility Criteria, PPV, in/s:**	**0.01**	**0.04**	**0.1**	**0.4**
Vibratory roller	0.21	Distance to Impact Criteria, feet:	399	113	50	14
Large bulldozer[b]	0.089		183	52	23	7
Small bulldozer[c]	0.003		9	3	2	1

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

[b] Considered representative of any full size/large excavator, dozer, backhoe, etc.

[c] Considered representative of any small excavator, dozer, backhoe, etc.

Riverside Gateway Parks Program

Jurupa Avenue Trailhead

Modeling Appendices

Construction Noise Analysis Table 1. Phase 1, Site Preparation

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA	Lmax, dBA
Item No.	Description					
13	Dozer	81.7	0.4	1	77.7	81.7
29	Loader (Front End Loader)	79.1	0.4	1	75.1	79.1
	Combined Equipment				***79.6***	***81.7***

Construction Noise Analysis Table 2. Phase 2, Grading

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA	Lmax, dBA
Item No.	Description					
23	Grader	85.0	0.4	1	81.0	85.0
18	Excavator	80.7	0.4	1	76.7	80.7
13	Dozer	81.7	0.4	1	77.7	81.7
29	Loader (Front End Loader)	79.1	0.4	2	78.1	79.1
	Combined Equipment				***84.7***	***85.0***

Construction Noise Analysis Table 3. Phase 3, Building Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA	Lmax, dBA
Item No.	Description					
12	Crane	80.6	0.16	1	72.1	80.6
72	Forklift (based on front loader)	79.1	0.4	2	78.1	79.1
29	Loader (Front End Loader)	79.1	0.4	1	74.5	79.1
69	Welder/Torch	74	0.4	1	70.0	74.0
	Combined Equipment				***80.8***	***80.6***

Construction Noise Analysis Table 4. Phase 4, Paving

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Leq(h), dBA	Lmax, dBA
Item No.	Description					
34	Paver	77.2	0.5	2	77.2	77.2
75	Paving Equipment (based on p	77.2	0.5	2	77.2	77.2
31	Mixer, Concrete (or concrete m	78.8	0.4	1	74.8	78.8
29	Loader (Front End Loader)	79.1	0.4	1	75.1	79.1
44	Roller	80.0	0.2	2	76.0	80.0
	Combined Equipment				***83.2***	***80.0***

1. Obtained or estimated from:
FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
"Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018; and/or "Noise from Construction Equipment and Operations, Building Equipment, and Home
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Construction Noise Analysis Table 5. Noise Levels at Closest Receivers

		Construction Noise Level, Leq(h), dBA			
Receiver	**Acoustical Average**	**Phase 1 Site Preparation**	**Phase 2 Grading**	**Phase 3 Building Construction**	**Phase 4 Paving**
Reference distance, 50 feet	50	79.6	84.7	80.8	83.2
7164 Bradford Street	126	70	75	71	73
7120 Bradford Street	100	72	77	73	76
7106 Bradford Street	140	68	74	70	72
6948 Glendale Avenue	977	47	52	48	51
8607 Parker Way	1187	45	50	46	49

Operational Noise Analysis Table 1. Noise Levels Due to Jurupa Avenue Trailhead Play Areas

Receiver/Noise Source	Reference Noise Level @ 50 feet, L_{50} dBA[1]	Reference Number of Children Playing[1]	Assumed Number of Children Playing	Noise Adjustment for Number of Children, dBA[2]	Distance, feet	Hard or Soft Site?	Noise Adjustment for Distance[3]	Play Noise Levels, dBA L_{50}	Combined
7164 Bradford St									
Music Play	66.4	58	10	-7.6	470	Soft	-24.3	34.4	37.8
Arroyo Play	66.4	58	10	-7.6	550	Soft	-26.0	32.7	
Nature Play	66.4	58	10	-7.6	620	Soft	-27.3	31.4	
7120 Bradford St									
Music Play	66.4	58	10	-7.6	95	Soft	-7.0	51.8	53.2
Arroyo Play	66.4	58	10	-7.6	160	Soft	-12.6	46.1	
Nature Play	66.4	58	10	-7.6	220	Soft	-16.1	42.7	
7106 Bradford St									
Music Play	66.4	58	10	-7.6	140	Soft	-11.2	47.6	50.7
Arroyo Play	66.4	58	10	-7.6	160	Soft	-12.6	46.1	
Nature Play	66.4	58	10	-7.6	220	Soft	-16.1	42.7	
6948 Glendale Avenue									
Music Play	66.4	58	10	-7.6	980	Soft	-32.3	26.5	31.4
Arroyo Play	66.4	58	10	-7.6	960	Soft	-32.1	26.7	
Nature Play	66.4	58	10	-7.6	960	Soft	-32.1	26.7	
8607 Parker Way									
Music Play	66.4	58	10	-7.6	1080	Soft	-33.4	25.4	30.8
Arroyo Play	66.4	58	10	-7.6	1010	Soft	-32.6	26.1	
Nature Play	66.4	58	10	-7.6	980	Soft	-32.3	26.5	

1. Source data from Linda Vista Elementary School in San Diego during morning and lunchtime recess.
2. Adjustment = 10 × log (assumed # children / reference # children); i.e., 10 × log (10 / 58)
3. Hard site calculations assume acoustically hard ground conditions with an attenuation rate of 6 dB per doubling of distance. Soft site calculations assume acoustically soft ground conditions with an attenuation rate of 7.5 dB per doubling of distance.

Operational Noise Analysis Table 2. Noise Levels Due to Jurupa Avenue Trailhead Parking Lot

Receiver	Sound Power Level, dBA[1]	Q[2]	Reference Noise Level @ 50 feet, L_{50} dBA[3]	Closest Distance, feet	Farthest Distance, feet	Acoustical Average Distance, feet	Hard or Soft Site?	Noise Reduction Due to Distance[4]	Parking Lot Noise Levels, dBA L_{50}
7164 Bradford St	77.0	2	45.4	520	720	612	Soft	-27.2	18.2
7120 Bradford St	77.0	2	45.4	65	260	130	Soft	-10.4	35.0
7106 Bradford St	77.0	2	45.4	50	230	107	Hard	-6.6	38.8
6948 Glendale Avenue	77.0	2	45.4	760	910	832	Soft	-30.5	14.9
8607 Parker Way	77.0	2	45.4	820	950	883	Soft	-31.2	14.2

1. Sound power level estimated using SoundPLAN software based on 9 trips per hour.
2. Q = directivity factor. A value of 2 corresponds to hemispherical spreading over solid ground.
3. $Lp = Lw + 10 \times \log (Q / 4 \pi r^2)$; Lp = sound pressure (noise) level, Lw = sound power level, r = distance in meters (50 feet = 15.24 meters)
4. Hard site calculations assume acoustically hard ground conditions with an attenuation rate of 6 dB per doubling of distance. Soft site calculations assume acoustically soft ground conditions with an attenuation rate of 7.5 dB per doubling of distance. Hard site conditions are assumed where noise propagates primarily over the parking lot surface.

Operational Noise Analysis Table 3. Combined Noise Levels Due to On-Site Activity at Jurupa Avenue Trailhead

Receiver	Play Noise Levels, dBA L_{50}	Parking Lot Noise Levels, dBA L_{50}	Combined Noise Levels, dBA L_{50}
7164 Bradford St	37.8	18.2	37.9
7120 Bradford St	53.2	35.0	53.3
7106 Bradford St	50.7	38.8	51.0
6948 Glendale Avenue	31.4	14.9	31.5
8607 Parker Way	30.8	14.2	30.9

Construction Vibration Analysis Table 1. Potential Building Damage from Construction at Jurupa Avenue Trailhead

Vibration attenuation constant (n):		1.1						
		Building Category:	**Extremely fragile historic buildings, ruins, ancient monuments**	**Fragile buildings**	**Historic and some old buildings**	**Older residential structures**	**New residential structures**	**Modern industrial/ commercial buildings**
Equipment Item	**Reference PPV at 25 feet, in/s [a]**	**Vibration Damage Impact Criteria, PPV, in/s:**	**0.08**	**0.1**	**0.25**	**0.3**	**0.5**	**0.5**
Vibratory roller	0.21	Distance to Impact Criteria, feet:	61	50	22	19	12	12
Large bulldozer[b]	0.089		28	23	10	9	6	6
Small bulldozer[c]	0.003		2	2	1	1	1	1

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

[b] Considered representative of any full size/large excavator, dozer, backhoe, etc.

[c] Considered representative of any small excavator, dozer, backhoe, etc.

Construction Vibration Analysis Table 2. Human Perception of Construction at Jurupa Avenue Trailhead

Vibration attenuation constant (n):	1.1					
		Perceptibility Classification:	**Barely perceptible**	**Distinctly perceptible**	**Strongly perceptible**	**Severe**
Equipment Item	**Reference PPV at 25 feet, in/s [a]**	**Perceptibility Criteria, PPV, in/s:**	**0.01**	**0.04**	**0.1**	**0.4**
Vibratory roller	0.21	Distance to Impact Criteria, feet:	399	113	50	14
Large bulldozer[b]	0.089		183	52	23	7
Small bulldozer[c]	0.003		9	3	2	1

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

[b] Considered representative of any full size/large excavator, dozer, backhoe, etc.

[c] Considered representative of any small excavator, dozer, backhoe, etc.

Appendix J1

Martha McLean Anza Narrows Park Traffic Assessment

RICK
ENGINEERING COMPANY
Traffic Division

March 3, 2023

Ms. Alisa Sramala
City of Riverside
Parks, Recreation and Community Services Department
6927 Magnolia Avenue
Riverside, California 92506

SUBJECT: RIVERSIDE GATEWAY PARKS MARTHA MCLEAN-ANZA NARROWS PARK TRAFFIC ASSESSMENT, RIVERSIDE, CA
(RICK ENGINEERING COMPANY JOB NUMBER 19405-AT)

Dear Ms. Sramala:

The following traffic assessment evaluates the anticipated trip generation, site access, internal circulation and parking of the proposed improvements and amenities within the existing Martha McLean-Anza Narrows Park within the Riverside Gateway parks system in the City of Riverside, California. In addition, level of service (LOS) and vehicle miles traveled (VMT) screening evaluations and an active transportation and public transit evaluation are included in this traffic assessment. The existing park is bounded by Jurupa Avenue to the south, the Santa Ana River to the north and east, and Union Pacific Railroad lines to the west. This study was prepared in accordance with the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (July 2020) and discussion with City of Riverside Public Works staff. **Attachment A** contains the City of Riverside's Traffic Analysis Scoping Form, which was reviewed and accepted by City of Riverside Traffic Engineering staff. **Exhibit 1** shows a map of the regional project vicinity.

Project Description

Martha McLean-Anza Narrows Park is an existing 39.5-acre developed park with picnic areas and an 18-hole disc golf course. The Santa Ana River Trail extends through the park near the eastern boundary. A total of 167 parking stalls are currently provided at Martha McLean-Anza Narrows Park, and the proposed project would provide a net increase of 17 additional parking stalls.

The project proposes to develop approximately 3.3 acres of programmable park amenities within the existing park, which include the following:

- Two community meadows/gathering spaces
- Band shell
- Water play arroyo and nature play area
- Realignment of the drive aisle and parking area at the northwest corner of the park, which would remove nine (9) parking stalls
- Proposed new 26-stall parking lot at southeast corner of park

Exhibit 2 shows the project site plan.

Existing Transportation Conditions

The following is a description of the existing roadways in the vicinity of Martha McLean-Anza Narrows Park:

Jurupa Avenue is currently built as a four-lane divided roadway within the project vicinity. Jurupa Avenue is oriented in a general east-west direction and extends from Pachappa Drive near SR-91 to Tyler Street. Jurupa Avenue runs for a total distance of approximately 5.5 miles.

Jurupa Avenue is classified in the City of Riverside's *General Plan Circulation and Community Mobility Element* (February 2018) as a four-lane, 88-foot Arterial in the immediate vicinity of the project site. Jurupa Avenue has a pavement width of approximately 76 feet along the existing park frontage. A raised median with intermittent turn lanes is currently provided west of the existing park access, and a two-way left-turn lane is currently provided east of the existing park access. On-street parking is prohibited on Jurupa Avenue in the vicinity of the existing park.

Class II bike lanes are provided on Jurupa Avenue in each direction of travel for a majority of the roadway length. Several sections of the roadway also provide a two-foot buffer for bicyclists on both sides of the roadway. The posted speed limit on Jurupa Avenue is 45 MPH in the vicinity of the existing park.

Project Trip Generation

Based on input from City of Riverside staff, the trip generation for the proposed project was calculated using custom trip rates that were developed from vehicular traffic counts that were collected at the three (3) driveways serving Ryan Bonaminio Park located at 5000 Tequesquite Avenue in the City of Riverside. The traffic counts at the park driveways were collected on Thursday, September 15, 2022 and on Saturday, September 17, 2022 over a 24-hour period on each day.

Based on the acreage of the existing Ryan Bonaminio Park (43.65 acres) and the number of daily and AM/PM peak hour trips on each day, daily and AM/PM peak hour trip generation rates were calculated for a "local Riverside park" on a typical weekday and a typical Saturday. These customized local park trip rates were applied to the programmable acreage of the proposed developed park areas, which are shown below in **Table 1**.

Table 1
Local Riverside Park Trip Rates from Driveway Counts

Unit	Daily Trip Rate (per unit)	AM Peak Hour			PM Peak Hour		
		Trip Rate (per unit)	Inbound (%)	Outbound (% AM)	Trip Rate (per unit)	Inbound (% PM)	Outbound (% PM)
Weekday Trip Rates							
acres	41.28	3.09	50%	50%	3.83	54%	46%
Saturday Trip Rates							
acres	39.27	4.22	49%	51%	N/A	N/A	N/A

Source: Vehicular traffic counts were collected at Ryan Bonaminio Park driveways by Veracity Traffic Group on Thursday, September 15, 2022 and on Saturday, September 17, 2022.

N/A = Not applicable, as the highest peak hour on a Saturday occurs during the morning hours.

Based on direction from City of Riverside staff, the trip generation rates for a developed Regional/County Park from the San Diego Association of Governments (SANDAG) *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) were used to calculate the trip generation of the existing developed park.

Table 2 shows the trip generation calculations for the proposed project using the custom trip rates shown above in Table 1 and the SANDAG Regional/County Park trip rates as described above. **Attachment B** contains the Ryan Bonaminio Park driveway counts and the SANDAG trip generation rates.

Table 2 shows that the proposed programmable project area and remaining existing developed Martha McLean-Anza Narrows Park would generate a combined total of 860 trips per day on a typical weekday, and a combined total of 853 trips per day on a typical Saturday. The proposed programmable project area and remaining existing developed park would generate a combined total of 39 trips during the weekday AM peak hour (20 inbound/19 outbound), 71 trips during the weekday PM peak hour (36 inbound/35 outbound), and 92 trips during the highest Saturday peak hour (46 inbound/46 outbound).

Table 2 also shows that development of the proposed programmable project area would result in a net increase of 70 trips per day on a typical weekday and a net increase of 63 trips per day on a typical Saturday. The proposed programmable project area would generate a net increase of 7 trips during the weekday AM peak hour (4 inbound/3 outbound), a net increase of 8 trips during the weekday PM peak hour (4 inbound/4 outbound), and a net increase of 7 trips during the highest Saturday peak hour (4 inbound/3 outbound).

The project's trip distribution was estimated based on the surrounding land uses and the existing roadway network. **Exhibit 3** illustrates the trip distribution of the proposed Martha McLean-Anza Narrows Park project.

Project Access, Circulation and Parking

Vehicular access to the existing Martha McLean-Anza Narrows Park is currently taken from Jurupa Avenue just east of the Union Pacific Railroad overpass. An internal road currently meanders through the park and provides access to several parking areas. The existing park access intersection on Jurupa Avenue is one-way stop-controlled and full access is currently provided.

A total of 167 parking spaces are currently provided in Martha McLean-Anza Narrows Park. The proposed realignment of the drive aisle and parking in the northwest corner of the park would result in the removal of nine (9) parking spaces, and a proposed new parking lot in the southeast corner of the park would provide 26 additional parking spaces. The proposed project would provide a net increase of 17 parking stalls, which would provide a total of 184 parking spaces for the entire park.

A minimum of 18 parking spaces are required for the 3.3-acre project programmable area and a minimum of 36 parking spaces are required for the remaining 36.2-acre park use based on the following parking requirements for park uses per Chapter 17.188 of the Riverside County Municipal Code:

- 1 space per 8,000 sq. ft. of active recreational area within a park or playground
- 1 space per acre of passive recreational area within a park or playground

Chapter 17.188 of the Riverside County Municipal Code was utilized to determine the parking requirements of the proposed park because Chapter 19.580 (Parking and Loading) of the City of Riverside Municipal Code does not provide off-street parking requirements for park uses.

TABLE 2
PROPOSED PROJECT TRIP GENERATION

Trip Generation Rates												
Land Use	Unit	Weekday Trips							Weekend (Saturday) Trips			
		Daily Trip Rate (per unit)	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trip Rate (per unit)	Highest Peak Hour (9:15 AM - 10:15 AM)		
			Trip Rate (per unit)	In (% AM)	Out (% AM)	Trip Rate (per unit)	In (% PM)	Out (% PM)		Trip Rate (per unit)	In (% AM)	Out (% AM)
Developed Regional/County Park (SANDAG)	acres	20	4%	50%	50%	8%	50%	50%	5	11%	49%	51%
Local City of Riverside Park (Driveway Counts): Proposed Developed Park Amenities	acres	41.28	3.09	50%	50%	3.83	54%	46%	39.27	4.22	49%	51%

Forecast Project Generated Trips												
Land Use	Size	Unit	Weekday Trips							Weekend (Saturday) Trips			
			Daily Trips	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trips	Highest Peak Hour (9:15 AM - 10:15 AM)		
				Total	In	Out	Total	In	Out		Total	In	Out
Existing Park Trip Generation[1]													
Existing Developed Park	39.5	acres	790	32	16	16	63	32	31	790	85	42	43
Proposed Project Trip Generation[2]													
Developed Park Renovations/ Amenities	3.3	acres	136	10	5	5	13	7	6	129	14	7	7
Total Park Trips (Remaining Undeveloped Acreage Plus Programmable Developed Acreage)[3]													
Existing Developed Park	36.2	acres	724	29	15	14	58	29	29	724	78	39	39
Developed Park Renovations/ Amenities	3.3	acres	136	10	5	5	13	7	6	129	14	7	7
Total Park Trips			**860**	**39**	**20**	**19**	**71**	**36**	**35**	**853**	**92**	**46**	**46**
Net Change in Trips (Total - Existing Trips)													
Net Project Trips			**70**	**7**	**4**	**3**	**8**	**4**	**4**	**63**	**7**	**4**	**3**

Source: Traffic counts conducted by Veracity Traffic Group at Ryan Bonaminio Park driveways on Thursday, September 15, 2022 and on Saturday, September 17, 2022. San Diego Association of Governments (SANDAG) *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002).

[1]Existing trip generation is calculated based on total existing park acreage.

[2]Proposed project trip generation is calculated based on programmable acreage to be developed.

[3]The total park trips include the existing park acreage plus the programmable acreage of the area to be developed.

Pedestrian, Bicycle and Transit Facilities Evaluation

Pedestrian access to the existing Martha McLean-Anza Narrows Park is currently provided from the existing sidewalk along the north side of Jurupa Avenue. Existing paved paths meander from Jurupa Avenue through Martha McLean-Anza Narrows Park to provide pedestrian access to the amenities that are currently provided in the park. All of the existing pedestrian paths will remain in place with the proposed project, and the project will provide new pedestrian paths to access the proposed water play arroyo/nature play area, community meadows, and access to the Santa Ana River Trail and river in the northwest corner of the park. The proposed pedestrian and trail improvements are consistent with the *City of Riverside PACT Trails Master Plan* (August 17, 2021), and development of the proposed project would not conflict with the existing or future pedestrian or trail network in the immediate vicinity of the project site.

Bicycle access to Martha McLean-Anza Narrows Park is currently provided from the existing Class II bike lanes along Jurupa Avenue and the existing Santa Ana River Trail, which is built as a Class I bike path that passes through the park along the eastern boundary. The Santa Ana River Trail is approximately 10 feet in width and is divided by a dashed line to separate the direction of travel. An existing park service road just north of the main park entrance provides bicyclists a direct connection to the Santa Ana River Trail from Jurupa Avenue. The proposed 26-stall parking lot at the southeast corner of the park is intended to function as a trailhead staging area for the Santa Ana River Trail. Development of the proposed project would not conflict with the existing or future bicycle network in the immediate vicinity of the project site.

There are currently no bus transit stops within ¼ mile of the existing Martha McLean-Anza Narrows Park. The Riverside Metrolink Rail Line runs adjacent to the western boundary of the park, but the nearest rail station is several miles away. No additional future transit facilities near the project site are planned per the City of Riverside's *General Plan Circulation and Community Mobility Element* (February 2018). Development of the proposed project would not conflict with any existing or future planned transit facilities.

Level of Service (LOS) Analysis Screening Assessment

The Level of Service Screening Assessment was conducted per the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (July 2020). Per these guidelines, there are various conditions that can exempt a project from a Level of Service (LOS) analysis. Of the conditions listed in the guidelines, the following are the most relevant to the project:

- *Projects that generate less than 100 peak hour trips, as projects that generate 100 or less trips typically do not affect LOS significantly once distributed to the local network*
- *Local serving churches, lodges, community centers, neighborhood parks and community parks*

As previously shown in Table 2, the proposed project is estimated to generate a net increase of 7 trips during the weekday AM peak hour, a net increase of 8 trips during the weekday PM peak hour, and a net increase of 7 trips during the highest Saturday peak hour. The calculated project traffic falls below the "100 peak hour trips" threshold and is anticipated to have a minimal impact on the local roadway network. Additionally, the proposed land use is a park that will be serving the nearby communities. This characteristic further indicates that most of the project traffic will be local. Based on these criteria, the project is determined to be exempt from an LOS analysis.

Vehicle Miles Traveled (VMT) Analysis Screening Assessment

As required by CEQA, a Vehicles Miles Traveled (VMT) analysis screening assessment was conducted for the proposed project. This VMT analysis screening assessment was conducted in accordance with the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (July 2020), which includes the following screening criteria for projects:

- *Projects located in a Transit Priority Area (TPA)*
- *Projects located in a low VMT-generating area (15% or more below City average VMT)*
- *Local-serving land use types*
- *Affordable housing projects*
- *Projects generating less than 110 daily vehicle trips*

The Western Riverside Council of Governments (WRCOG) VMT tool, which utilizes the Riverside County Transportation Model (RIVCOM), shows that the VMT per service population within the Travel Analysis Zone (TAZ) in which the project site is located (TAZ 1937) is below the screening threshold for a low VMT-generating area (15% or more below the City of Riverside average VMT per service population). Therefore, the proposed project is screened out from further VMT analysis due to the site's location in a low VMT-generating area, and is presumed to have a less than significant transportation impact. **Attachment C** contains WRCOG VMT tool outputs for the TAZ in which the project site is located (TAZ 1937), which show that the VMT per service population in the project site TAZ is below the City's screening threshold for a low VMT-generating area.

In addition, the City of Riverside's VMT screening criteria lists local parks as a land use type that is presumed to have a less than significant impact and is screened out from further VMT analysis. The proposed project is a local-serving park use and therefore is screened out from further VMT analysis and is presumed to have a less than significant transportation impact.

In addition, the project is estimated to generate fewer than 110 trips per day as previously shown in Table 2. Vehicular trips generated by the proposed project would not exceed the City's screening threshold of 110 trips per day for Small Projects, and therefore the project is screened out from further VMT analysis and is presumed to have a less than significant transportation impact.

Conclusions/Recommendations

The findings of this traffic assessment showed that the proposed project is anticipated to generate a net increase of 70 trips per day on a typical weekday and a net increase of 63 trips per day on a typical Saturday. The proposed programmable project area would generate a net increase of 7 trips during the weekday AM peak hour (4 inbound/3 outbound), a net increase of 8 trips during the weekday PM peak hour (4 inbound/4 outbound), and a net increase of 7 trips during the highest Saturday peak hour (4 inbound/3 outbound). It is anticipated that the project-generated traffic would have minimal impacts on intersections and roadways in the vicinity of the project.

A total of 167 parking spaces are currently provided in Martha McLean-Anza Narrows Park. The proposed project would provide a net increase of 17 parking stalls, which would provide a total of 184 parking spaces for the entire park. A minimum of 18 parking spaces are required for the 3.3-acre project programmable area and a minimum of 36 parking spaces are required for the remaining 36.2-acre park use (minimum of 54 parking spaces required for entire park). Therefore, sufficient parking would be provided for the proposed project.

The proposed pedestrian and trail improvements within Martha McLean-Anza Narrows Park are consistent with the *City of Riverside PACT Trails Master Plan* (August 17, 2021). Development of the proposed project would not conflict with the existing or future pedestrian, bicycle and transit network in the immediate vicinity of the park.

Should you have any questions, please contact either David Mizell or me at (619) 291-0707.

Sincerely,

RICK ENGINEERING COMPANY

Brian Stephenson, P.E., T.E., P.T.O.E.
Associate Principal

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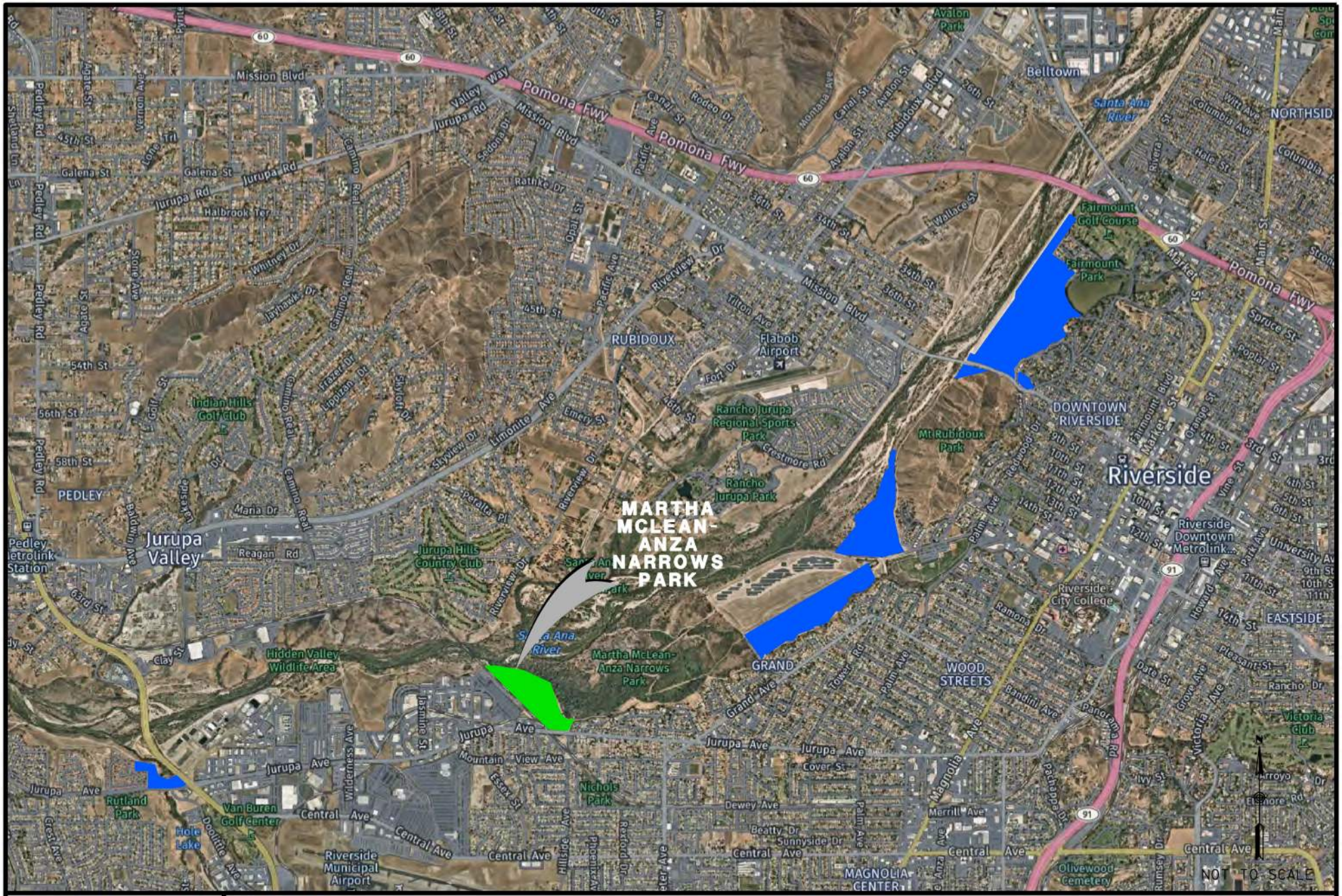
Attachments



RICK ENGINEERING COMPANY

EXHIBIT 1

PROJECT VICINITY MAP

MARTHA MCLEAN - ANZA NARROWS PARK TRAFFIC ASSESSMENT

LEGEND

- =RIVERSIDE GATEWAY PARK SYSTEM
- =MARTHA MCLEAN - ANZA NARROWS PARK

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MARTHA MCLEAN ANZA NARROWS PARK: MASTERPLAN



RICK ENGINEERING COMPANY

EXHIBIT 2

PROJECT SITE PLAN

MARTHA MCLEAN - ANZA NARROWS PARK TRAFFIC ASSESSMENT

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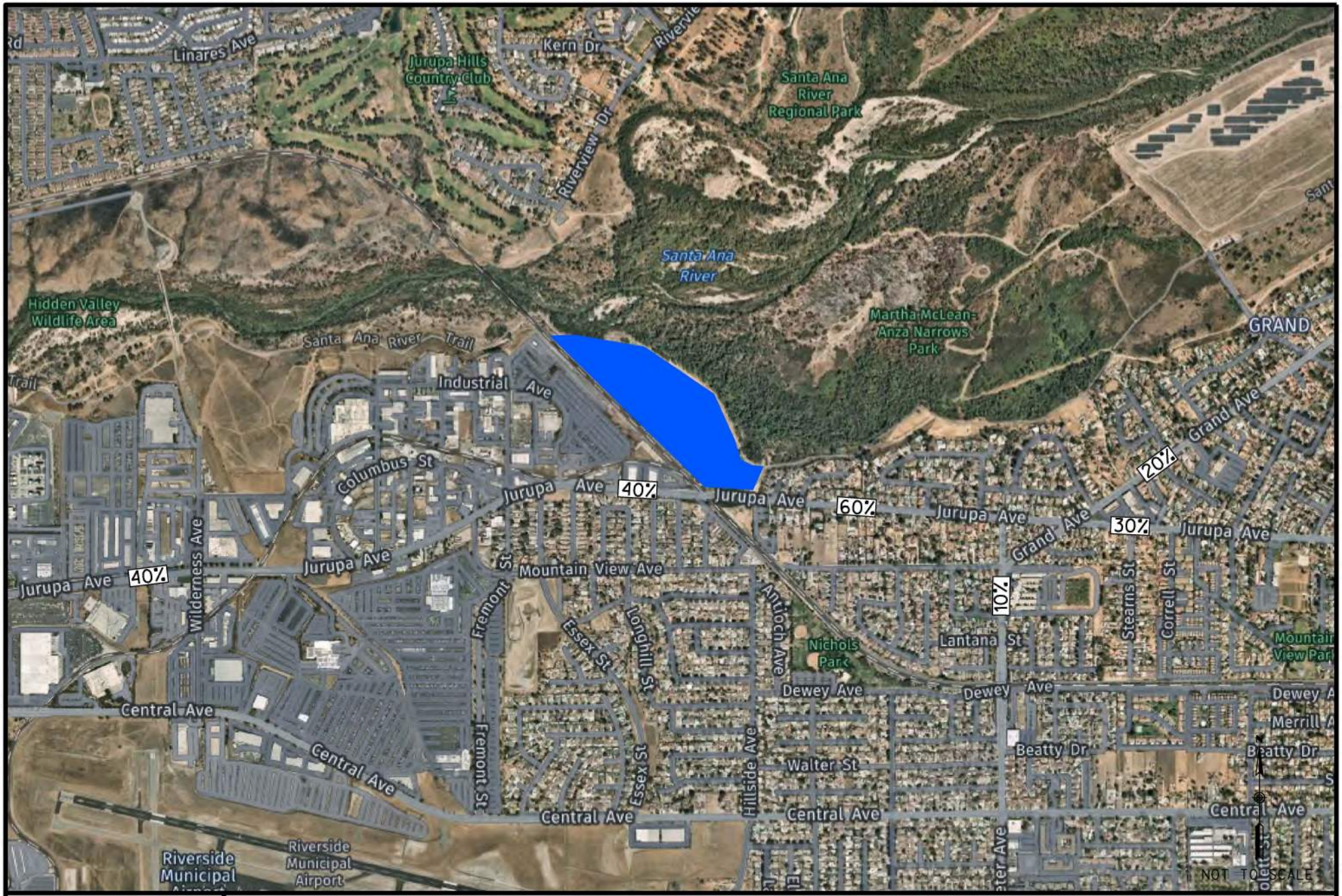

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EXHIBIT 3

PROJECT TRIP DISTRIBUTION

MARTHA MCLEAN - ANZA NARROWS PARK TRAFFIC ASSESSMENT

LEGEND

XX% = DISTRIBUTION PERCENTAGE

= PROJECT SITE

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ATTACHMENT A

APPROVED
Vital Patel
03/02/2023

Public Works Department

City of Arts & Innovation

Traffic Analysis Scoping Form

This scoping form shall be submitted to the City of Riverside Traffic Engineering Division

Project Identification:

Case Number:	Not Available
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Riverside Gateway: Martha McLean Anza Narrows Park
Project Address:	5759 Jurupa Street
Project Opening Year:	Not Available
Project Description:	Existing 39.5 acre developed park with picnic areas and 18-hole disc golf course; project consists of realigning parking areas, providing two community meadows, a band shell and water play/nature play areas.

	Consultant:	Developer:
Name:	Rick Engineering Company	City of Riverside
Address:	5620 Friars Road	Parks & Recreation Dept.
	San Diego, CA 92110	6927 Magnolia Avenue
Telephone:	619-291-0707	Riverside, CA 92506
Fax/Email:	dmizell@rickengineering.com	

Scoping & Study Fees:

Fees to be made payable to "City of Riverside" and delivered to Land Development. City Hall 3rd Floor, 3900 Main Street, Riverside, CA 92522

1) Scoping Agreement Fee (For all projects not screened from analysis): **$271.00**

2) TIA Review (For projects with both LOS & VMT analysis of any scale, or standalone LOS analyses with over 100 vehicle trips per hour): **$2671.02**

3) TIA Review (For standalone VMT analysis, or standalone LOS analyses with under 100 vehicle trips per hour): **$1288.20**

Public Works Department

City of Arts & Innovation

Trip Generation Information:

Trip Generation Data Source: Existing Park: SANDAG (Developed Park)
Proposed Amenities: Custom rates developed from driveway counts

Current General Plan Land Use: Major Open Space/Parks

Proposed General Plan Land Use: Major Open Space/Parks

Current Zoning: PF

Proposed Zoning: PF

Total Park Trips

(See attached table)

	Existing Trip Generation			Proposed Trip Generation (Net Change in Trips)		
	In	Out	Total	In	Out	Total
AM Trips	16	16	32	20 (4)	19 (3)	39 (7)
PM Trips	32	31	63	36 (4)	35 (4)	71 (8)

Trip Internalization: ☐ Yes ☒ No (_____% Trip Discount)

Pass-By Allowance: ☐ Yes ☒ No (_____% Trip Discount)

Potential Screening Checks

Is your project screened from specific analyses in accordance with City Guidelines?

Is the project screened from LOS assessment? ☒ Yes ☐ No

3900 Main Street, Riverside, CA 92522 | Phone: (951) 826-5366| **RiversideCA.gov**

LOS screening justification (see Page 6 of the guidelines): Project would generate fewer than 100 peak hour trips and would be a local serving neighborhood or community park.

Is the project screened from VMT assessment? [X] Yes [ ] No

VMT screening justification (see Pages 23-25 of the guidelines): Project would be screened out from VMT analysis based on the following three (3) criteria: 1) Project is located in a low-VMT generating area (>15% below City average VMT per service population); 2) Project would be a local-serving park/public facility; and 3) Project would generate less than 110 ADT.

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution):

North	South	East	West
20 %	10 %	30 %	40 %

- Attach list of Approved and Pending Projects that need to be considered (provided by the lead agency and adjacent agencies)
- Attach list of study intersections/roadway segments
- Attach legible site plan
- Note other specific items to be addressed:
  - Site access
  - On-site circulation
  - Parking
  - Consistency with Plans supporting Bikes/Peds/Transit
  - Other _____
- Date of Traffic Counts Ryan Bonaminio Park 9/15/22 and 9/17/22
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model _____
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Specific Issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines) (To be filled out by the Public Works Traffic Engineering Division)

_____

_____

Table A

Riverside Gateway Parks Trip Generation: Martha McLean Anza Narrows Park

Trip Generation Rates												
Land Use	Unit	Weekday Trips							Weekend (Saturday) Trips			
		Daily Trip Rate (per unit)	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trip Rate (per unit)	Highest Peak Hour (9:15 AM - 10:15 AM)		
			Trip Rate (per unit)	In (% AM)	Out (% AM)	Trip Rate (per unit)	In (% PM)	Out (% PM)		Trip Rate (per unit)	In (% AM)	Out (% AM)
Developed Regional/County Park (SANDAG)	acres	20	4%	50%	50%	8%	50%	50%	20	11%	49%	51%
Local City of Riverside Park (Driveway Counts): Proposed Developed Park Amenities	acres	41.28	3.09	50%	50%	3.83	54%	46%	39.27	4.22	49%	51%

Forecast Project Generated Trips													
Land Use	Size	Unit	Weekday Trips							Weekend (Saturday) Trips			
			Daily Trips	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trips	Highest Peak Hour (9:15 AM - 10:15 AM)		
				Total	In	Out	Total	In	Out		Total	In	Out
Existing Park Trip Generation[1]													
Existing Developed Park	39.5	acres	790	32	16	16	63	32	31	790	85	42	43
Proposed Project Trip Generation[2]													
Developed Park Renovations/ Amenities	3.3	acres	136	10	5	5	13	7	6	129	14	7	7
Total Park Trips (Remaining Undeveloped Acreage Plus Programmable Developed Acreage)[3]													
Existing Developed Park	36.2	acres	724	29	15	14	58	29	29	724	78	39	39
Developed Park Renovations/ Amenities	3.3	acres	136	10	5	5	13	7	6	129	14	7	7
Total Park Trips			**860**	**39**	**20**	**19**	**71**	**36**	**35**	**853**	**92**	**46**	**46**
Net Change in Trips (Total - Existing Trips)													
Net Project Trips			**70**	**7**	**4**	**3**	**8**	**4**	**4**	**63**	**7**	**4**	**3**

Source: Traffic counts conducted by Veracity Traffic Group at Ryan Bonaminio Park driveways on Thursday, September 15, 2022 and on Saturday, September 17, 2022.

San Diego Association of Governments (SANDAG) Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002).

[1]Existing trip generation is calculated based on total existing park acreage.

[2]Proposed project trip generation is calculated based on programmable acreage to be developed.

[3]The total park trips include the existing park acreage plus the programmable acreage of the area to be developed.

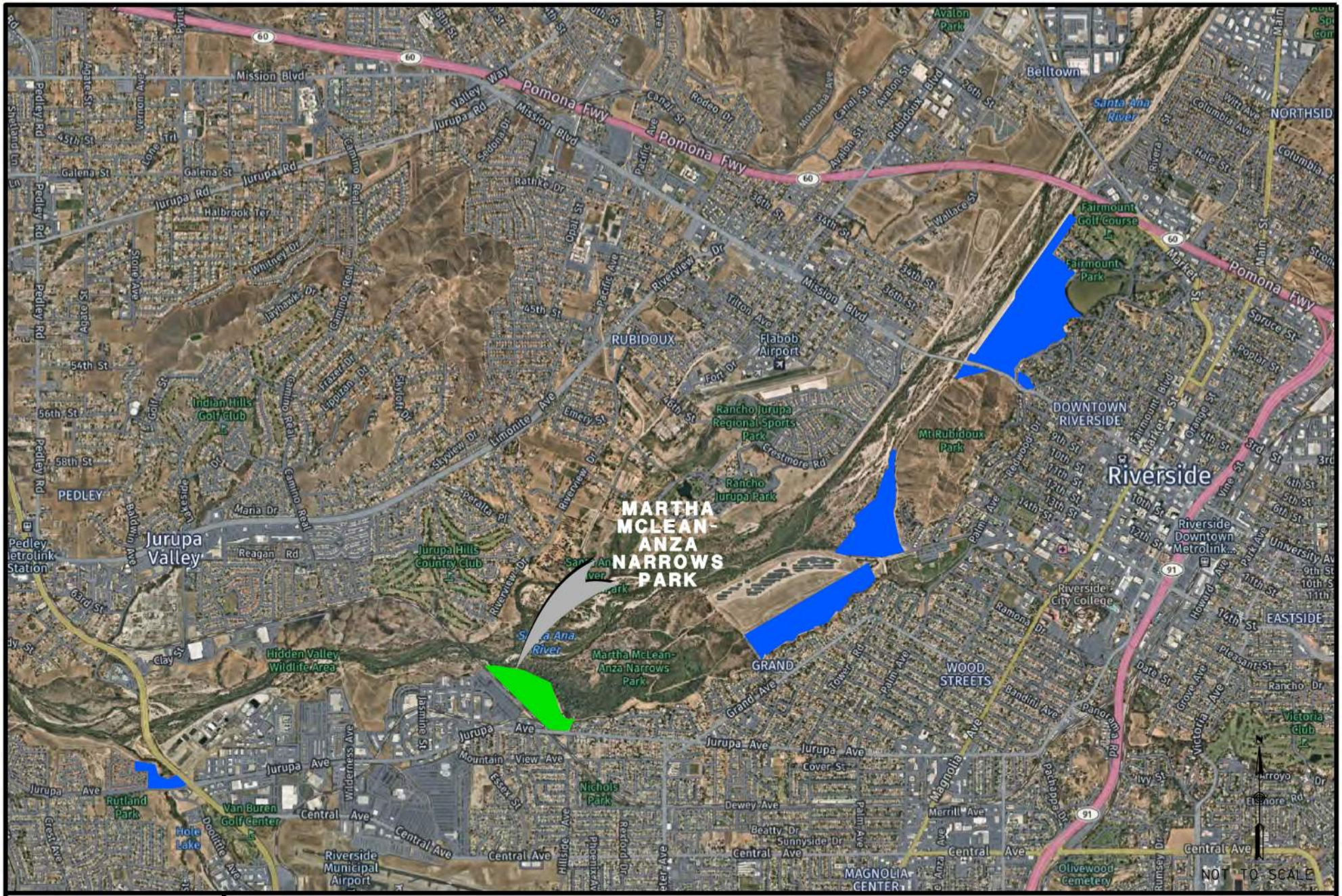

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EXHIBIT 1

PROJECT VICINITY MAP

MARTHA MCLEAN - ANZA NARROWS PARK TRAFFIC ASSESSMENT

LEGEND

- =RIVERSIDE GATEWAY PARK SYSTEM
- =MARTHA MCLEAN - ANZA NARROWS PARK

C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\19405_Basefile.dgn
C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\PDFs\SD CorpStds 2005.dscript

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MARTHA MCLEAN ANZA NARROWS PARK: MASTERPLAN



RICK ENGINEERING COMPANY

EXHIBIT 2

PROJECT SITE PLAN

MARTHA MCLEAN - ANZA NARROWS PARK TRAFFIC ASSESSMENT

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C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\PDFs\SD CorpStds 2005.dscript

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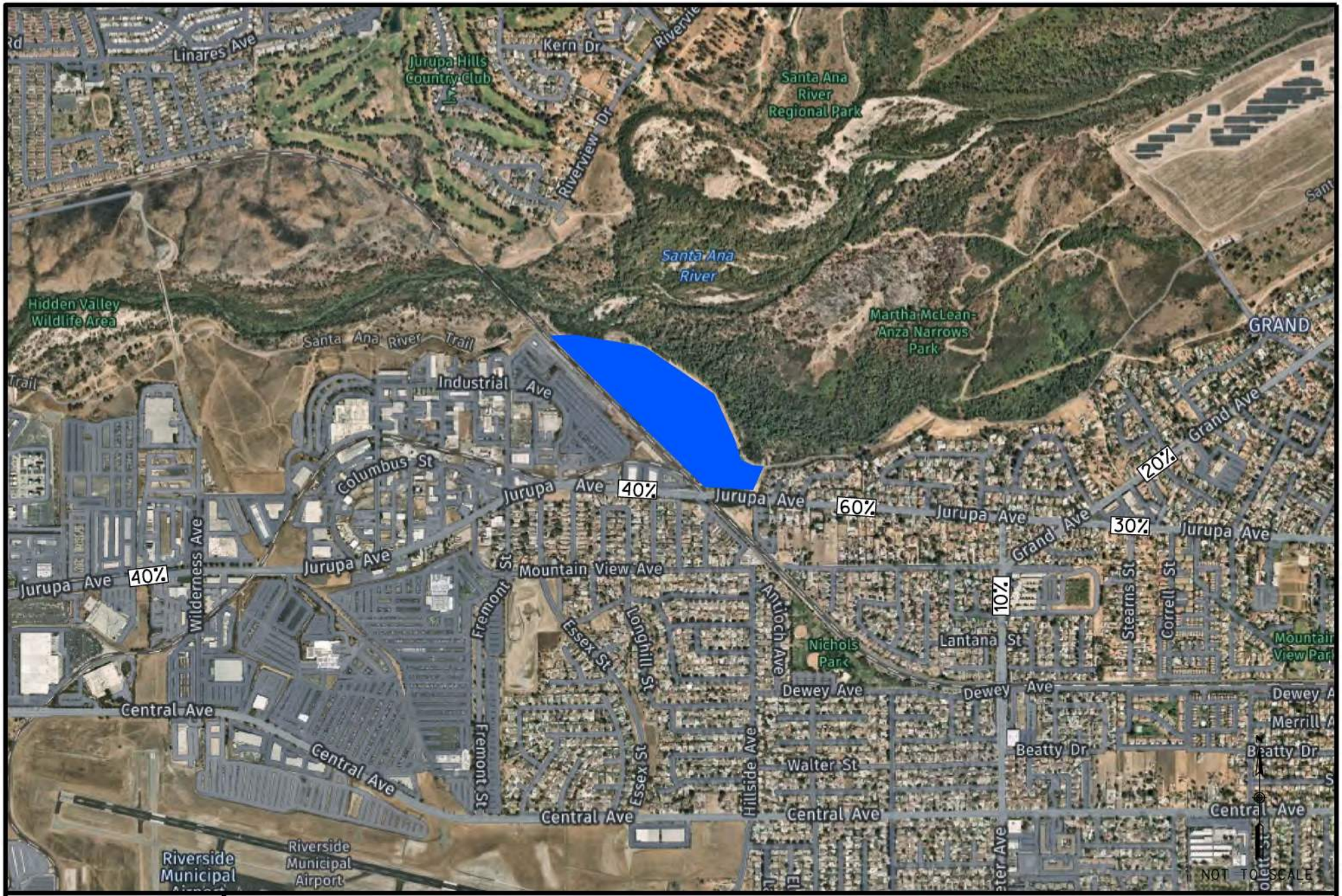

RICK ENGINEERING COMPANY

EXHIBIT 3

PROJECT TRIP DISTRIBUTION

MARTHA MCLEAN - ANZA NARROWS PARK TRAFFIC ASSESSMENT

LEGEND

XX% = DISTRIBUTION PERCENTAGE

= PROJECT SITE

C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\19405_Basefile.dgn
C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\PDFs\SD CorpStds 2005.dscript

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ATTACHMENT B

Thursday, September 15, 2022 Counts

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Thursday, September 15, 2022 City: Riverside Project #: 22-1548-001

Location: Ryan Bonamino Park Western Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	0		3				
00:15	0		0					12:15	1		1				
00:30	0		1					12:30	1		0				
00:45	0	0	0	1			1	12:45	0	2	4	8			10
01:00	0		0					13:00	1		2				
01:15	0		0					13:15	1		1				
01:30	1		0					13:30	2		1				
01:45	0	1	0	0			1	13:45	3	7	5	9			16
02:00	0		0					14:00	1		2				
02:15	0		0					14:15	2		2				
02:30	0		0					14:30	1		3				
02:45	0	0	0	0				14:45	1	5	0	7			12
03:00	0		0					15:00	1		1				
03:15	1		1					15:15	1		2				
03:30	0		0					15:30	0		2				
03:45	0	1	0	1			2	15:45	1	3	3	8			11
04:00	0		0					16:00	1		1				
04:15	0		0					16:15	0		1				
04:30	0		0					16:30	0		1				
04:45	0	0	0	0				16:45	0	1	1	4			5
05:00	0		0					17:00	4		4				
05:15	0		1					17:15	2		4				
05:30	1		0					17:30	1		3				
05:45	0	1	1	2			3	17:45	3	10	8	19			29
06:00	0		1					18:00	5		3				
06:15	0		3					18:15	3		4				
06:30	1		4					18:30	4		7				
06:45	0	1	5	13			14	18:45	2	14	5	19			33
07:00	1		3					19:00	4		6				
07:15	3		5					19:15	6		6				
07:30	1		3					19:30	5		5				
07:45	2	7	5	16			23	19:45	4	19	3	20			39
08:00	3		1					20:00	4		6				
08:15	1		3					20:15	3		1				
08:30	3		2					20:30	1		2				
08:45	3	10	1	7			17	20:45	3	11	4	13			24
09:00	1		2					21:00	1		3				
09:15	1		3					21:15	0		2				
09:30	1		1					21:30	2		1				
09:45	3	6	3	9			15	21:45	1	4	1	7			11
10:00	1		1					22:00	1		1				
10:15	1		1					22:15	1		0				
10:30	1		2					22:30	1		1				
10:45	1	4	4	8			12	22:45	0	3	0	2			5
11:00	1		1					23:00	0		0				
11:15	2		1					23:15	0		0				
11:30	2		1					23:30	1		0				
11:45	0	5	2	5			10	23:45	1	2	0	0			2
Total Vol.		36		62			**98**			81		116			**197**

GPS Coordinates: 33.976215, -117.395528

Daily Totals

NB	SB	EB	WB	Combined
117	178			**295**

	AM			PM		
Split %	36.7%	63.3%	**33.2%**	41.1%	58.9%	**66.8%**
Peak Hour	08:00	06:30	**07:00**	19:00	18:30	**18:30**
Volume	10	17	**23**	19	24	**40**
P.H.F.	0.83	0.85	**0.72**	0.79	0.86	**0.83**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Thursday, September 15, 2022 City: Riverside Project #: 22-1548-002

Location: Ryan Bonamino Park Middle Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		1					12:00	4		3				
00:15	0		0					12:15	2		3				
00:30	0		0					12:30	1		3				
00:45	0	0	1	2			2	12:45	5	12	3	12			24
01:00	0		0					13:00	5		7				
01:15	0		0					13:15	1		6				
01:30	0		0					13:30	2		4				
01:45	0	0	0	0				13:45	5	13	2	19			32
02:00	0		0					14:00	1		7				
02:15	1		0					14:15	2		5				
02:30	1		0					14:30	4		2				
02:45	0	2	0	0			2	14:45	2	9	4	18			27
03:00	0		1					15:00	4		1				
03:15	0		0					15:15	1		4				
03:30	0		0					15:30	5		1				
03:45	0	0	0	1			1	15:45	4	14	2	8			22
04:00	0		0					16:00	3		3				
04:15	0		0					16:15	3		2				
04:30	0		1					16:30	9		1				
04:45	0	0	1	2			2	16:45	4	19	3	9			28
05:00	1		0					17:00	5		4				
05:15	1		1					17:15	9		12				
05:30	2		0					17:30	2		5				
05:45	1	5	0	1			6	17:45	15	31	13	34			65
06:00	0		1					18:00	18		12				
06:15	2		2					18:15	9		7				
06:30	3		1					18:30	17		13				
06:45	3	8	2	6			14	18:45	11	55	8	40			95
07:00	5		3					19:00	11		12				
07:15	1		4					19:15	14		18				
07:30	2		2					19:30	7		12				
07:45	4	12	5	14			26	19:45	3	35	16	58			93
08:00	6		2					20:00	4		15				
08:15	7		5					20:15	3		5				
08:30	6		5					20:30	5		11				
08:45	6	25	9	21			46	20:45	2	14	8	39			53
09:00	11		7					21:00	1		4				
09:15	2		7					21:15	2		2				
09:30	3		13					21:30	0		3				
09:45	6	22	10	37			59	21:45	0	3	2	11			14
10:00	6		8					22:00	2		1				
10:15	4		6					22:15	1		0				
10:30	5		6					22:30	0		1				
10:45	5	20	12	32			52	22:45	2	5	2	4			9
11:00	3		5					23:00	1		0				
11:15	3		5					23:15	0		0				
11:30	4		11					23:30	0		0				
11:45	5	15	6	27			42	23:45	0	1	1	1			2
Total Vol.		109		143			**252**			211		253			**464**

GPS Coordinates: 33.976515, -117.394337

Daily Totals

NB	SB	EB	WB	Combined
320	396			**716**

	AM			PM		
Split %	43.3%	56.7%	**35.2%**	45.5%	54.5%	**64.8%**
Peak Hour	08:15	09:15	**09:00**	17:45	19:15	**17:45**
Volume	30	38	**59**	59	61	**104**
P.H.F.	0.68	0.73	**0.82**	0.82	0.85	**0.87**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Thursday, September 15, 2022 City: Riverside Project #: 22-1548-003

Location: Ryan Bonamino Park Eastern Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	1		0					12:00	6		2				
00:15	0		0					12:15	4		4				
00:30	0		0					12:30	5		2				
00:45	0	1	0	0			1	12:45	7	22	2	10			32
01:00	0		0					13:00	5		1				
01:15	0		1					13:15	5		1				
01:30	0		0					13:30	6		3				
01:45	0	0	0	1			1	13:45	4	20	2	7			27
02:00	0		0					14:00	8		2				
02:15	0		0					14:15	4		1				
02:30	1		0					14:30	3		2				
02:45	0	1	0	0			1	14:45	4	19	0	5			24
03:00	0		0					15:00	3		1				
03:15	1		0					15:15	4		2				
03:30	0		0					15:30	4		0				
03:45	0	1	0	0			1	15:45	4	15	0	3			18
04:00	0		0					16:00	5		3				
04:15	0		0					16:15	6		5				
04:30	1		1					16:30	2		3				
04:45	1	2	0	1			3	16:45	7	20	6	17			37
05:00	1		3					17:00	4		5				
05:15	2		2					17:15	7		8				
05:30	4		2					17:30	12		10				
05:45	4	11	4	11			22	17:45	13	36	14	37			73
06:00	4		4					18:00	7		13				
06:15	8		5					18:15	9		16				
06:30	4		5					18:30	9		7				
06:45	10	26	4	18			44	18:45	8	33	12	48			81
07:00	6		3					19:00	7		13				
07:15	6		4					19:15	10		9				
07:30	5		4					19:30	15		8				
07:45	10	27	7	18			45	19:45	11	43	8	38			81
08:00	8		7					20:00	12		3				
08:15	10		12					20:15	9		4				
08:30	6		13					20:30	8		2				
08:45	9	33	7	39			72	20:45	4	33	1	10			43
09:00	13		6					21:00	5		2				
09:15	10		3					21:15	4		3				
09:30	11		6					21:30	8		2				
09:45	14	48	5	20			68	21:45	2	19	0	7			26
10:00	10		4					22:00	1		0				
10:15	8		3					22:15	2		1				
10:30	5		5					22:30	1		0				
10:45	10	33	3	15			48	22:45	1	5	2	3			8
11:00	1		2					23:00	1		1				
11:15	5		4					23:15	1		1				
11:30	8		2					23:30	0		1				
11:45	5	19	3	11			30	23:45	0	2	0	3			5
Total Vol.		202		134			**336**			267		188			**455**

GPS Coordinates: 33.976813, -117.393149

Daily Totals

NB	SB	EB	WB	Combined
469	322			**791**

	AM			PM		
Split %	60.1%	39.9%	**42.5%**	58.7%	41.3%	**57.5%**
Peak Hour	09:00	07:45	**08:15**	19:15	17:30	**17:30**
Volume	48	39	**76**	48	53	**94**
P.H.F.	0.86	0.75	**0.86**	0.80	0.83	**0.87**

Saturday, September 17, 2022 Counts

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Saturday, September 17, 2022 City: Riverside Project #: 22-1548-001

Location: Ryan Bonamino Park Western Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	3		3				
00:15	0		0					12:15	3		2				
00:30	0		0					12:30	0		1				
00:45	0	0	1	1			1	12:45	1	7	3	9			16
01:00	0		0					13:00	1		2				
01:15	0		0					13:15	3		2				
01:30	0		0					13:30	0		0				
01:45	0	0	0	0				13:45	0	4	0	4			8
02:00	0		0					14:00	1		0				
02:15	0		0					14:15	0		1				
02:30	0		0					14:30	0		2				
02:45	1	1	0	0			1	14:45	0	1	3	6			7
03:00	0		0					15:00	1		1				
03:15	0		0					15:15	3		1				
03:30	0		0					15:30	0		1				
03:45	0	0	0	0				15:45	2	6	0	3			9
04:00	0		0					16:00	0		2				
04:15	1		0					16:15	0		1				
04:30	0		1					16:30	1		2				
04:45	0	1	0	1			2	16:45	0	1	0	5			6
05:00	0		0					17:00	4		0				
05:15	0		1					17:15	0		0				
05:30	0		0					17:30	1		4				
05:45	1	1	1	2			3	17:45	0	5	1	5			10
06:00	0		0					18:00	0		3				
06:15	0		3					18:15	1		2				
06:30	2		0					18:30	2		4				
06:45	1	3	2	5			8	18:45	2	5	7	16			21
07:00	0		3					19:00	5		5				
07:15	2		4					19:15	6		2				
07:30	1		6					19:30	0		2				
07:45	4	7	5	18			25	19:45	2	13	1	10			23
08:00	3		6					20:00	4		1				
08:15	3		6					20:15	0		1				
08:30	5		7					20:30	2		0				
08:45	3	14	4	23			37	20:45	0	6	0	2			8
09:00	7		2					21:00	2		2				
09:15	3		5					21:15	1		2				
09:30	5		4					21:30	1		0				
09:45	4	19	2	13			32	21:45	0	4	0	4			8
10:00	6		5					22:00	2		1				
10:15	3		2					22:15	0		2				
10:30	4		6					22:30	1		2				
10:45	4	17	1	14			31	22:45	1	4	0	5			9
11:00	3		4					23:00	3		2				
11:15	2		1					23:15	0		1				
11:30	4		3					23:30	2		1				
11:45	4	13	0	8			21	23:45	0	5	0	4			9
Total Vol.		76		85			**161**			61		73			**134**

GPS Coordinates: 33.976215, -117.395528

Daily Totals

NB	SB	EB	WB	Combined
137	158			**295**

	AM			PM		
Split %	47.2%	52.8%	**54.6%**	45.5%	54.5%	**45.4%**
Peak Hour	09:00	07:45	**07:45**	18:30	18:15	**18:30**
Volume	19	24	**39**	15	18	**33**
P.H.F.	0.68	0.86	**0.81**	0.63	0.64	**0.83**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Saturday, September 17, 2022 City: Riverside Project #: 22-1548-002

Location: Ryan Bonamino Park Middle Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	2		7				
00:15	0		0					12:15	3		5				
00:30	0		0					12:30	1		7				
00:45	0	0	0	0				12:45	1	7	5	24			31
01:00	0		0					13:00	1		8				
01:15	1		0					13:15	1		4				
01:30	0		0					13:30	4		3				
01:45	0	1	0	0			1	13:45	2	8	5	20			28
02:00	0		0					14:00	3		2				
02:15	2		0					14:15	0		5				
02:30	0		1					14:30	0		5				
02:45	0	2	0	1			3	14:45	4	7	6	18			25
03:00	0		0					15:00	1		7				
03:15	0		0					15:15	4		2				
03:30	0		0					15:30	4		2				
03:45	0	0	2	2			2	15:45	3	12	1	12			24
04:00	0		0					16:00	3		5				
04:15	0		0					16:15	4		6				
04:30	0		0					16:30	6		6				
04:45	1	1	1	1			2	16:45	2	15	5	22			37
05:00	0		0					17:00	4		3				
05:15	0		1					17:15	6		3				
05:30	0		1					17:30	2		4				
05:45	3	3	1	3			6	17:45	7	19	5	15			34
06:00	3		1					18:00	11		6				
06:15	11		4					18:15	3		9				
06:30	7		1					18:30	4		11				
06:45	14	35	4	10			45	18:45	6	24	4	30			54
07:00	6		1					19:00	5		8				
07:15	9		5					19:15	7		6				
07:30	8		7					19:30	7		8				
07:45	9	32	6	19			51	19:45	3	22	7	29			51
08:00	11		6					20:00	6		5				
08:15	7		10					20:15	1		4				
08:30	12		5					20:30	3		4				
08:45	4	34	14	35			69	20:45	6	16	2	15			31
09:00	9		5					21:00	2		2				
09:15	9		9					21:15	3		3				
09:30	7		13					21:30	3		1				
09:45	3	28	5	32			60	21:45	2	10	0	6			16
10:00	11		12					22:00	0		1				
10:15	13		7					22:15	1		0				
10:30	7		9					22:30	2		0				
10:45	8	39	10	38			77	22:45	0	3	0	1			4
11:00	4		6					23:00	0		1				
11:15	2		10					23:15	1		0				
11:30	2		3					23:30	2		1				
11:45	3	11	14	33			44	23:45	1	4	0	2			6
Total Vol.		186		174			**360**			147		194			**341**

GPS Coordinates: 33.976515, -117.394337

Daily Totals

NB	SB	EB	WB	Combined
333	368			**701**

	AM			PM		
Split %	51.7%	48.3%	**51.4%**	43.1%	56.9%	**48.6%**
Peak Hour	07:45	08:45	**10:00**	17:15	18:15	**17:45**
Volume	39	41	**77**	26	32	**56**
P.H.F.	0.81	0.73	**0.84**	0.59	0.73	**0.82**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Saturday, September 17, 2022 City: Riverside Project #: 22-1548-003

Location: Ryan Bonamino Park Eastern Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	9		3				
00:15	0		0					12:15	7		3				
00:30	0		1					12:30	7		4				
00:45	0	0	0	1			1	12:45	6	29	4	14			43
01:00	1		0					13:00	9		1				
01:15	0		0					13:15	4		5				
01:30	0		0					13:30	6		1				
01:45	0	1	0	0			1	13:45	5	24	5	12			36
02:00	1		0					14:00	7		2				
02:15	0		0					14:15	2		2				
02:30	0		0					14:30	6		3				
02:45	0	1	0	0			1	14:45	4	19	1	8			27
03:00	0		0					15:00	9		1				
03:15	0		0					15:15	6		1				
03:30	0		0					15:30	6		5				
03:45	0	0	0	0				15:45	6	27	3	10			37
04:00	0		0					16:00	5		4				
04:15	1		0					16:15	4		4				
04:30	0		1					16:30	5		4				
04:45	1	2	1	2			4	16:45	6	20	4	16			36
05:00	0		2					17:00	4		5				
05:15	2		1					17:15	3		4				
05:30	4		4					17:30	0		4				
05:45	4	10	5	12			22	17:45	1	8	6	19			27
06:00	3		6					18:00	3		6				
06:15	2		8					18:15	3		6				
06:30	4		6					18:30	2		5				
06:45	5	14	6	26			40	18:45	4	12	3	20			32
07:00	6		6					19:00	11		5				
07:15	9		6					19:15	3		9				
07:30	8		11					19:30	6		4				
07:45	7	30	12	35			65	19:45	7	27	2	20			47
08:00	11		8					20:00	3		2				
08:15	9		8					20:15	1		2				
08:30	10		7					20:30	2		4				
08:45	9	39	8	31			70	20:45	1	7	1	9			16
09:00	11		9					21:00	0		2				
09:15	11		10					21:15	0		1				
09:30	11		9					21:30	0		3				
09:45	10	43	8	36			79	21:45	0	0	0	6			6
10:00	13		9					22:00	2		1				
10:15	9		6					22:15	1		2				
10:30	7		7					22:30	0		1				
10:45	9	38	7	29			67	22:45	1	4	0	4			8
11:00	10		4					23:00	0		1				
11:15	7		3					23:15	1		1				
11:30	13		3					23:30	0		0				
11:45	7	37	3	13			50	23:45	0	1	0	2			3
Total Vol.		215		185			**400**			178		140			**318**

GPS Coordinates: 33.976813, -117.393149

Daily Totals

NB	SB	EB	WB	Combined
393	325			**718**

	AM			PM		
Split %	53.8%	46.3%	**55.7%**	56.0%	44.0%	**44.3%**
Peak Hour	09:15	07:30	**09:15**	12:00	17:45	**19:00**
Volume	45	39	**81**	29	23	**47**
P.H.F.	0.87	0.81	**0.92**	0.81	0.96	**0.73**

SANDAG Trip Generation Rates

(NOT SO)

BRIEF GUIDE OF VEHICULAR TRAFFIC GENERATION RATES FOR THE SAN DIEGO REGION

APRIL 2002

SANDAG
401 B Street, Suite 800
San Diego, California 92101
(619) 699-1900 • Fax (619) 699-1950

NOTE: This listing only represents a ***guide*** of average, or estimated, traffic generation "driveway" rates and some very general trip data for land uses (emphasis on acreage and building square footage) in the San Diego region. These rates (both local and national) are subject to change as future documentation becomes available, or as regional sources are updated. For more specific information regarding traffic data and trip rates, please refer to the San Diego Traffic Generators manual. ***Always check with local jurisdictions for their preferred or applicable rates.***

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY][P]	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M.	Between 3:00-6:30 P.M.	TRIP LENGTH (Miles)[L]
AGRICULTURE (Open Space)	[80:18:2]	2/acre**			10.8
AIRPORT	[78:20:2]				12.5
Commercial		60/acre, 100/flight, 70/1000 sq. ft.* **	5% (6:4)	6% (5:5)	
General Aviation		6/acre, 2/flight, 6/based aircraft* **	9% (7:3)	15% (5:5)	
Heliports		100/acre**			
AUTOMOBILE[S]					
Car Wash					
Automatic		900/site, 600/acre**	4% (5:5)	9% (5:5)	
Self-serve		100/wash stall**	4% (5:5)	8% (5:5)	
Gasoline	[21:51:28]				2.8
with/Food Mart		160/vehicle fueling space**	7% (5:5)	8% (5:5)	
with/Food Mart & Car Wash		155/vehicle fueling space**	8% (5:5)	9% (5:5)	
Older Service Station Design		150/vehicle fueling space, 900/station**	7% (5:5)	9% (5:5)	
Sales (Dealer & Repair)		50/1000 sq. ft., 300/acre, 60/service stall* **	5% (7:3)	8% (4:6)	
Auto Repair Center		20/1000 sq. ft., 400/acre, 20/service stall*	8% (7:3)	11% (4:6)	
Auto Parts Sales		60/1000 sq. ft. **	4%	10%	
Quick Lube		40/service stall**	7% (6:4)	10% (5:5)	
Tire Store		25/1000 sq. ft., 30/service stall**	7% (6:4)	11% (5:5)	
CEMETERY		5/acre*			
CHURCH (or Synagogue)	[64:25:11]	9/1000 sq. ft., 30/acre** (quadruple rates for Sunday, or days of assembly)	5% (6:4)	8% (5:5)	5.1
COMMERCIAL/RETAIL[S]					
Super Regional Shopping Center (More than 80 acres, more than 800,000 sq. ft., w/usually 3+ major stores)		35/1000 sq. ft.,[C] 400/acre*	4% (7:3)	10% (5:5)	
Regional Shopping Center (40-80acres, 400,000-800,000 sq. ft., w/usually 2+ major stores)	[54:35:11]	50/1000 sq. ft.,[C] 500/acre*	4% (7:3)	9% (5:5)	5.2
Community Shopping Center (15-40 acres, 125,000-400,000 sq. ft., w/usually 1 major store, detached restaurant(s), grocery and drugstore)	[47:31:22]	80/1000 sq. ft., 700/acre* **	4% (6:4)	10% (5:5)	3.6
Neighborhood Shopping Center (Less than 15 acres, less than 125,000 sq. ft., w/usually grocery & drugstore, cleaners, beauty & barber shop, & fast food services)		120/1000 sq. ft., 1200/acre* **	4% (6:4)	10% (5:5)	
Commercial Shops	[45:40:15]				
Specialty Retail/Strip Commercial		40/1000 sq. ft., 400/acre*	3% (6:4)	9% (5:5)	4.3
Electronics Superstore		50/1000 sq. ft**		10% (5:5)	
Factory Outlet		40/1000 sq. ft.**	3% (7:3)	9% (5:5)	
Supermarket		150/1000 sq. ft., 2000/acre* **	4% (7:3)	10% (5:5)	
Drugstore		90/1000 sq. ft.**	4% (6:4)	10% (5:5)	
Convenience Market (15-16 hours)		500/1000 sq. ft.**	8% (5:5)	8% (5:5)	
Convenience Market (24 hours)		700/1000 sq. ft.**	9% (5:5)	7% (5:5)	
Convenience Market (w/gasoline pumps)		850/1000 sq. ft., 550/vehicle fueling space**	6% (5:5)	7% (5:5)	
Discount Club		60/1000 sq. ft., 600/acre* **	1% (7:3)	9% (5.5)	
Discount Store		60/1000 sq. ft., 600/acre**	3% (6:4)	8% (5:5)	
Furniture Store		6/1000 sq. ft., 100/acre**	4% (7:3)	9% (5:5)	
Lumber Store		30/1000 sq. ft., 150/acre**	7% (6:4)	9% (5:5)	
Home Improvement Superstore		40/1000 sq. ft.**	5% (6:4)	8% (5:5)	
Hardware/Paint Store		60/1000 sq. ft., 600/acre**	2% (6:4)	9% (5:5)	
Garden Nursery		40/1000 sq. ft., 90/acre**	3% (6:4)	10% (5:5)	
Mixed Use: Commercial (w/supermarket)/Residential		{110/1000 sq. ft., 2000/acre* (commercial only) {5/dwelling unit, 200/acre* (residential only)	3% (6:4) 9% (3:7)	9% (5:5) 13% (6:4)	
EDUCATION					
University (4 years)	[91:9:0]	2.4/student, 100 acre*	10% (8:2)	9% (3:7)	8.9
Junior College (2 years)	[92:7:1]	1.2/student, 24/1000 sq. ft., 120/acre* **	12% (8:2)	9% (6:4)	9.0
High School	[75:19:6]	1.3/student, 15/1000 sq. ft., 60/acre* **	20% (7:3)	10% (4:6)	4.8
Middle/Junior High	[63:25:12]	1.4/student, 12/1000 sq. ft. 50/acre**	30% (6:4)	9% (4:6)	5.0
Elementary	[57:25:10]	1.6/student, 14/1000 sq. ft., 90/acre* **	32% (6:4)	9% (4:6)	3.4
Day Care	[28:58:14]	5/child, 80/1000 sq. ft.**	17% (5:5)	18% (5:5)	3.7
FINANCIAL[S]	[35:42:23]				3.4
Bank (Walk-In only)		150/1000 sq. ft., 1000/acre* **	4% (7:3)	8% (4:6)	
with Drive-Through		200/1000 sq. ft., 1500/acre*	5% (6:4)	10% (5:5)	
Drive-Through only		250 (125 one-way)/lane*	3% (5:5)	13% (5:5)	
Savings & Loan		60/1000 sq. ft., 600/acre**	2%	9%	
Drive-Through only		100 (50 one-way)/lane**	4%	15%	
HOSPITAL	[73:25:2]				8.3
General		20/bed, 25/1000 sq. ft., 250/acre*	8% (7:3)	10% (4:6)	
Convalescent/Nursing		3/bed**	7% (6:4)	7% (4:6)	
INDUSTRIAL					
Industrial/Business Park (commercial included)	[79:19:2]	16/1000 sq. ft., 200/acre* **	12% (8:2)	12% (2:8)	9.0
Industrial Park (no commercial)		8/1000 sq. ft., 90/acre**	11% (9:1)	12% (2:8)	
Industrial Plant (multiple shifts)	[92:5:3]	10/1000 sq. ft., 120/acre*	14% (8:2)	15% (3:7)	11.7
Manufacturing/Assembly		4/1000 sq. ft., 50/acre**	19% (9:1)	20% (2:8)	
Warehousing		5/1000 sq. ft., 60/acre**	13% (7:3)	15% (4:6)	
Storage		2/1000 sq. ft., 0.2/vault, 30/acre*	6% (5:5)	9% (5:5)	
Science Research & Development		8/1000 sq. ft., 80/acre*	16% (9:1)	14% (1:9)	
Landfill & Recycling Center		6/acre	11% (5:5)	10% (4:6)	

(OVER)

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista and County of San Diego.
ADVISORY/LIAISON MEMBERS: California Department of Transportation, County Water Authority, U.S. Department of Defense, S.D. Unified Port District and Tijuana/Baja California.

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY][P]	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M.		Between 3:00-6:30 P.M.		TRIP LENGTH (Miles)[L]
LIBRARY	[44:44:12]	50/1000 sq. ft., 400/acre**	2%	(7:3)	10%	(5:5)	3.9
LODGING	[58:38:4]						7.6
Hotel (w/convention facilities/restaurant)		10/occupied room, 300/acre	6%	(6:4)	8%	(6:4)	
Motel		9/occupied room, 200/acre*	8%	(4:6)	9%	(6:4)	
Resort Hotel		8/occupied room, 100/acre*	5%	(6:4)	7%	(4:6)	
Business Hotel		7/occupied room**	8%	(4:6)	9%	(6:4)	
MILITARY	[82:16:2]	2.5/military & civilian personnel*	9%	(9:1)	10%	(2:8)	11.2
OFFICE							
Standard Commercial Office (less than 100,000 sq. ft.)	[77:19:4]	20/1000 sq. ft.,[O] 300/acre*	14%	(9:1)	13%	(2:8)	8.8
Large (High-Rise) Commercial Office (more than 100,000 sq. ft., 6+ stories)	[82:15:3]	17/1000 sq. ft.,[O] 600/acre*	13%	(9:1)	14%	(2:8)	10.0
Office Park (400,000+ sq. ft.)		12/1000 sq.ft., 200/acre* **	13%	(9:1)	13%	(2:8)	
Single Tenant Office		14/1000 sq. ft., 180/acre*	15%	(9:1)	15%	(2:8)	8.8
Corporate Headquarters		7/1000 sq. ft., 110/acre*	17%	(9:1)	16%	(1:9)	
Government (Civic Center)	[50:34:16]	30/1000 sq. ft.**	9%	(9:1)	12%	(3:7)	6.0
Post Office							
Central/Walk-In Only		90/1000 sq. ft.**	5%		7%		
Community (not including mail drop lane)		200/1000 sq. ft., 1300/acre*	6%	(6:4)	9%	(5:5)	
Community (w/mail drop lane)		300/1000 sq. ft., 2000/acre*	7%	(5:5)	10%	(5:5)	
Mail Drop Lane only		1500 (750 one-way)/lane*	7%	(5:5)	12%	(5:5)	
Department of Motor Vehicles		180/1000 sq. ft., 900/acre**	6%	(6:4)	10%	(4:6)	
Medical-Dental	[60:30:10]	50/1000 sq. ft., 500/acre*	6%	(8:2)	11%	(3:7)	6.4
PARKS	[66:28:6]		4%		8%		5.4
City (developed w/meeting rooms and sports facilities)		50/acre*	13%	(5:5)	9%	(5:5)	
Regional (developed)		20/acre*					
Neighborhood/County (undeveloped)		5/acre (add for specific sport uses), 6/picnic site* **					
State (average 1000 acres)		1/acre, 10/picnic site**					
Amusement (Theme)		80/acre, 130/acre (summer only)**			6%	(6:4)	
San Diego Zoo		115/acre*					
Sea World		80/acre*					
RECREATION							
Beach, Ocean or Bay	[52:39:9]	600/1000 ft. shoreline, 60/acre*					6.3
Beach, Lake (fresh water)		50/1000 ft. shoreline, 5/acre*					
Bowling Center		30/1000 sq. ft., 300/acre, 30/lane **	7%	(7:3)	11%	(4:6)	
Campground		4/campsite**	4%		8%		
Golf Course		7/acre, 40/hole, 700/course* **	7%	(8:2)	9%	(3:7)	
Driving Range only		70/acre, 14/tee box*	3%	(7:3)	9%	(5:5)	
Marinas		4/berth, 20/acre* **	3%	(3:7)	7%	(6:4)	
Multi-purpose (miniature golf, video arcade, batting cage, etc.)		90/acre	2%		6%		
Racquetball/Health Club		30/1000 sq. ft., 300/acre, 40/court*	4%	(6:4)	9%	(6:4)	
Tennis Courts		16/acre, 30/court**	5%		11%	(5:5)	
Sports Facilities							
Outdoor Stadium		50/acre, 0.2/seat*					
Indoor Arena		30/acre, 0.1/seat*					
Racetrack		40/acre, 0.6 seat*					
Theaters (multiplex w/matinee)	[66:17:17]	80/1000 sq. ft., 1.8/seat, 360/screen*	1/3%		8%	(6:4)	6.1
RESIDENTIAL	[86:11:3]						7.9
Estate, Urban or Rural (average 1-2 DU/acre)		12/dwelling unit*[R]	8%	(3:7)	10%	(7:3)	
Single Family Detached (average 3-6 DU/acre)		10/dwelling unit*[R]	8%	(3:7)	10%	(7:3)	
Condominium (or any multi-family 6-20 DU/acre)		8/dwelling unit*[R]	8%	(2:8)	10%	(7:3)	
Apartment (or any multi-family units more than 20 DU/acre)		6/dwelling unit*[R]	8%	(2:8)	9%	(7:3)	
Military Housing (off-base, multi-family)							
(less than 6 DU/acre)		8/dwelling unit	7%	(3:7)	9%	(6:4)	
(6-20 DU/acre)		6/dwelling unit	7%	(3:7)	9%	(6:4)	
Mobile Home							
Family		5/dwelling unit, 40/acre*	8%	(3:7)	11%	(6:4)	
Adults Only		3/dwelling unit, 20/acre*	9%	(3:7)	10%	(6:4)	
Retirement Community		4/dwelling unit**	5%	(4:6)	7%	(6:4)	
Congregate Care Facility		2.5/dwelling unit**	4%	(6:4)	8%	(5:5)	
RESTAURANT[S]	[51:37:12]						4.7
Quality		100/1000 sq. ft., 3/seat, 500/acre* **	1%	(6:4)	8%	(7:3)	
Sit-down, high turnover		160/1000 sq. ft., 6/seat, 1000/acre* **	8%	(5:5)	8%	(6:4)	
Fast Food (w/drive-through)		650/1000 sq. ft., 20/seat, 3000/acre* **	7%	(5:5)	7%	(5:5)	
Fast Food (without drive-through)		700/1000 sq. ft.**	5%	(6:4)	7%	(5:5)	
Delicatessen (7am-4pm)		150/1000 sq. ft., 11/seat*	9%	(6:4)	3%	(3:7)	
TRANSPORTATION							
Bus Depot		25/1000 sq. ft.**					
Truck Terminal		10/1000 sq. ft., 7/bay, 80/acre**	9%	(4:6)	8%	(5:5)	
Waterport/Marine Terminal		170/berth, 12/acre**					
Transit Station (Light Rail w/parking)		300/acre, $2^{1/2}$/parking space (4/occupied)**	14%	(7:3)	15%	(3:7)	
Park & Ride Lots		400/acre (600/paved acre), 5/parking space (8/occupied)* **	14%	(7:3)	15%	(3:7)	

* Primary source: *San Diego Traffic Generators.*

* Other sources: *ITE Trip Generation Report [6th Edition]*, Trip Generation Rates (other agencies and publications), various SANDAG & CALTRANS studies, reports and estimates.

[P] Trip category percentage ratios are daily from local household surveys, often cannot be applied to very specific land uses, and do not include non-resident drivers (draft SANDAG *Analysis of Trip Diversion*, revised November, 1990):
PRIMARY - one trip directly between origin and primary destination.
DIVERTED - linked trip (having one or more stops along the way to a primary destination) whose distance compared to direct distance ≥ 1 mile.
PASS-BY - undiverted or diverted < 1 mile.

[L] Trip lengths are average weighted for all trips to and from general land use site. (All trips system-wide average length = 6.9 miles)

[C] Fitted curve equation: $Ln(T) = 0.502\ Ln(x) + 6.945$

[O] Fitted curve equation: $Ln(T) = 0.756\ Ln(x) + 3.950$

T = total trips, x = 1,000 sq. ft.

[R] Fitted curve equation: $t = -2.169\ Ln(d) + 12.85$ t = trips/DU, d = density (DU/acre), DU = dwelling unit

[S] Suggested PASS-BY [undiverted or diverted < 1 mile] percentages for trip rate reductions only during P.M. peak period (based on combination of local data/review and Other sources**):

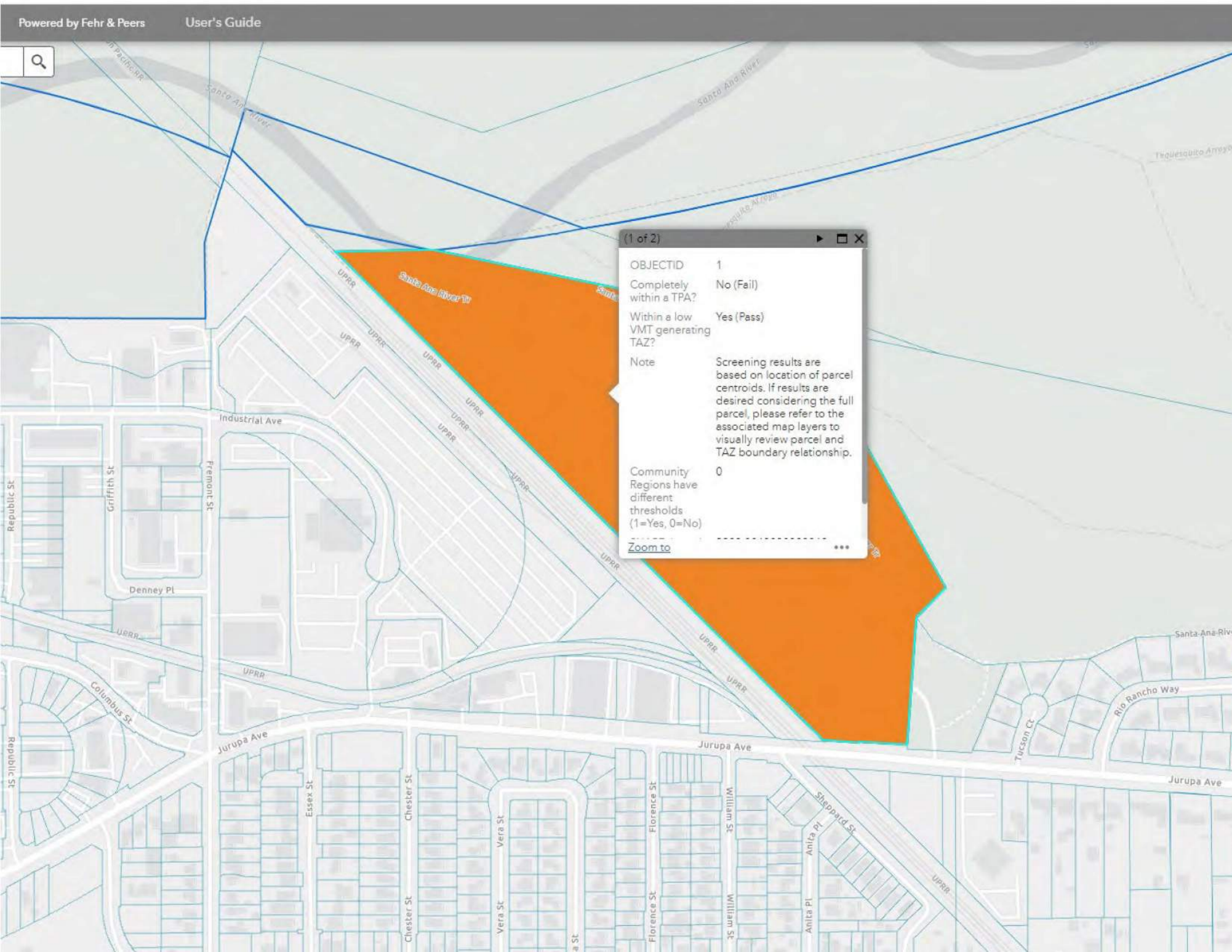
COMMERCIAL/RETAIL	
Regional Shopping Center	20%
Community " "	30%
Neighborhood " "	40%
Specialty Retail/Strip Commercial (other)	10%
Supermarket	40%
Convenience Market	50%
Discount Club/Store	30%
FINANCIAL	
Bank	25%
AUTOMOBILE	
Gasoline Station	50%
RESTAURANT	
Quality	10%
Sit-down high turnover	20%
Fast Food	40%

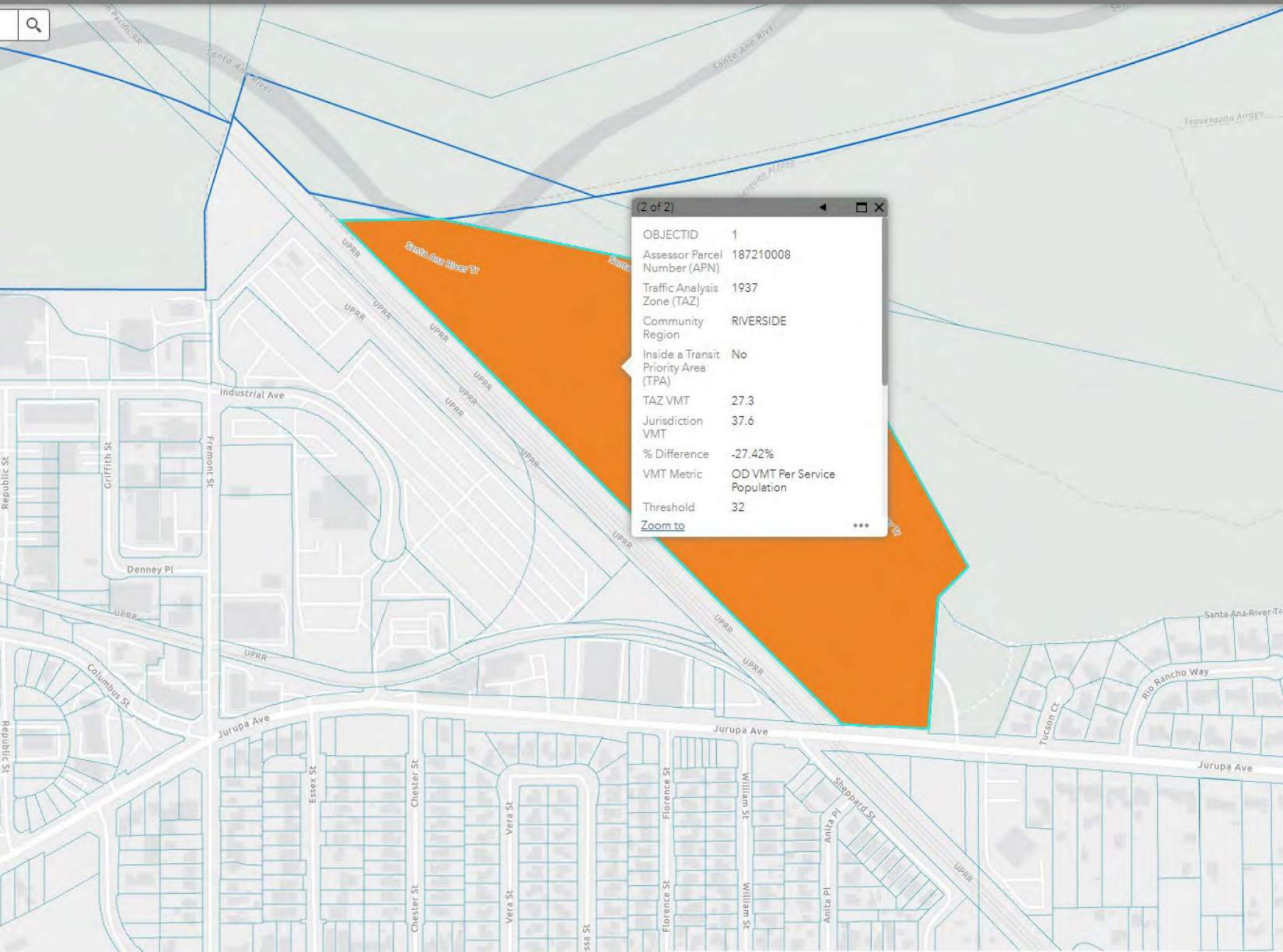
[T] Trip Reductions - In order to help promote regional "smart growth" policies, and acknowledge San Diego's expanding mass transit system, consider vehicle trip rate reductions (with proper documentation and necessary adjustments for peak periods). The following are some examples:

[1] A 5% daily trip reduction for land uses with transit access or near transit stations accessible within 1/4 mile.

[2] Up to 10% daily trip reduction for mixed-use developments where residential and commercial retail are combined (demonstrate mode split of walking trips to replace vehicular trips).

ATTACHMENT C


Powered by Fehr & Peers
User's Guide
(1 of 2)
OBJECTID 1
Completely within a TPA? No (Fail)
Within a low VMT generating TAZ? Yes (Pass)
Note Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.
Community Regions have different thresholds (1=Yes, 0=No) 0
Zoom to
Santa Ana River Tr
Industrial Ave
Jurupa Ave
Denney Pl
Columbus St
Griffith St
Fremont St
Republic St
Essex St
Chester St
Vera St
Florence St
William St
Anita Pl
Sheppard St
Tucson Ct
Rio Rancho Way
UPRR


(2 of 2)
OBJECTID 1
Assessor Parcel Number (APN) 187210008
Traffic Analysis Zone (TAZ) 1937
Community Region RIVERSIDE
Inside a Transit Priority Area (TPA) No
TAZ VMT 27.3
Jurisdiction VMT 37.6
% Difference -27.42%
VMT Metric OD VMT Per Service Population
Threshold 32
Zoom to
Santa Ana River Tr
UPRR
Industrial Ave
Griffith St
Fremont St
Republic St
Denney Pl
Columbus St
Jurupa Ave
Essex St
Chester St
Vera St
Florence St
Williams St
Anita Pl
Sheppard St
Tucson Ct
Rio Rancho Way
Santa Ana River Trail

Appendix J2

Jurupa Avenue Trailhead Traffic Assessment

RICK ENGINEERING COMPANY
Traffic Division

April 27, 2023

Ms. Alisa Sramala
City of Riverside
Parks, Recreation and Community Services Department
6927 Magnolia Avenue
Riverside, California 92506

SUBJECT: RIVERSIDE GATEWAY PARKS JURUPA AVENUE TRAILHEAD PARK TRAFFIC ASSESSMENT, RIVERSIDE, CA
(RICK ENGINEERING COMPANY JOB NUMBER 19405-AT)

Dear Ms. Sramala:

The following traffic assessment evaluates the anticipated trip generation, site access, internal circulation and parking of the proposed Jurupa Avenue Trailhead Park within the Riverside Gateway parks system. In addition, level of service (LOS) and vehicle miles traveled (VMT) screening evaluations and an active transportation and public transit evaluation are included in this traffic assessment. The project site is located adjacent to the Santa Ana River Trail along the north side of the Jurupa Avenue approximately 600 feet west of Van Buren Boulevard in the City of Riverside, California. This study was prepared in accordance with the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (July 2020) and discussion with City of Riverside Public Works staff. **Attachment A** contains the City of Riverside's Traffic Analysis Scoping Form, which was reviewed and accepted by City of Riverside Traffic Engineering staff. **Exhibit 1** shows a map of the regional project vicinity.

Project Description

The project site currently consists of 7.7 acres of undeveloped open space. The existing Santa Ana River Bike Trail, a Class I bicycle facility, runs through the project site from the northwest corner of the site to the southeast corner and continues east of the site along the north side of Jurupa Avenue. There are currently no existing amenities other than a few undesignated, unpaved trails within the site.

The project proposes to develop approximately 1.5 acres of programmable park amenities, which include the following:

- Community lawn/meadow
- Demonstration garden
- Arroyo plaza/play area
- Music and nature play areas
- Bike hub with restrooms
- Outlook with benches
- Realigned Santa Ana River Trail
- Paved and unpaved (decomposed granite) walking paths

The project site is proposed as a trailhead/staging area for the Santa Ana River Trail. The project would provide a total of 31 parking spaces for both trail and park users. **Exhibit 2** shows the project site plan.

Existing Transportation Conditions

The following is a description of the existing roadways in the vicinity of the project site:

Jurupa Avenue is currently built as a four-lane divided roadway within the project vicinity. Jurupa Avenue is oriented in a general east-west direction and extends from Pachappa Drive near SR-91 to Tyler Street. Jurupa Avenue runs for a total distance of approximately 5.5 miles.

Jurupa Avenue is classified in the City of Riverside's *General Plan Circulation and Community Mobility Element* (February 2018) as a four-lane, 110-foot Arterial in the vicinity of the project site. Jurupa Avenue has a pavement width of approximately 86 feet within the vicinity of the project site. A raised median with intermittent turn lanes is currently provided west of Van Buren Boulevard. On-street parking is prohibited on Jurupa Avenue in the vicinity of the project site.

Class II bike lanes are provided on Jurupa Avenue in each direction of travel for a majority of the roadway length. Several sections of the roadway also provide a two-foot buffer for bicyclists on both sides of the roadway. The Santa Ana River Bike Trail currently runs along the north side of the roadway fronting the project site. The posted speed limit on Jurupa Avenue is 40 MPH in the immediate vicinity of the project site.

Project Trip Generation

Based on input from City of Riverside staff, the trip generation for the proposed project was calculated using custom trip rates that were developed from vehicular traffic counts that were collected at the three (3) driveways serving Ryan Bonaminio Park located at 5000 Tequesquite Avenue in the City of Riverside. The traffic counts at the park driveways were collected on Thursday, September 15, 2022 and on Saturday, September 17, 2022 over a 24-hour period on each day.

Based on the acreage of the existing Ryan Bonaminio Park (43.65 acres) and the number of daily and AM/PM peak hour trips on each day, daily and AM/PM peak hour trip generation rates were calculated for a "local Riverside park" on a typical weekday and a typical Saturday. These customized local park trip rates were applied to the programmable acreage of the proposed developed park areas, which are shown below in **Table 1**.

Table 1
Local Riverside Park Trip Rates from Driveway Counts

Unit	Daily Trip Rate (per unit)	AM Peak Hour			PM Peak Hour		
		Trip Rate (per unit)	Inbound (%AM)	Outbound (% AM)	Trip Rate (per unit)	Inbound (% PM)	Outbound (% PM)
Weekday Trip Rates							
acres	41.28	3.09	50%	50%	3.83	54%	46%
Saturday Trip Rates							
acres	39.27	4.22	49%	51%	N/A	N/A	N/A

Source: Vehicular traffic counts were collected at Ryan Bonaminio Park driveways by Veracity Traffic Group on Thursday, September 15, 2022 and on Saturday, September 17, 2022.

N/A = Not applicable, as the highest peak hour on a Saturday occurs during the morning hours.

Due to the lack of existing park amenities or parking, it was assumed that the existing 7.7 acres of open space on the project site currently do not generate any vehicular trips. Bicyclists along the Santa Ana River Trail currently pass through the project site but do not generate any site-specific trips, and pedestrians from the adjacent neighborhood may also use the Santa Ana River Trail and the existing trails within the project site.

Based on direction from City of Riverside staff, the trip generation rates for an undeveloped Neighborhood/County Park from the San Diego Association of Governments (SANDAG) *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) were used to calculate the trip generation of the remaining park area that would remain undeveloped after development of the project's programmable acreage.

Table 2 shows the trip generation calculations for the proposed project using the custom trip rates shown above in Table 1 and the SANDAG Neighborhood/County Park trip rates as described above. **Attachment B** contains the Ryan Bonaminio Park driveway counts and the SANDAG trip generation rates.

Table 2 shows that the proposed project, including both the programmable developed area and remaining undeveloped area, is estimated to generate a total of 93 trips per day on a typical weekday, with a total of 7 trips during the weekday AM peak hour (3 inbound/4 outbound) and a total of 8 trips during the weekday PM peak hour (4 inbound/4 outbound).

Table 2 also shows that the project is estimated to generate a total of 90 trips per day on a typical Saturday, with a total of 9 trips during the highest Saturday peak hour (4 inbound/5 outbound).

The project's trip distribution was estimated based on the surrounding land uses and the existing roadway network. **Exhibit 3** illustrates the trip distribution of the proposed Jurupa Trailhead project.

Project Access, Circulation and Parking

Vehicular access is proposed to be taken from one driveway on the north side of Jurupa Avenue approximately 320 feet east of Bradford Street. The project driveway would be one-way stop-controlled with right-in/right-out access.

The project would provide a total of 31 parking spaces, which would serve the proposed project site and users of the Santa Ana River Trail. A minimum of four (4) parking spaces are required for the project site, based on the following parking requirements for park uses per Chapter 17.188 of the Riverside County Municipal Code:

- 1 space per 8,000 sq. ft. of active recreational area within a park or playground
- 1 space per acre of passive recreational area within a park or playground

Chapter 17.188 of the Riverside County Municipal Code was utilized to determine the parking requirements of the proposed park because Chapter 19.580 (Parking and Loading) of the City of Riverside Municipal Code does not provide off-street parking requirements for park uses. Parking requirements for park uses in the City of Riverside are determined by the Parks, Recreation and Community Services Department, who have approved using the Riverside County off-street parking requirements for a park use.

The minimum parking requirements are based on the size of the proposed developed amenities within the park, and the additional parking spaces provided for the project would function as a trailhead/staging area for bicyclists and pedestrians using the Santa Ana River Trail.

TABLE 2
PROPOSED PROJECT TRIP GENERATION

Trip Generation Rates												
Land Use	Unit	Weekday Trips							Weekend (Saturday) Trips			
		Daily Trip Rate (per unit)	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trip Rate (per unit)	Highest Peak Hour (9:15 AM - 10:15 AM)		
			Trip Rate (per unit)	In (% AM)	Out (% AM)	Trip Rate (per unit)	In (% PM)	Out (% PM)		Trip Rate (per unit)	In (% AM)	Out (% AM)
Undeveloped Neighborhood/County Park (SANDAG)	acres	5	4%	50%	50%	8%	50%	50%	5	11%	49%	51%
Local City of Riverside Park (Driveway Counts): Proposed Developed Park Amenities	acres	41.28	3.09	50%	50%	3.83	54%	46%	39.27	4.22	49%	51%

Forecast Project Generated Trips													
Land Use	Size	Unit	Weekday Trips							Weekend (Saturday) Trips			
			Daily Trips	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trips	Highest Peak Hour (9:15 AM - 10:15 AM)		
				Total	In	Out	Total	In	Out		Total	In	Out
Existing Park Trip Generation[1]													
Existing Undeveloped Open Space	7.7	acres	0	0	0	0	0	0	0	0	0	0	0
Proposed Project Trip Generation[2]													
Developed Park Facilities/Amenities	1.5	acres	62	5	2	3	6	3	3	59	6	3	3
Total Park Trips (Remaining Undeveloped Acreage Plus Programmable Developed Acreage)[3]													
Existing Undeveloped Park/Open Space	6.2	acres	31	2	1	1	2	1	1	31	3	1	2
Developed Park Facilities/Amenities	1.5	acres	62	5	2	3	6	3	3	59	6	3	3
Total Park Trips			**93**	**7**	**3**	**4**	**8**	**4**	**4**	**90**	**9**	**4**	**5**

Source: Traffic counts conducted by Veracity Traffic Group at Ryan Bonaminio Park driveways on Thursday, September 15, 2022 and on Saturday, September 17, 2022. San Diego Association of Governments (SANDAG) *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002).

[1]It was assumed that the existing open space currently does not generate any vehicular trips due to the lack of amenities or access to parking.

[2]Proposed project trip generation is calculated based on programmable acreage to be developed.

[3]The total park trips include the existing park acreage that would remain undeveloped plus the programmable acreage of the area to be developed.

Pedestrian, Bicycle and Transit Facilities Evaluation

Pedestrian access to the existing undeveloped park is currently provided from the existing sidewalk along the north side of Jurupa Avenue. There are currently a few undesignated trails within the existing undeveloped open space within the park.

Pedestrian access to the park is proposed via a proposed paved path extending into the park from the existing sidewalk on the north side of Jurupa Avenue. The Jurupa Trailhead Master Plan and the City of Riverside Parks, Recreation & Community Services Department have expressed the need for a mid-block crosswalk or lighted crosswalk across Jurupa Avenue at the intersection with Bradford Street, which would provide a pedestrian connection to Rutland Park on the south side of Jurupa Avenue. The mid-block crosswalk is currently not a part of the Jurupa Trailhead Master Plan nor is it a City project, and there is currently no funding in place for a mid-block crosswalk across Jurupa Avenue.

The project will construct a portion of the Santa Ana River Greenway, which would consist of a decomposed granite (DG) pedestrian path alongside the Santa Ana River Trail within the proposed developed area of the park. Some of the existing undesignated trails will be closed as they are partially within the biological avoidance area of the park that will be closed to the public. The proposed pedestrian and trail improvements are consistent with the *City of Riverside PACT Trails Master Plan* (August 17, 2021), and development of the proposed project would not conflict with the existing or future pedestrian or trail network in the immediate vicinity of the project site.

Bicycle access to the project site is currently provided from the existing Class II bike lanes along Jurupa Avenue and the existing Santa Ana River Trail, which is built as a Class I bike path that passes through the project site along the southern and western boundaries. The Santa Ana River Trail is approximately 10 feet in width and is divided by a dashed line to separate the direction of travel. The project proposes to realign the trail to meander through the project site and avoid any potential conflict points with vehicles accessing the proposed parking lot on the southwest corner. This will also allow users from the Santa Ana River Trail to access the other amenities proposed in the project, such as the demonstration gardens, play areas and bike hub with restrooms.

The proposed bicycle network improvements are consistent with the City's Master Plan of Trails and Bikeways in the *General Plan Circulation and Community Mobility Element* (February 2018) and the *City of Riverside PACT Active Transportation Plan* (August 17, 2021), and development of the proposed project would not conflict with the existing or future bicycle network in the immediate vicinity of the project site.

There are currently two bus transit stops within ¼ mile of the project site, which are provided on northbound and southbound Van Buren Boulevard near the intersection with Jurupa Avenue. The two bus transit stops serve Riverside Transit Agency Route 21, which runs from the Galleria at Tyler to the Pedley Metrolink Station. No additional future transit facilities near the project site are planned per the City of Riverside's *General Plan Circulation and Community Mobility Element* (February 2018). Development of the proposed project would not conflict with any existing or future planned transit facilities.

Level of Service (LOS) Analysis Screening Assessment

The Level of Service Screening Assessment was conducted per the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (July 2020). Per these guidelines, there are various conditions that can exempt a project from a Level of Service (LOS) analysis. Of the conditions listed in the guidelines, the following are the most relevant to the project:

- *Projects that generate less than 100 peak hour trips, as projects that generate 100 or less trips typically do not affect LOS significantly once distributed to the local network*
- *Local serving churches, lodges, community centers, neighborhood parks and community parks*

As previously shown in Table 2, the proposed project is estimated to generate 7 trips during the weekday AM peak hour, 8 trips during the weekday PM peak hour, and 9 trips during the highest Saturday peak hour. The calculated project traffic falls below the "100 peak hour trips" threshold and is anticipated to have a minimal impact on the local roadway network. Additionally, the proposed land use is a park that will be serving the nearby communities. This characteristic further indicates that most of the project traffic will be local. Based on these criteria, the project is determined to be exempt from an LOS analysis.

Vehicle Miles Traveled (VMT) Analysis Screening Assessment

As required by CEQA, a Vehicles Miles Traveled (VMT) analysis screening assessment was conducted for the proposed project. This VMT analysis screening assessment was conducted in accordance with the *City of Riverside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (July 2020), which includes the following screening criteria for projects:

- *Projects located in a Transit Priority Area (TPA)*
- *Projects located in a low VMT-generating area (15% or more below regional average)*
- *Local-serving land use types*
- *Affordable housing projects*
- *Projects generating less than 110 daily vehicle trips*

The Western Riverside Council of Governments (WRCOG) VMT tool, which utilizes the Riverside County Transportation Model (RIVCOM), shows that the VMT per service population within the Travel Analysis Zone (TAZ) in which the project site is located (TAZ 1944) is below the screening threshold for a low VMT-generating area (15% or more below the regional average VMT per service population). Therefore, the proposed project is screened out from further VMT analysis due to the site's location in a low VMT-generating area and is presumed to have a less than significant transportation impact. **Attachment C** contains WRCOG VMT tool outputs for the TAZ in which the project site is located (TAZ 1944), which show that the VMT per service population in the project site TAZ is below the City's screening threshold for a low VMT-generating area.

In addition, the City of Riverside's VMT screening criteria lists local parks as a land use type that is presumed to have a less than significant impact and is screened out from further VMT analysis. The proposed project is a local-serving park use and therefore is screened out from further VMT analysis and is presumed to have a less than significant transportation impact.

In addition, the project is estimated to generate fewer than 110 trips per day as previously shown in Table 2. Vehicular trips generated by the proposed project would not exceed the City's screening threshold of 110 trips per day for Small Projects, and therefore the project is screened out from further VMT analysis and is presumed to have a less than significant transportation impact.

Conclusions/Recommendations

The findings of this traffic assessment showed that the proposed project is anticipated to generate a total of 93 trips per day on a typical weekday, with a total of 7 trips during the weekday AM peak hour (3 inbound/4 outbound) and a total of 8 trips during the weekday PM peak hour (4 inbound/4 outbound). The findings also show that the project is estimated to generate a total of 90 trips per day on a typical Saturday, with a total of 9 trips during the highest Saturday peak hour (4 inbound/5 outbound). It is anticipated that the project-generated traffic would have minimal impacts on intersections and roadways in the vicinity of the project.

The project would provide a total of 31 parking spaces that would serve both the proposed park users and users of the existing Santa Ana River Trail. A minimum of four (4) parking spaces are required for the Jurupa Avenue Trailhead, based on the size of the proposed developed amenities within the park. Therefore, sufficient parking would be provided for the proposed project.

The proposed pedestrian and trail improvements are consistent with the *City of Riverside PACT Trails Master Plan* (August 17, 2021), and development of the proposed project would not conflict with the existing or future pedestrian network in the immediate vicinity of the project site. The proposed bicycle network improvements are consistent with the City's Master Plan of Trails and Bikeways in the *General Plan Circulation and Community Mobility Element* (February 2018) and the *City of Riverside PACT Active Transportation Plan* (August 17, 2021), and development of the proposed project would not conflict with the existing or future bicycle network in the immediate vicinity of the project site.

It is recommended that the project install proper signage and striping along the proposed Santa Ana River Trail realignment through the project site, and installation of crosswalks will be required across the bike path. In addition, it is recommended that the project provide a pedestrian connection between the public sidewalk along Jurupa Avenue and the DG pedestrian path adjacent to the bike path, which would require a crosswalk across the bike path with signage as part of this pedestrian connection. These improvements, which are not yet included in the Master Plan, are needed to warn bicyclists that they may need to slow down or stop, as there will be pedestrians crossing the bike path from the parking lot to access the various proposed amenities within the park.

Exhibit 4 illustrates the anticipated crossing markings and signage types per the *California Manual on Uniform Traffic Devices* (CA-MUTCD, 2014 Edition, Revision 7, March 10, 2023). As shown, high-visibility ladder-style or continental-style crosswalk markings per CA-MUTCD Figures 3B-19 and 3B-19 (CA) are recommended at the anticipated pedestrian crossing areas along the Santa Ana River Trail within the Jurupa Trailhead Park. Exhibit 3 also shows that the following signage types per the CA-MUTCD are recommended at the anticipated pedestrian crossing areas:

- CA-MUTCD W11-2 (top) with W16-7P (bottom) at crosswalks (both directions)
- CA-MUTCD W11-2 (top) with W16-9P (bottom) approximately 50-100 feet in advance of the crosswalks (both directions); or
- CA-MUTCD R9-6 approximately 20-50 feet in advance of the crosswalks (both directions)

Attachment D contains CA-MUTCD Figures 3B-19 and 3B-19 (CA), which show the recommended high-visibility crosswalk marking types, and CA-MUTCD Figures 9B-2, 9B-3, 9B-7 and 9B-8, which show the recommended pedestrian crossing signage along the Santa Ana River Trail.

The recommended crosswalk marking types would be highly visible to bicyclists approaching the anticipated pedestrian crossing locations, and the recommended signage would provide bicyclists advance warning of the pedestrian crossings as well as indicate the specific pedestrian crossing locations. These recommendations are anticipated to reduce bicycle speeds by warning bicyclists that pedestrians may be crossing ahead.

Should you have any questions, please contact either David Mizell or me at (619) 291-0707.

Sincerely,

RICK ENGINEERING COMPANY

Brian Stephenson, P.E., T.E., P.T.O.E.
Associate Principal

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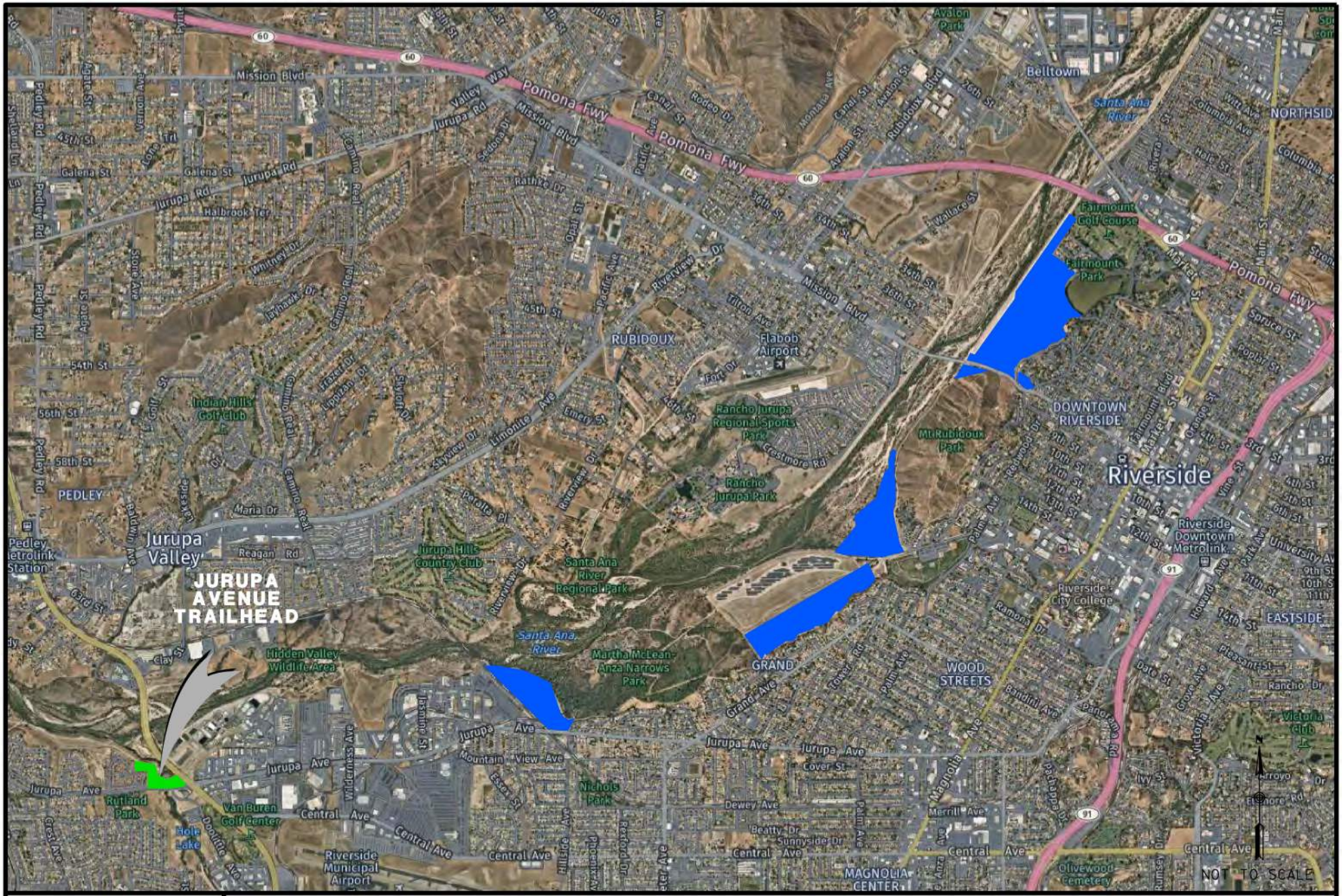
Attachments



RICK ENGINEERING COMPANY

EXHIBIT 1

PROJECT VICINITY MAP

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

LEGEND

- =RIVERSIDE GATEWAY PARK SYSTEM
- =JURUPA AVENUE TRAILHEAD

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SOURCE:STUDIO-MLA

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EXHIBIT 2

CONCEPTUAL MASTER PLAN

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

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RICK ENGINEERING COMPANY

EXHIBIT 3

PROJECT TRIP DISTRIBUTION

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

LEGEND

XX% = DISTRIBUTION PERCENTAGE

= PROJECT SITE

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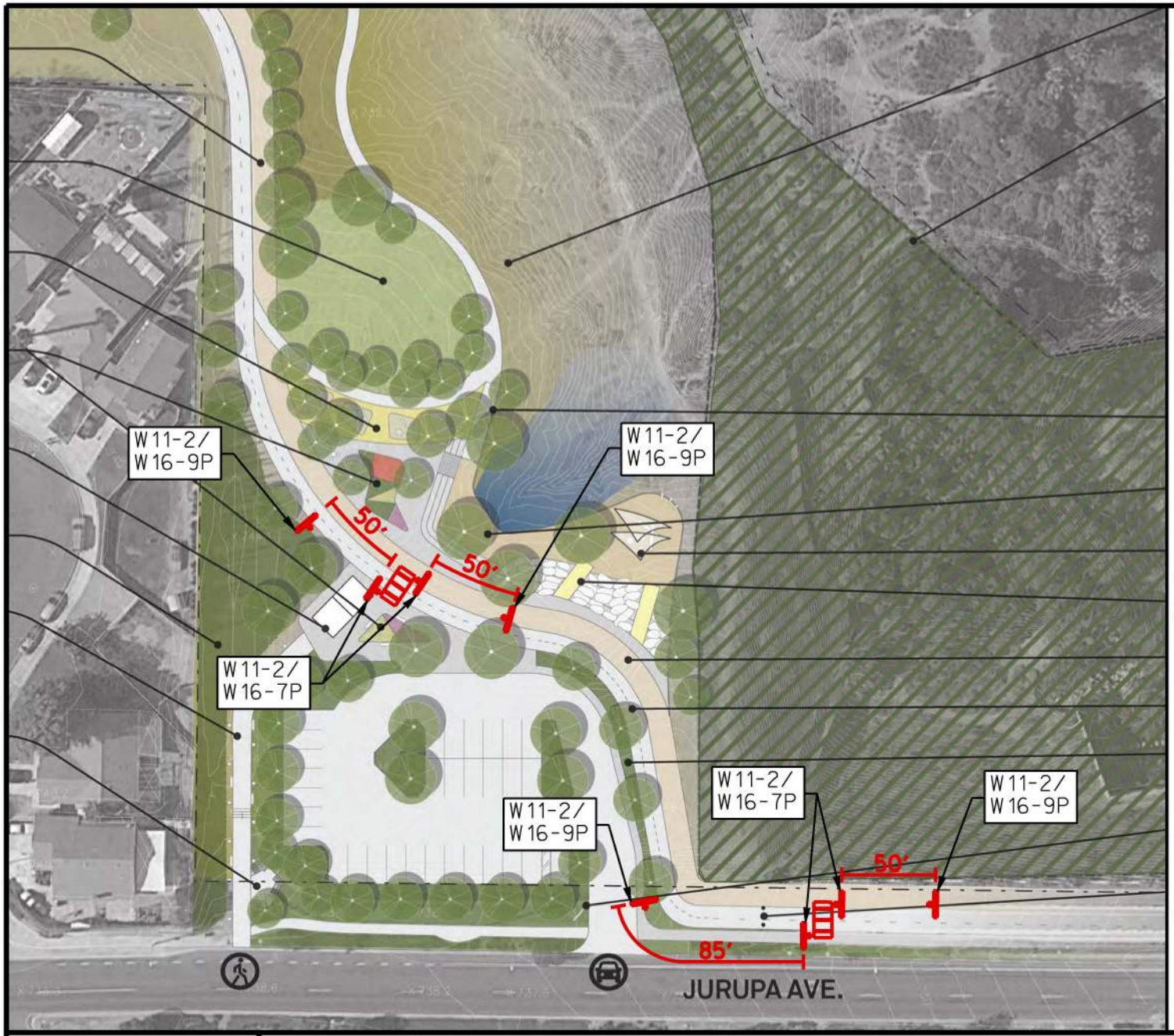

LEGEND

= INSTALL CONTINENTAL CROSSWALK

= INSTALL SIGN

SIGN LEGEND



W11-2



W16-9P



W16-7P

RICK ENGINEERING COMPANY

EXHIBIT 4

RECOMMENDED PEDESTRIAN CROSSING IMPROVEMENTS

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

ILLUSTRATION FOR CONCEPTUAL PURPOSES ONLY

80 60 40 0 40 80

GRAPHIC SCALE 1" = 80'

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ATTACHMENT A

APPROVED
Vital Patel
03/02/2023

Public Works Department

City of Arts & Innovation

Traffic Analysis Scoping Form

This scoping form shall be submitted to the City of Riverside Traffic Engineering Division

Project Identification:

Case Number:	Not Available
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Riverside Gateway: Jurupa Avenue Trailhead
Project Address:	Jurupa Avenue approx. 800' west of Van Buren Boulevard
Project Opening Year:	Not Available
Project Description:	Existing 7.7 acres of undeveloped open space; project consists of providing 1.5 acres of park amenities including bicycle and equestrian facilities, and providing trailhead staging area/parking for Santa Ana River Trail.

	Consultant:	Developer:
Name:	Rick Engineering Company	City of Riverside
Address:	5620 Friars Road	Parks & Recreation Dept.
	San Diego, CA 92110	6927 Magnolia Avenue
Telephone:	619-291-0707	Riverside, CA 92506
Fax/Email:	dmizell@rickengineering.com	

Scoping & Study Fees:

Fees to be made payable to "City of Riverside" and delivered to Land Development. City Hall 3rd Floor, 3900 Main Street, Riverside, CA 92522

1) Scoping Agreement Fee (For all projects not screened from analysis): **$271.00**

2) TIA Review (For projects with both LOS & VMT analysis of any scale, or standalone LOS analyses with over 100 vehicle trips per hour): **$2671.02**

3) TIA Review (For standalone VMT analysis, or standalone LOS analyses with under 100 vehicle trips per hour): **$1288.20**

Trip Generation Information:

Trip Generation Data Source: Proposed Amenities: Custom rates developed from driveway counts
Remaining Undeveloped Area: SANDAG (Undeveloped Park)

Current General Plan Land Use: Major Open Space/Parks

Proposed General Plan Land Use: Major Open Space/Parks

Current Zoning: PF

Proposed Zoning: PF

(See attached table)

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	0	0	0	3	4	7
PM Trips	0	0	0	4	4	8

Trip Internalization: ☐ Yes ☒ No (_____% Trip Discount)

Pass-By Allowance: ☐ Yes ☒ No (_____% Trip Discount)

Potential Screening Checks

Is your project screened from specific analyses in accordance with City Guidelines?

Is the project screened from LOS assessment? ☒ Yes ☐ No

LOS screening justification (see Page 6 of the guidelines): Project would generate fewer than 100 peak hour trips and would be a local serving neighborhood or community park.

Is the project screened from VMT assessment? [X] Yes [ ] No

VMT screening justification (see Pages 23-25 of the guidelines): Project would be screened out from VMT analysis based on the following three (3) criteria: 1) Project is located in a low-VMT generating area (>15% below regional average); 2) Project would be a local-serving park/public facility; and 3) Project would generate less than 110 ADT.

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution):

North	South	East	West
25%	30%	35%	10%

- Attach list of Approved and Pending Projects that need to be considered (provided by the lead agency and adjacent agencies)
- Attach list of study intersections/roadway segments
- Attach legible site plan
- Note other specific items to be addressed:
  - Site access
  - On-site circulation
  - Parking
  - Consistency with Plans supporting Bikes/Peds/Transit
  - Other _____
- Date of Traffic Counts Ryan Bonaminio Park 9/15/22 and 9/17/22
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model _____
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Specific Issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines) (To be filled out by the Public Works Traffic Engineering Division)

_____

_____

Table A

Riverside Gateway Parks Trip Generation: Jurupa Avenue Trailhead

Trip Generation Rates												
Land Use	Unit	Weekday Trips							Weekend (Saturday) Trips			
		Daily Trip Rate (per unit)	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trip Rate (per unit)	Highest Peak Hour (9:15 AM - 10:15 AM)		
			Trip Rate (per unit)	In (% AM)	Out (% AM)	Trip Rate (per unit)	In (% PM)	Out (% PM)		Trip Rate (per unit)	In (% AM)	Out (% AM)
Undeveloped Neighborhood/County Park (SANDAG)	acres	5	4%	50%	50%	8%	50%	50%	5	11%	49%	51%
Local City of Riverside Park (Driveway Counts): Proposed Developed Park Amenities	acres	41.28	3.09	50%	50%	3.83	54%	46%	39.27	4.22	49%	51%

Forecast Project Generated Trips													
Land Use	Size	Unit	Weekday Trips							Weekend (Saturday) Trips			
			Daily Trips	AM Peak Hour (8:00 AM - 9:00 AM)			PM Peak Hour (5:00 PM - 6:00 PM)			Daily Trips	Highest Peak Hour (9:15 AM - 10:15 AM)		
				Total	In	Out	Total	In	Out		Total	In	Out
Existing Park Trip Generation[1]													
Existing Undeveloped Open Space	7.7	acres	0	0	0	0	0	0	0	0	0	0	0
Proposed Project Trip Generation[2]													
Developed Park Facilities/Amenities	1.5	acres	62	5	2	3	6	3	3	59	6	3	3
Total Park Trips (Remaining Undeveloped Acreage Plus Programmable Developed Acreage)[3]													
Existing Undeveloped Park/Open Space	6.2	acres	31	2	1	1	2	1	1	31	3	1	2
Developed Park Facilities/Amenities	1.5	acres	62	5	2	3	6	3	3	59	6	3	3
Total Park Trips			**93**	**7**	**3**	**4**	**8**	**4**	**4**	**90**	**9**	**4**	**5**
Net Change in Trips (Total - Existing Trips)													
Net Project Trips			**93**	**7**	**3**	**4**	**8**	**4**	**4**	**90**	**9**	**4**	**5**

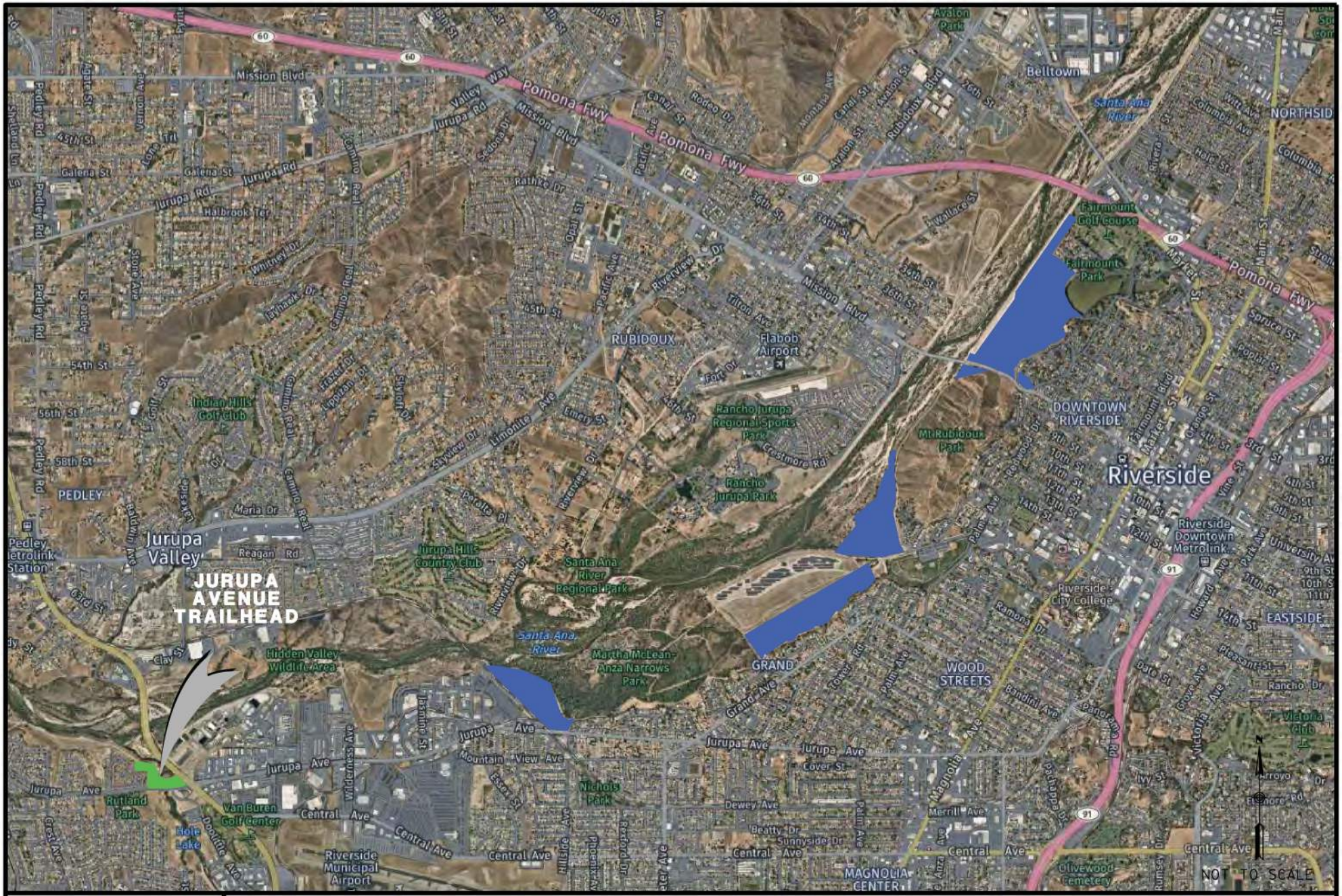
Source: Traffic counts conducted by Veracity Traffic Group at Ryan Bonaminio Park driveways on Thursday, September 15, 2022 and on Saturday, September 17, 2022.

San Diego Association of Governments (SANDAG) Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002).

[1]Existing trip generation is calculated based on total existing park acreage.

[2]Proposed project trip generation is calculated based on programmable acreage to be developed.

[3]The total park trips include the existing park acreage that would remain undeveloped plus the programmable acreage of the area to be developed.



RICK ENGINEERING COMPANY

EXHIBIT 1

PROJECT VICINITY MAP

LEGEND

- =RIVERSIDE GATEWAY PARK SYSTEM
- =JURUPA AVENUE TRAILHEAD

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\19405_Basefile.dgn
C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\PDFs\SD CorpStds 2005.dscript

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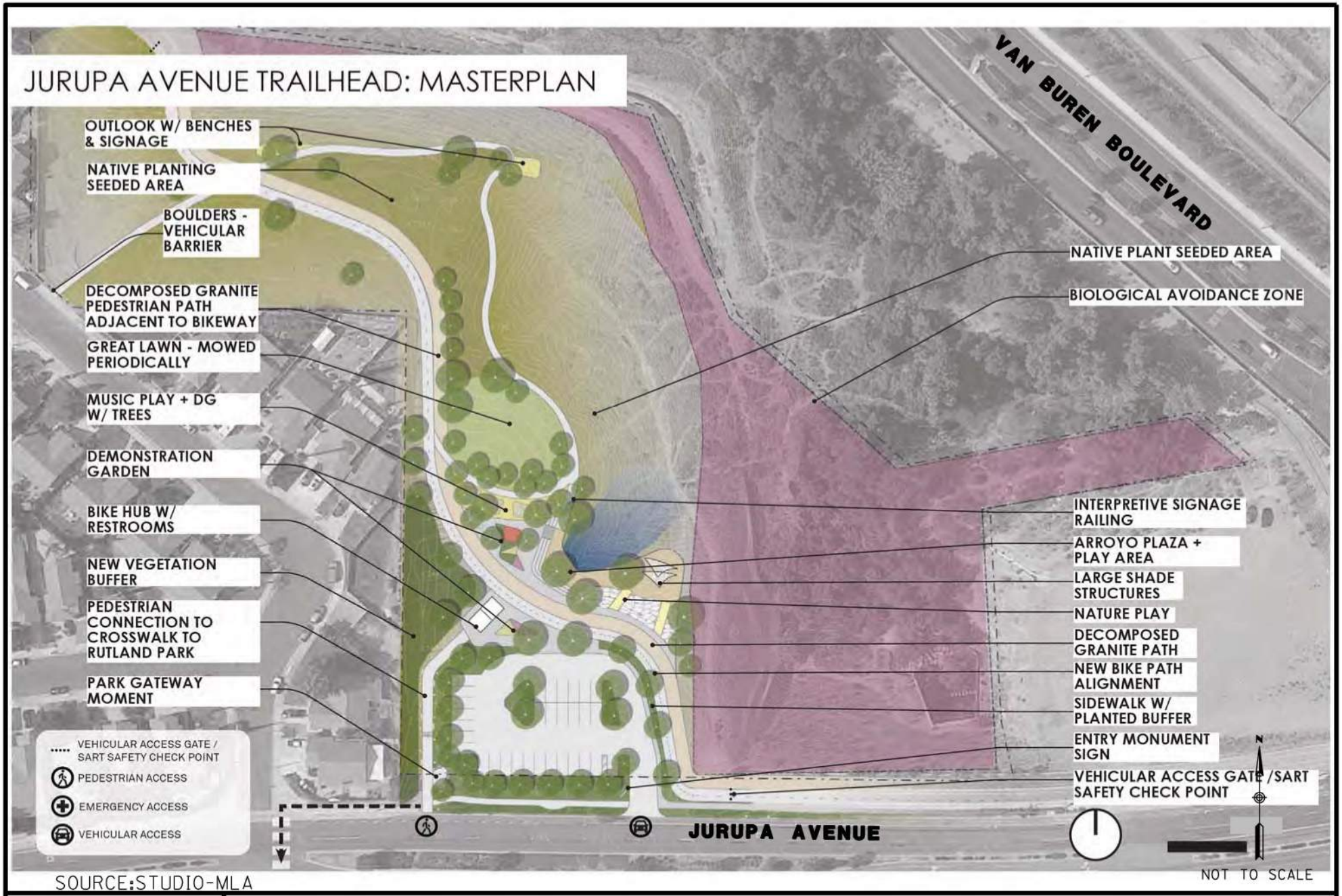
29-NOV-2022 10:17



SOURCE:STUDIO-MLA

RICK ENGINEERING COMPANY

EXHIBIT 2

CONCEPTUAL MASTER PLAN

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\19405_Basefile.dgn
C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\PDFs\SD CorpStds 2005.dscript

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EXHIBIT 3

PROJECT TRIP DISTRIBUTION

JURUPA AVENUE TRAILHEAD TRAFFIC ASSESSMENT

LEGEND

XX% = DISTRIBUTION PERCENTAGE

= PROJECT SITE

C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\19405_Basefile.dgn
C:\RICK\Projects\C19000\19405_River-side_GatewayPark\19405-AT_Traffic\Traffic\Exhibits\PDFs\SD CorpStds 2005.dscript

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ATTACHMENT B

Thursday, September 15, 2022 Counts

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Thursday, September 15, 2022 City: Riverside Project #: 22-1548-001

Location: Ryan Bonamino Park Western Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	0		3				
00:15	0		0					12:15	1		1				
00:30	0		1					12:30	1		0				
00:45	0	0	0	1			1	12:45	0	2	4	8			10
01:00	0		0					13:00	1		2				
01:15	0		0					13:15	1		1				
01:30	1		0					13:30	2		1				
01:45	0	1	0	0			1	13:45	3	7	5	9			16
02:00	0		0					14:00	1		2				
02:15	0		0					14:15	2		2				
02:30	0		0					14:30	1		3				
02:45	0	0	0	0				14:45	1	5	0	7			12
03:00	0		0					15:00	1		1				
03:15	1		1					15:15	1		2				
03:30	0		0					15:30	0		2				
03:45	0	1	0	1			2	15:45	1	3	3	8			11
04:00	0		0					16:00	1		1				
04:15	0		0					16:15	0		1				
04:30	0		0					16:30	0		1				
04:45	0	0	0	0				16:45	0	1	1	4			5
05:00	0		0					17:00	4		4				
05:15	0		1					17:15	2		4				
05:30	1		0					17:30	1		3				
05:45	0	1	1	2			3	17:45	3	10	8	19			29
06:00	0		1					18:00	5		3				
06:15	0		3					18:15	3		4				
06:30	1		4					18:30	4		7				
06:45	0	1	5	13			14	18:45	2	14	5	19			33
07:00	1		3					19:00	4		6				
07:15	3		5					19:15	6		6				
07:30	1		3					19:30	5		5				
07:45	2	7	5	16			23	19:45	4	19	3	20			39
08:00	3		1					20:00	4		6				
08:15	1		3					20:15	3		1				
08:30	3		2					20:30	1		2				
08:45	3	10	1	7			17	20:45	3	11	4	13			24
09:00	1		2					21:00	1		3				
09:15	1		3					21:15	0		2				
09:30	1		1					21:30	2		1				
09:45	3	6	3	9			15	21:45	1	4	1	7			11
10:00	1		1					22:00	1		1				
10:15	1		1					22:15	1		0				
10:30	1		2					22:30	1		1				
10:45	1	4	4	8			12	22:45	0	3	0	2			5
11:00	1		1					23:00	0		0				
11:15	2		1					23:15	0		0				
11:30	2		1					23:30	1		0				
11:45	0	5	2	5			10	23:45	1	2	0	0			2
Total Vol.		36		62			**98**			81		116			**197**

GPS Coordinates: 33.976215, -117.395528

Daily Totals

NB	SB	EB	WB	Combined
117	178			**295**

	AM			PM		
Split %	36.7%	63.3%	**33.2%**	41.1%	58.9%	**66.8%**
Peak Hour	08:00	06:30	**07:00**	19:00	18:30	**18:30**
Volume	10	17	**23**	19	24	**40**
P.H.F.	0.83	0.85	**0.72**	0.79	0.86	**0.83**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Thursday, September 15, 2022 City: Riverside Project #: 22-1548-002

Location: Ryan Bonamino Park Middle Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		1					12:00	4		3				
00:15	0		0					12:15	2		3				
00:30	0		0					12:30	1		3				
00:45	0	0	1	2			2	12:45	5	12	3	12			24
01:00	0		0					13:00	5		7				
01:15	0		0					13:15	1		6				
01:30	0		0					13:30	2		4				
01:45	0	0	0	0				13:45	5	13	2	19			32
02:00	0		0					14:00	1		7				
02:15	1		0					14:15	2		5				
02:30	1		0					14:30	4		2				
02:45	0	2	0	0			2	14:45	2	9	4	18			27
03:00	0		1					15:00	4		1				
03:15	0		0					15:15	1		4				
03:30	0		0					15:30	5		1				
03:45	0	0	0	1			1	15:45	4	14	2	8			22
04:00	0		0					16:00	3		3				
04:15	0		0					16:15	3		2				
04:30	0		1					16:30	9		1				
04:45	0	0	1	2			2	16:45	4	19	3	9			28
05:00	1		0					17:00	5		4				
05:15	1		1					17:15	9		12				
05:30	2		0					17:30	2		5				
05:45	1	5	0	1			6	17:45	15	31	13	34			65
06:00	0		1					18:00	18		12				
06:15	2		2					18:15	9		7				
06:30	3		1					18:30	17		13				
06:45	3	8	2	6			14	18:45	11	55	8	40			95
07:00	5		3					19:00	11		12				
07:15	1		4					19:15	14		18				
07:30	2		2					19:30	7		12				
07:45	4	12	5	14			26	19:45	3	35	16	58			93
08:00	6		2					20:00	4		15				
08:15	7		5					20:15	3		5				
08:30	6		5					20:30	5		11				
08:45	6	25	9	21			46	20:45	2	14	8	39			53
09:00	11		7					21:00	1		4				
09:15	2		7					21:15	2		2				
09:30	3		13					21:30	0		3				
09:45	6	22	10	37			59	21:45	0	3	2	11			14
10:00	6		8					22:00	2		1				
10:15	4		6					22:15	1		0				
10:30	5		6					22:30	0		1				
10:45	5	20	12	32			52	22:45	2	5	2	4			9
11:00	3		5					23:00	1		0				
11:15	3		5					23:15	0		0				
11:30	4		11					23:30	0		0				
11:45	5	15	6	27			42	23:45	0	1	1	1			2
Total Vol.		109		143			**252**			211		253			**464**

GPS Coordinates: 33.976515, -117.394337

Daily Totals

NB	SB	EB	WB	Combined
320	396			**716**

	AM			PM		
Split %	43.3%	56.7%	**35.2%**	45.5%	54.5%	**64.8%**
Peak Hour	08:15	09:15	**09:00**	17:45	19:15	**17:45**
Volume	30	38	**59**	59	61	**104**
P.H.F.	0.68	0.73	**0.82**	0.82	0.85	**0.87**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Thursday, September 15, 2022 City: Riverside Project #: 22-1548-003

Location: Ryan Bonamino Park Eastern Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	1		0					12:00	6		2				
00:15	0		0					12:15	4		4				
00:30	0		0					12:30	5		2				
00:45	0	1	0	0			1	12:45	7	22	2	10			32
01:00	0		0					13:00	5		1				
01:15	0		1					13:15	5		1				
01:30	0		0					13:30	6		3				
01:45	0	0	0	1			1	13:45	4	20	2	7			27
02:00	0		0					14:00	8		2				
02:15	0		0					14:15	4		1				
02:30	1		0					14:30	3		2				
02:45	0	1	0	0			1	14:45	4	19	0	5			24
03:00	0		0					15:00	3		1				
03:15	1		0					15:15	4		2				
03:30	0		0					15:30	4		0				
03:45	0	1	0	0			1	15:45	4	15	0	3			18
04:00	0		0					16:00	5		3				
04:15	0		0					16:15	6		5				
04:30	1		1					16:30	2		3				
04:45	1	2	0	1			3	16:45	7	20	6	17			37
05:00	1		3					17:00	4		5				
05:15	2		2					17:15	7		8				
05:30	4		2					17:30	12		10				
05:45	4	11	4	11			22	17:45	13	36	14	37			73
06:00	4		4					18:00	7		13				
06:15	8		5					18:15	9		16				
06:30	4		5					18:30	9		7				
06:45	10	26	4	18			44	18:45	8	33	12	48			81
07:00	6		3					19:00	7		13				
07:15	6		4					19:15	10		9				
07:30	5		4					19:30	15		8				
07:45	10	27	7	18			45	19:45	11	43	8	38			81
08:00	8		7					20:00	12		3				
08:15	10		12					20:15	9		4				
08:30	6		13					20:30	8		2				
08:45	9	33	7	39			72	20:45	4	33	1	10			43
09:00	13		6					21:00	5		2				
09:15	10		3					21:15	4		3				
09:30	11		6					21:30	8		2				
09:45	14	48	5	20			68	21:45	2	19	0	7			26
10:00	10		4					22:00	1		0				
10:15	8		3					22:15	2		1				
10:30	5		5					22:30	1		0				
10:45	10	33	3	15			48	22:45	1	5	2	3			8
11:00	1		2					23:00	1		1				
11:15	5		4					23:15	1		1				
11:30	8		2					23:30	0		1				
11:45	5	19	3	11			30	23:45	0	2	0	3			5
Total Vol.		202		134			**336**			267		188			**455**

GPS Coordinates: 33.976813, -117.393149

Daily Totals

NB	SB	EB	WB	Combined
469	322			**791**

	AM			PM		
Split %	60.1%	39.9%	**42.5%**	58.7%	41.3%	**57.5%**
Peak Hour	09:00	07:45	**08:15**	19:15	17:30	**17:30**
Volume	48	39	**76**	48	53	**94**
P.H.F.	0.86	0.75	**0.86**	0.80	0.83	**0.87**

Saturday, September 17, 2022 Counts

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Saturday, September 17, 2022 City: Riverside Project #: 22-1548-001

Location: Ryan Bonamino Park Western Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	3		3				
00:15	0		0					12:15	3		2				
00:30	0		0					12:30	0		1				
00:45	0	0	1	1			1	12:45	1	7	3	9			16
01:00	0		0					13:00	1		2				
01:15	0		0					13:15	3		2				
01:30	0		0					13:30	0		0				
01:45	0	0	0	0				13:45	0	4	0	4			8
02:00	0		0					14:00	1		0				
02:15	0		0					14:15	0		1				
02:30	0		0					14:30	0		2				
02:45	1	1	0	0			1	14:45	0	1	3	6			7
03:00	0		0					15:00	1		1				
03:15	0		0					15:15	3		1				
03:30	0		0					15:30	0		1				
03:45	0	0	0	0				15:45	2	6	0	3			9
04:00	0		0					16:00	0		2				
04:15	1		0					16:15	0		1				
04:30	0		1					16:30	1		2				
04:45	0	1	0	1			2	16:45	0	1	0	5			6
05:00	0		0					17:00	4		0				
05:15	0		1					17:15	0		0				
05:30	0		0					17:30	1		4				
05:45	1	1	1	2			3	17:45	0	5	1	5			10
06:00	0		0					18:00	0		3				
06:15	0		3					18:15	1		2				
06:30	2		0					18:30	2		4				
06:45	1	3	2	5			8	18:45	2	5	7	16			21
07:00	0		3					19:00	5		5				
07:15	2		4					19:15	6		2				
07:30	1		6					19:30	0		2				
07:45	4	7	5	18			25	19:45	2	13	1	10			23
08:00	3		6					20:00	4		1				
08:15	3		6					20:15	0		1				
08:30	5		7					20:30	2		0				
08:45	3	14	4	23			37	20:45	0	6	0	2			8
09:00	7		2					21:00	2		2				
09:15	3		5					21:15	1		2				
09:30	5		4					21:30	1		0				
09:45	4	19	2	13			32	21:45	0	4	0	4			8
10:00	6		5					22:00	2		1				
10:15	3		2					22:15	0		2				
10:30	4		6					22:30	1		2				
10:45	4	17	1	14			31	22:45	1	4	0	5			9
11:00	3		4					23:00	3		2				
11:15	2		1					23:15	0		1				
11:30	4		3					23:30	2		1				
11:45	4	13	0	8			21	23:45	0	5	0	4			9
Total Vol.		76		85			**161**			61		73			**134**

GPS Coordinates: 33.976215, -117.395528

Daily Totals

NB	SB	EB	WB	Combined
137	158			**295**

	AM			PM		
Split %	47.2%	52.8%	**54.6%**	45.5%	54.5%	**45.4%**
Peak Hour	09:00	07:45	**07:45**	18:30	18:15	**18:30**
Volume	19	24	**39**	15	18	**33**
P.H.F.	0.68	0.86	**0.81**	0.63	0.64	**0.83**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Saturday, September 17, 2022 City: Riverside Project #: 22-1548-002

Location: Ryan Bonamino Park Middle Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	2		7				
00:15	0		0					12:15	3		5				
00:30	0		0					12:30	1		7				
00:45	0	0	0	0				12:45	1	7	5	24			31
01:00	0		0					13:00	1		8				
01:15	1		0					13:15	1		4				
01:30	0		0					13:30	4		3				
01:45	0	1	0	0			1	13:45	2	8	5	20			28
02:00	0		0					14:00	3		2				
02:15	2		0					14:15	0		5				
02:30	0		1					14:30	0		5				
02:45	0	2	0	1			3	14:45	4	7	6	18			25
03:00	0		0					15:00	1		7				
03:15	0		0					15:15	4		2				
03:30	0		0					15:30	4		2				
03:45	0	0	2	2			2	15:45	3	12	1	12			24
04:00	0		0					16:00	3		5				
04:15	0		0					16:15	4		6				
04:30	0		0					16:30	6		6				
04:45	1	1	1	1			2	16:45	2	15	5	22			37
05:00	0		0					17:00	4		3				
05:15	0		1					17:15	6		3				
05:30	0		1					17:30	2		4				
05:45	3	3	1	3			6	17:45	7	19	5	15			34
06:00	3		1					18:00	11		6				
06:15	11		4					18:15	3		9				
06:30	7		1					18:30	4		11				
06:45	14	35	4	10			45	18:45	6	24	4	30			54
07:00	6		1					19:00	5		8				
07:15	9		5					19:15	7		6				
07:30	8		7					19:30	7		8				
07:45	9	32	6	19			51	19:45	3	22	7	29			51
08:00	11		6					20:00	6		5				
08:15	7		10					20:15	1		4				
08:30	12		5					20:30	3		4				
08:45	4	34	14	35			69	20:45	6	16	2	15			31
09:00	9		5					21:00	2		2				
09:15	9		9					21:15	3		3				
09:30	7		13					21:30	3		1				
09:45	3	28	5	32			60	21:45	2	10	0	6			16
10:00	11		12					22:00	0		1				
10:15	13		7					22:15	1		0				
10:30	7		9					22:30	2		0				
10:45	8	39	10	38			77	22:45	0	3	0	1			4
11:00	4		6					23:00	0		1				
11:15	2		10					23:15	1		0				
11:30	2		3					23:30	2		1				
11:45	3	11	14	33			44	23:45	1	4	0	2			6
Total Vol.		186		174			**360**			147		194			**341**

GPS Coordinates: 33.976515, -117.394337

Daily Totals

NB	SB	EB	WB	Combined
333	368			**701**

	AM			PM		
Split %	51.7%	48.3%	**51.4%**	43.1%	56.9%	**48.6%**
Peak Hour	07:45	08:45	**10:00**	17:15	18:15	**17:45**
Volume	39	41	**77**	26	32	**56**
P.H.F.	0.81	0.73	**0.84**	0.59	0.73	**0.82**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Saturday, September 17, 2022 City: Riverside Project #: 22-1548-003

Location: Ryan Bonamino Park Eastern Driveway

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	0		0					12:00	9		3				
00:15	0		0					12:15	7		3				
00:30	0		1					12:30	7		4				
00:45	0	0	0	1			1	12:45	6	29	4	14			43
01:00	1		0					13:00	9		1				
01:15	0		0					13:15	4		5				
01:30	0		0					13:30	6		1				
01:45	0	1	0	0			1	13:45	5	24	5	12			36
02:00	1		0					14:00	7		2				
02:15	0		0					14:15	2		2				
02:30	0		0					14:30	6		3				
02:45	0	1	0	0			1	14:45	4	19	1	8			27
03:00	0		0					15:00	9		1				
03:15	0		0					15:15	6		1				
03:30	0		0					15:30	6		5				
03:45	0	0	0	0				15:45	6	27	3	10			37
04:00	0		0					16:00	5		4				
04:15	1		0					16:15	4		4				
04:30	0		1					16:30	5		4				
04:45	1	2	1	2			4	16:45	6	20	4	16			36
05:00	0		2					17:00	4		5				
05:15	2		1					17:15	3		4				
05:30	4		4					17:30	0		4				
05:45	4	10	5	12			22	17:45	1	8	6	19			27
06:00	3		6					18:00	3		6				
06:15	2		8					18:15	3		6				
06:30	4		6					18:30	2		5				
06:45	5	14	6	26			40	18:45	4	12	3	20			32
07:00	6		6					19:00	11		5				
07:15	9		6					19:15	3		9				
07:30	8		11					19:30	6		4				
07:45	7	30	12	35			65	19:45	7	27	2	20			47
08:00	11		8					20:00	3		2				
08:15	9		8					20:15	1		2				
08:30	10		7					20:30	2		4				
08:45	9	39	8	31			70	20:45	1	7	1	9			16
09:00	11		9					21:00	0		2				
09:15	11		10					21:15	0		1				
09:30	11		9					21:30	0		3				
09:45	10	43	8	36			79	21:45	0	0	0	6			6
10:00	13		9					22:00	2		1				
10:15	9		6					22:15	1		2				
10:30	7		7					22:30	0		1				
10:45	9	38	7	29			67	22:45	1	4	0	4			8
11:00	10		4					23:00	0		1				
11:15	7		3					23:15	1		1				
11:30	13		3					23:30	0		0				
11:45	7	37	3	13			50	23:45	0	1	0	2			3
Total Vol.		215		185			**400**			178		140			**318**

GPS Coordinates: 33.976813, -117.393149

Daily Totals

NB	SB	EB	WB	Combined
393	325			**718**

	AM			PM		
Split %	53.8%	46.3%	**55.7%**	56.0%	44.0%	**44.3%**
Peak Hour	09:15	07:30	**09:15**	12:00	17:45	**19:00**
Volume	45	39	**81**	29	23	**47**
P.H.F.	0.87	0.81	**0.92**	0.81	0.96	**0.73**

SANDAG Trip Generation Rates

(NOT SO)

BRIEF GUIDE OF VEHICULAR TRAFFIC GENERATION RATES FOR THE SAN DIEGO REGION

APRIL 2002

SANDAG
401 B Street, Suite 800
San Diego, California 92101
(619) 699-1900 • Fax (619) 699-1950

NOTE: This listing only represents a ***guide*** of average, or estimated, traffic generation "driveway" rates and some very general trip data for land uses (emphasis on acreage and building square footage) in the San Diego region. These rates (both local and national) are subject to change as future documentation becomes available, or as regional sources are updated. For more specific information regarding traffic data and trip rates, please refer to the San Diego Traffic Generators manual. ***Always check with local jurisdictions for their preferred or applicable rates.***

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY][P]	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M.	Between 3:00-6:30 P.M.	TRIP LENGTH (Miles)[L]
AGRICULTURE (Open Space)	[80:18:2]	2/acre**			10.8
AIRPORT	[78:20:2]				12.5
Commercial		60/acre, 100/flight, 70/1000 sq. ft.* **	5% (6:4)	6% (5:5)	
General Aviation		6/acre, 2/flight, 6/based aircraft* **	9% (7:3)	15% (5:5)	
Heliports		100/acre**			
AUTOMOBILE[S]					
Car Wash					
Automatic		900/site, 600/acre**	4% (5:5)	9% (5:5)	
Self-serve		100/wash stall**	4% (5:5)	8% (5:5)	
Gasoline	[21:51:28]				2.8
with/Food Mart		160/vehicle fueling space**	7% (5:5)	8% (5:5)	
with/Food Mart & Car Wash		155/vehicle fueling space**	8% (5:5)	9% (5:5)	
Older Service Station Design		150/vehicle fueling space, 900/station**	7% (5:5)	9% (5:5)	
Sales (Dealer & Repair)		50/1000 sq. ft., 300/acre, 60/service stall* **	5% (7:3)	8% (4:6)	
Auto Repair Center		20/1000 sq. ft., 400/acre, 20/service stall*	8% (7:3)	11% (4:6)	
Auto Parts Sales		60/1000 sq. ft. **	4%	10%	
Quick Lube		40/service stall**	7% (6:4)	10% (5:5)	
Tire Store		25/1000 sq. ft., 30/service stall**	7% (6:4)	11% (5:5)	
CEMETERY		5/acre*			
CHURCH (or Synagogue)	[64:25:11]	9/1000 sq. ft., 30/acre** (quadruple rates for Sunday, or days of assembly)	5% (6:4)	8% (5:5)	5.1
COMMERCIAL/RETAIL[S]					
Super Regional Shopping Center (More than 80 acres, more than 800,000 sq. ft., w/usually 3+ major stores)		35/1000 sq. ft.,[C] 400/acre*	4% (7:3)	10% (5:5)	
Regional Shopping Center (40-80acres, 400,000-800,000 sq. ft., w/usually 2+ major stores)	[54:35:11]	50/1000 sq. ft.,[C] 500/acre*	4% (7:3)	9% (5:5)	5.2
Community Shopping Center (15-40 acres, 125,000-400,000 sq. ft., w/usually 1 major store, detached restaurant(s), grocery and drugstore)	[47:31:22]	80/1000 sq. ft., 700/acre* **	4% (6:4)	10% (5:5)	3.6
Neighborhood Shopping Center (Less than 15 acres, less than 125,000 sq. ft., w/usually grocery & drugstore, cleaners, beauty & barber shop, & fast food services)		120/1000 sq. ft., 1200/acre* **	4% (6:4)	10% (5:5)	
Commercial Shops	[45:40:15]				
Specialty Retail/Strip Commercial		40/1000 sq. ft., 400/acre*	3% (6:4)	9% (5:5)	4.3
Electronics Superstore		50/1000 sq. ft**		10% (5:5)	
Factory Outlet		40/1000 sq. ft.**	3% (7:3)	9% (5:5)	
Supermarket		150/1000 sq. ft., 2000/acre* **	4% (7:3)	10% (5:5)	
Drugstore		90/1000 sq. ft.**	4% (6:4)	10% (5:5)	
Convenience Market (15-16 hours)		500/1000 sq. ft.**	8% (5:5)	8% (5:5)	
Convenience Market (24 hours)		700/1000 sq. ft.**	9% (5:5)	7% (5:5)	
Convenience Market (w/gasoline pumps)		850/1000 sq. ft., 550/vehicle fueling space**	6% (5:5)	7% (5:5)	
Discount Club		60/1000 sq. ft., 600/acre* **	1% (7:3)	9% (5:5)	
Discount Store		60/1000 sq. ft., 600/acre**	3% (6:4)	8% (5:5)	
Furniture Store		6/1000 sq. ft., 100/acre**	4% (7:3)	9% (5:5)	
Lumber Store		30/1000 sq. ft., 150/acre**	7% (6:4)	9% (5:5)	
Home Improvement Superstore		40/1000 sq. ft.**	5% (6:4)	8% (5:5)	
Hardware/Paint Store		60/1000 sq. ft., 600/acre**	2% (6:4)	9% (5:5)	
Garden Nursery		40/1000 sq. ft., 90/acre**	3% (6:4)	10% (5:5)	
Mixed Use: Commercial (w/supermarket)/Residential		110/1000 sq. ft., 2000/acre* (commercial only) 5/dwelling unit, 200/acre* (residential only)	3% (6:4) 9% (3:7)	9% (5:5) 13% (6:4)	
EDUCATION					
University (4 years)	[91:9:0]	2.4/student, 100 acre*	10% (8:2)	9% (3:7)	8.9
Junior College (2 years)	[92:7:1]	1.2/student, 24/1000 sq. ft., 120/acre* **	12% (8:2)	9% (6:4)	9.0
High School	[75:19:6]	1.3/student, 15/1000 sq. ft., 60/acre* **	20% (7:3)	10% (4:6)	4.8
Middle/Junior High	[63:25:12]	1.4/student, 12/1000 sq. ft. 50/acre**	30% (6:4)	9% (4:6)	5.0
Elementary	[57:25:10]	1.6/student, 14/1000 sq. ft., 90/acre* **	32% (6:4)	9% (4:6)	3.4
Day Care	[28:58:14]	5/child, 80/1000 sq. ft.**	17% (5:5)	18% (5:5)	3.7
FINANCIAL[S]	[35:42:23]				3.4
Bank (Walk-In only)		150/1000 sq. ft., 1000/acre* **	4% (7:3)	8% (4:6)	
with Drive-Through		200/1000 sq. ft., 1500/acre*	5% (6:4)	10% (5:5)	
Drive-Through only		250 (125 one-way)/lane*	3% (5:5)	13% (5:5)	
Savings & Loan		60/1000 sq. ft., 600/acre**	2%	9%	
Drive-Through only		100 (50 one-way)/lane**	4%	15%	
HOSPITAL	[73:25:2]				8.3
General		20/bed, 25/1000 sq. ft., 250/acre*	8% (7:3)	10% (4:6)	
Convalescent/Nursing		3/bed**	7% (6:4)	7% (4:6)	
INDUSTRIAL					
Industrial/Business Park (commercial included)	[79:19:2]	16/1000 sq. ft., 200/acre* **	12% (8:2)	12% (2:8)	9.0
Industrial Park (no commercial)		8/1000 sq. ft., 90/acre**	11% (9:1)	12% (2:8)	
Industrial Plant (multiple shifts)	[92:5:3]	10/1000 sq. ft., 120/acre*	14% (8:2)	15% (3:7)	11.7
Manufacturing/Assembly		4/1000 sq. ft., 50/acre**	19% (9:1)	20% (2:8)	
Warehousing		5/1000 sq. ft., 60/acre**	13% (7:3)	15% (4:6)	
Storage		2/1000 sq. ft., 0.2/vault, 30/acre*	6% (5:5)	9% (5:5)	
Science Research & Development		8/1000 sq. ft., 80/acre*	16% (9:1)	14% (1:9)	
Landfill & Recycling Center		6/acre	11% (5:5)	10% (4:6)	

(OVER)

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista and County of San Diego.
ADVISORY/LIAISON MEMBERS: California Department of Transportation, County Water Authority, U.S. Department of Defense, S.D. Unified Port District and Tijuana/Baja California.

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY][P]	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M.		Between 3:00-6:30 P.M.		TRIP LENGTH (Miles)[L]
LIBRARY	[44:44:12]	50/1000 sq. ft., 400/acre**	2%	(7:3)	10%	(5:5)	3.9
LODGING	[58:38:4]						7.6
Hotel (w/convention facilities/restaurant)		10/occupied room, 300/acre	6%	(6:4)	8%	(6:4)	
Motel		9/occupied room, 200/acre*	8%	(4:6)	9%	(6:4)	
Resort Hotel		8/occupied room, 100/acre*	5%	(6:4)	7%	(4:6)	
Business Hotel		7/occupied room**	8%	(4:6)	9%	(6:4)	
MILITARY	[82:16:2]	2.5/military & civilian personnel*	9%	(9:1)	10%	(2:8)	11.2
OFFICE							
Standard Commercial Office (less than 100,000 sq. ft.)	[77:19:4]	20/1000 sq. ft.,[O] 300/acre*	14%	(9:1)	13%	(2:8)	8.8
Large (High-Rise) Commercial Office (more than 100,000 sq. ft., 6+ stories)	[82:15:3]	17/1000 sq. ft.,[O] 600/acre*	13%	(9:1)	14%	(2:8)	10.0
Office Park (400,000+ sq. ft.)		12/1000 sq.ft., 200/acre* **	13%	(9:1)	13%	(2:8)	
Single Tenant Office		14/1000 sq. ft., 180/acre*	15%	(9:1)	15%	(2:8)	8.8
Corporate Headquarters		7/1000 sq. ft., 110/acre*	17%	(9:1)	16%	(1:9)	
Government (Civic Center)	[50:34:16]	30/1000 sq. ft.**	9%	(9:1)	12%	(3:7)	6.0
Post Office							
Central/Walk-In Only		90/1000 sq. ft.**	5%		7%		
Community (not including mail drop lane)		200/1000 sq. ft., 1300/acre*	6%	(6:4)	9%	(5:5)	
Community (w/mail drop lane)		300/1000 sq. ft., 2000/acre*	7%	(5:5)	10%	(5:5)	
Mail Drop Lane only		1500 (750 one-way)/lane*	7%	(5:5)	12%	(5:5)	
Department of Motor Vehicles		180/1000 sq. ft., 900/acre**	6%	(6:4)	10%	(4:6)	
Medical-Dental	[60:30:10]	50/1000 sq. ft., 500/acre*	6%	(8:2)	11%	(3:7)	6.4
PARKS	[66:28:6]		4%		8%		5.4
City (developed w/meeting rooms and sports facilities)		50/acre*	13%	(5:5)	9%	(5:5)	
Regional (developed)		20/acre*					
Neighborhood/County (undeveloped)		5/acre (add for specific sport uses), 6/picnic site* **					
State (average 1000 acres)		1/acre, 10/picnic site**					
Amusement (Theme)		80/acre, 130/acre (summer only)**			6%	(6:4)	
San Diego Zoo		115/acre*					
Sea World		80/acre*					
RECREATION							
Beach, Ocean or Bay	[52:39:9]	600/1000 ft. shoreline, 60/acre*					6.3
Beach, Lake (fresh water)		50/1000 ft. shoreline, 5/acre*					
Bowling Center		30/1000 sq. ft., 300/acre, 30/lane **	7%	(7:3)	11%	(4:6)	
Campground		4/campsite**	4%		8%		
Golf Course		7/acre, 40/hole, 700/course* **	7%	(8:2)	9%	(3:7)	
Driving Range only		70/acre, 14/tee box*	3%	(7:3)	9%	(5:5)	
Marinas		4/berth, 20/acre* **	3%	(3:7)	7%	(6:4)	
Multi-purpose (miniature golf, video arcade, batting cage, etc.)		90/acre	2%		6%		
Racquetball/Health Club		30/1000 sq. ft., 300/acre, 40/court*	4%	(6:4)	9%	(6:4)	
Tennis Courts		16/acre, 30/court**	5%		11%	(5:5)	
Sports Facilities							
Outdoor Stadium		50/acre, 0.2/seat*					
Indoor Arena		30/acre, 0.1/seat*					
Racetrack		40/acre, 0.6 seat*					
Theaters (multiplex w/matinee)	[66:17:17]	80/1000 sq. ft., 1.8/seat, 360/screen*	1/3%		8%	(6:4)	6.1
RESIDENTIAL	[86:11:3]						7.9
Estate, Urban or Rural (average 1-2 DU/acre)		12/dwelling unit *[R]	8%	(3:7)	10%	(7:3)	
Single Family Detached (average 3-6 DU/acre)		10/dwelling unit *[R]	8%	(3:7)	10%	(7:3)	
Condominium (or any multi-family 6-20 DU/acre)		8/dwelling unit *[R]	8%	(2:8)	10%	(7:3)	
Apartment (or any multi-family units more than 20 DU/acre)		6/dwelling unit *[R]	8%	(2:8)	9%	(7:3)	
Military Housing (off-base, multi-family)							
(less than 6 DU/acre)		8/dwelling unit	7%	(3:7)	9%	(6:4)	
(6-20 DU/acre)		6/dwelling unit	7%	(3:7)	9%	(6:4)	
Mobile Home							
Family		5/dwelling unit, 40/acre*	8%	(3:7)	11%	(6:4)	
Adults Only		3/dwelling unit, 20/acre*	9%	(3:7)	10%	(6:4)	
Retirement Community		4/dwelling unit**	5%	(4:6)	7%	(6:4)	
Congregate Care Facility		2.5/dwelling unit**	4%	(6:4)	8%	(5:5)	
RESTAURANT[S]	[51:37:12]						4.7
Quality		100/1000 sq. ft., 3/seat, 500/acre* **	1%	(6:4)	8%	(7:3)	
Sit-down, high turnover		160/1000 sq. ft., 6/seat, 1000/acre* **	8%	(5:5)	8%	(6:4)	
Fast Food (w/drive-through)		650/1000 sq. ft., 20/seat, 3000/acre* **	7%	(5:5)	7%	(5:5)	
Fast Food (without drive-through)		700/1000 sq. ft.**	5%	(6:4)	7%	(5:5)	
Delicatessen (7am-4pm)		150/1000 sq. ft., 11/seat*	9%	(6:4)	3%	(3:7)	
TRANSPORTATION							
Bus Depot		25/1000 sq. ft.**					
Truck Terminal		10/1000 sq. ft., 7/bay, 80/acre**	9%	(4:6)	8%	(5:5)	
Waterport/Marine Terminal		170/berth, 12/acre**					
Transit Station (Light Rail w/parking)		300/acre, $2^{1/2}$/parking space (4/occupied)**	14%	(7:3)	15%	(3:7)	
Park & Ride Lots		400/acre (600/paved acre), 5/parking space (8/occupied)* **	14%	(7:3)	15%	(3:7)	

* Primary source: *San Diego Traffic Generators.*

* Other sources: *ITE Trip Generation Report [6th Edition]*, Trip Generation Rates (other agencies and publications), various SANDAG & CALTRANS studies, reports and estimates.

[P] Trip category percentage ratios are daily from local household surveys, often cannot be applied to very specific land uses, and do not include non-resident drivers (draft SANDAG *Analysis of Trip Diversion*, revised November, 1990):
PRIMARY - one trip directly between origin and primary destination.
DIVERTED - linked trip (having one or more stops along the way to a primary destination) whose distance compared to direct distance ≥ 1 mile.
PASS-BY - undiverted or diverted < 1 mile.

[L] Trip lengths are average weighted for all trips to and from general land use site. (All trips system-wide average length = 6.9 miles)

[C] Fitted curve equation: Ln(T) = 0.502 Ln(x) + 6.945
[O] Fitted curve equation: Ln(T) = 0.756 Ln(x) + 3.950
} T = total trips, x = 1,000 sq. ft.

[R] Fitted curve equation: t = -2.169 Ln(d) + 12.85 t = trips/DU, d = density (DU/acre), DU = dwelling unit

[S] Suggested PASS-BY [undiverted or diverted < 1 mile] percentages for trip rate reductions only during P.M. peak period (based on combination of local data/review and Other sources**):

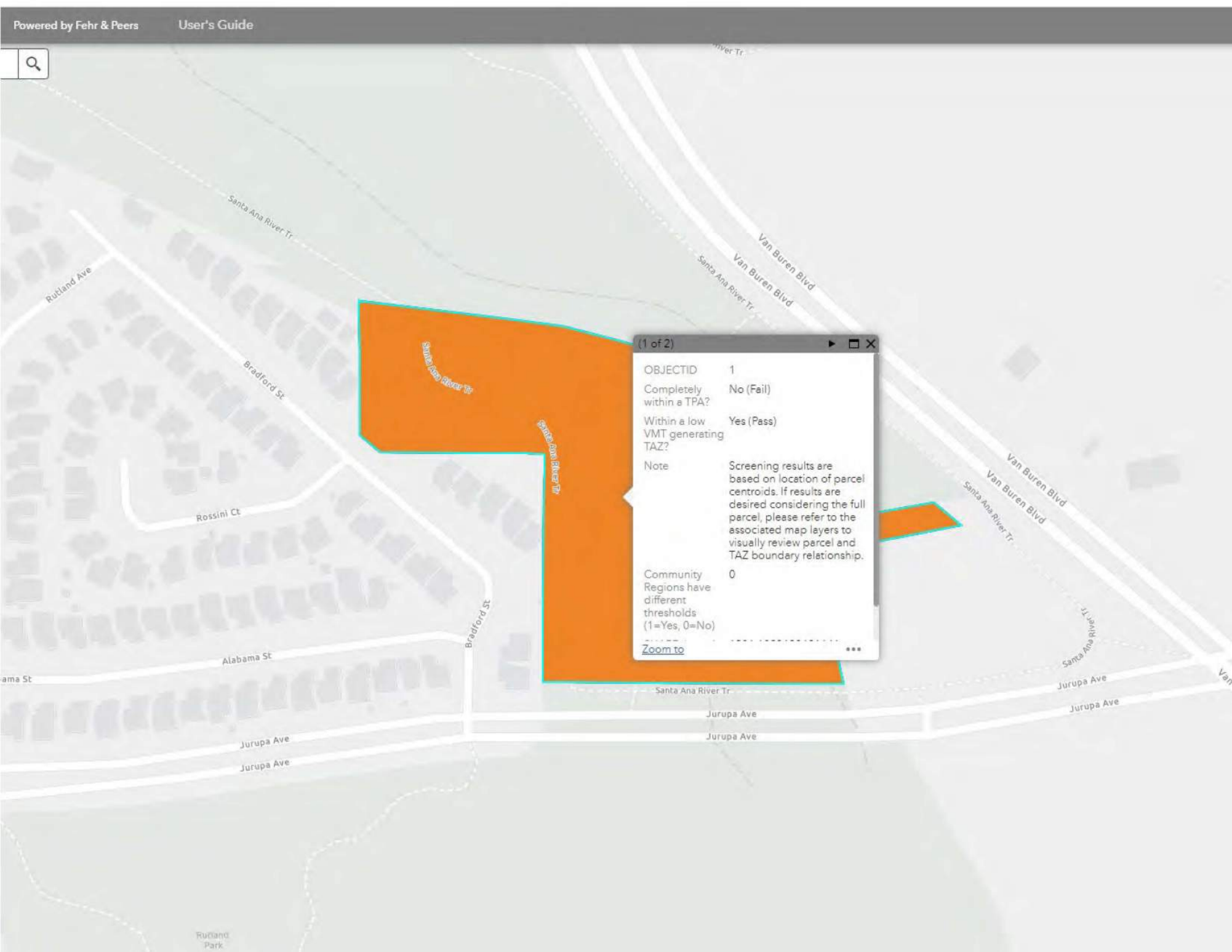
COMMERCIAL/RETAIL	
Regional Shopping Center	20%
Community " "	30%
Neighborhood " "	40%
Specialty Retail/Strip Commercial (other)	10%
Supermarket	40%
Convenience Market	50%
Discount Club/Store	30%
FINANCIAL	
Bank	25%
AUTOMOBILE	
Gasoline Station	50%
RESTAURANT	
Quality	10%
Sit-down high turnover	20%
Fast Food	40%

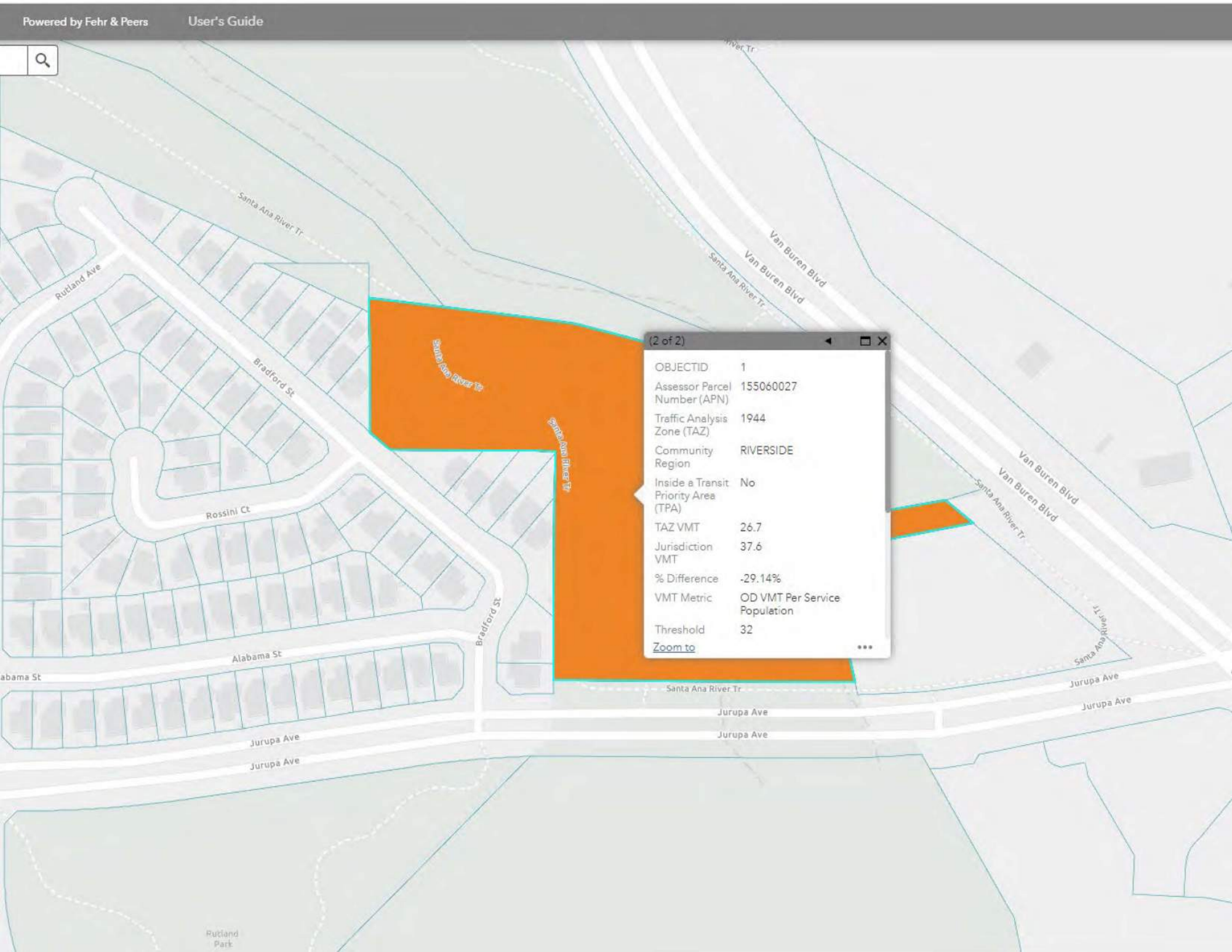
[T] Trip Reductions - In order to help promote regional "smart growth" policies, and acknowledge San Diego's expanding mass transit system, consider vehicle trip rate reductions (with proper documentation and necessary adjustments for peak periods). The following are some examples:

[1] A 5% daily trip reduction for land uses with transit access or near transit stations accessible within 1/4 mile.

[2] Up to 10% daily trip reduction for mixed-use developments where residential and commercial retail are combined (demonstrate mode split of walking trips to replace vehicular trips).

ATTACHMENT C


Powered by Fehr & Peers
User's Guide
Santa Ana River Tr
Rutland Ave
Bradford St
Rossini Ct
Van Buren Blvd
Alabama St
Jurupa Ave
Rutland Park
(1 of 2)
OBJECTID 1
Completely within a TPA? No (Fail)
Within a low VMT generating TAZ? Yes (Pass)
Note Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.
Community Regions have different thresholds (1=Yes, 0=No) 0
Zoom to


Powered by Fehr & Peers
User's Guide
Santa Ana River Tr
Rutland Ave
Bradford St
Rossini Ct
Alabama St
Jurupa Ave
Van Buren Blvd
(2 of 2)
OBJECTID 1
Assessor Parcel Number (APN) 155060027
Traffic Analysis Zone (TAZ) 1944
Community Region RIVERSIDE
Inside a Transit Priority Area (TPA) No
TAZ VMT 26.7
Jurisdiction VMT 37.6
% Difference -29.14%
VMT Metric OD VMT Per Service Population
Threshold 32
Zoom to
Rutland Park

ATTACHMENT D

Figure 3B-17 (CA). Examples of Crosswalk Enhancements at Uncontrolled Multilane Approaches

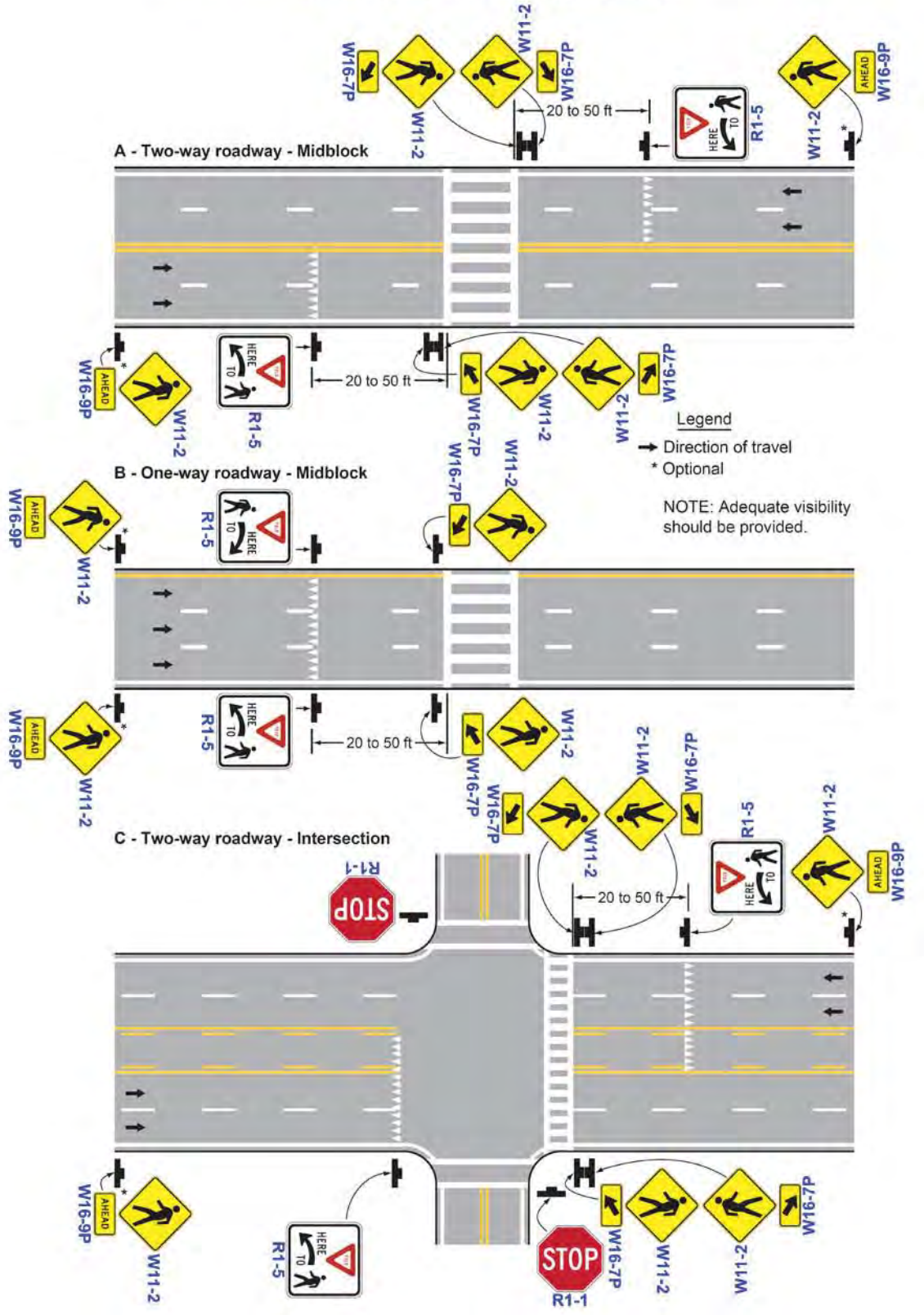


Figure 3B-19. Examples of Crosswalk Markings

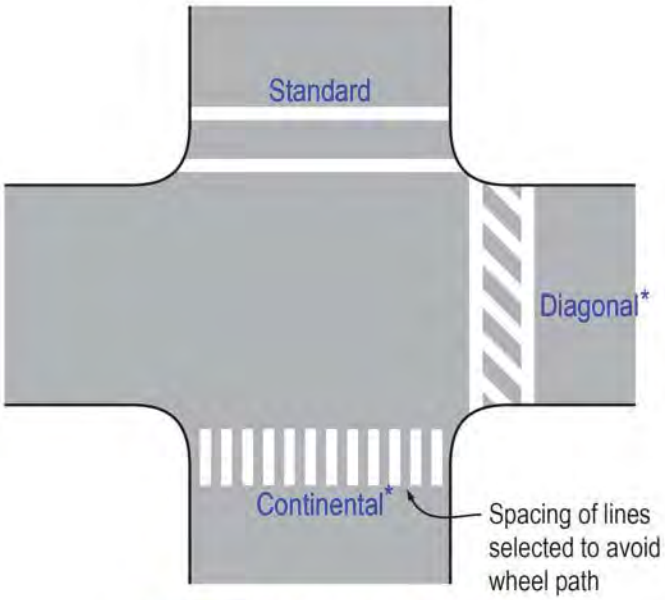


Figure 3B-19 (CA). Examples of Crosswalk Markings

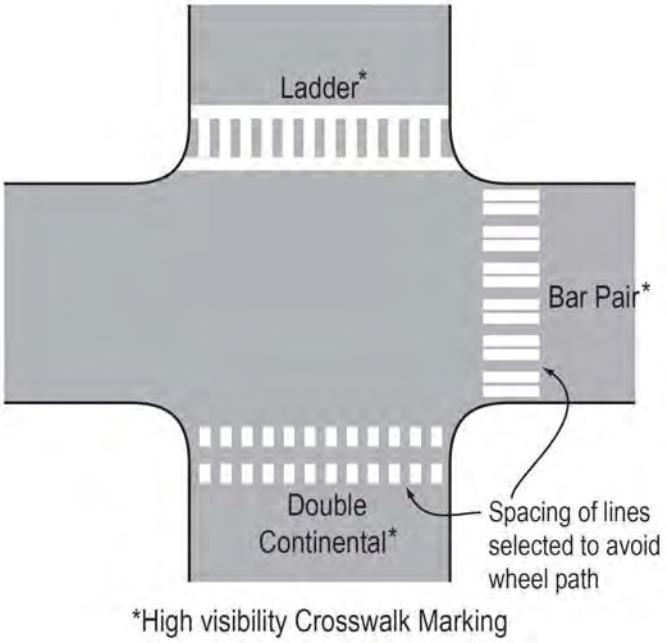


Figure 9B-2. Regulatory Signs and Plaques for Bicycle Facilities

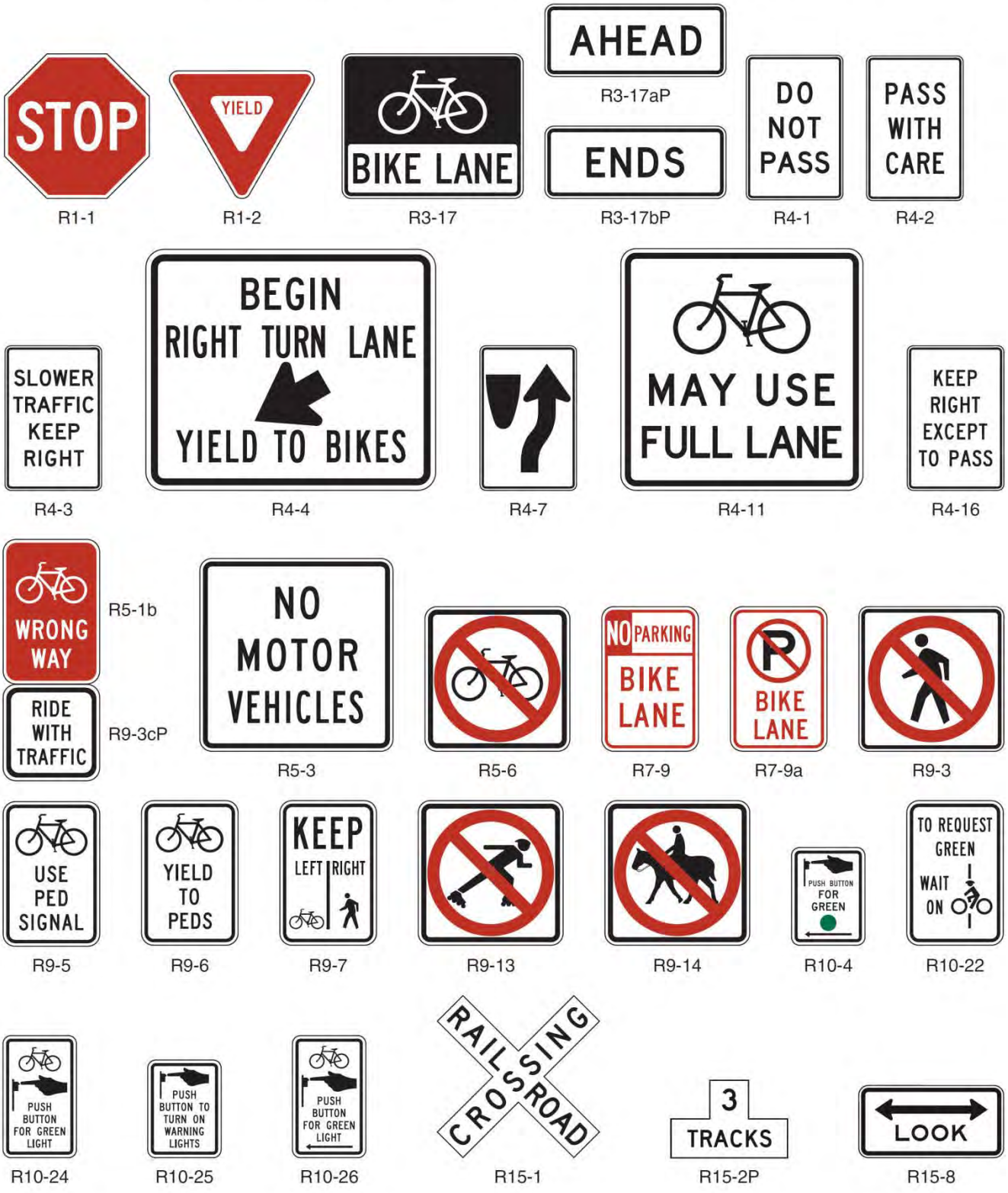
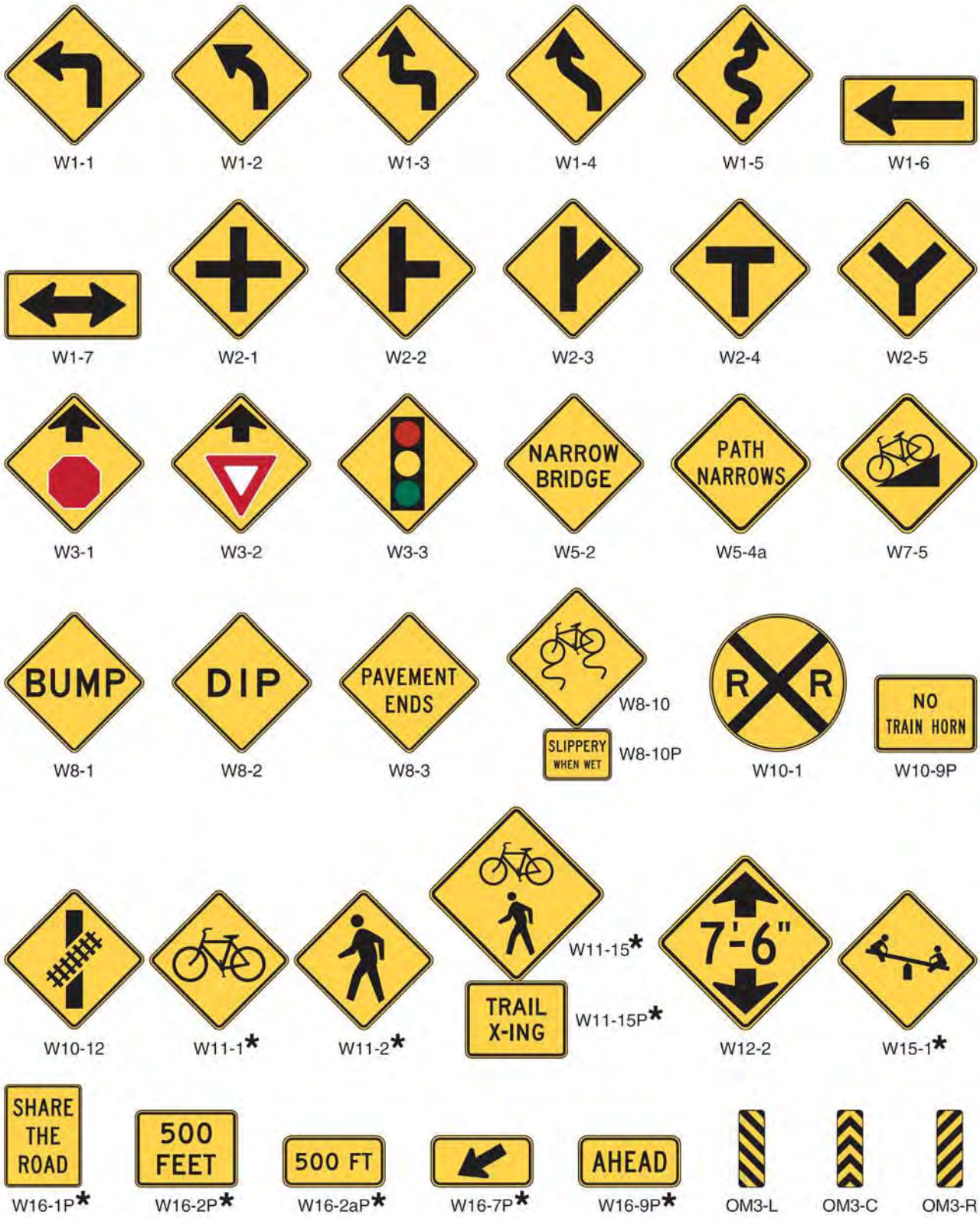


Figure 9B-3. Warning Signs and Plaques and Object Markers for Bicycle Facilities



* A fluorescent yellow-green background color may be used for this sign or plaque. The background color of the plaque should match the color of the warning sign that it supplements.

Figure 9B-7. Examples of Signing and Markings for a Shared-Use Path Crossing

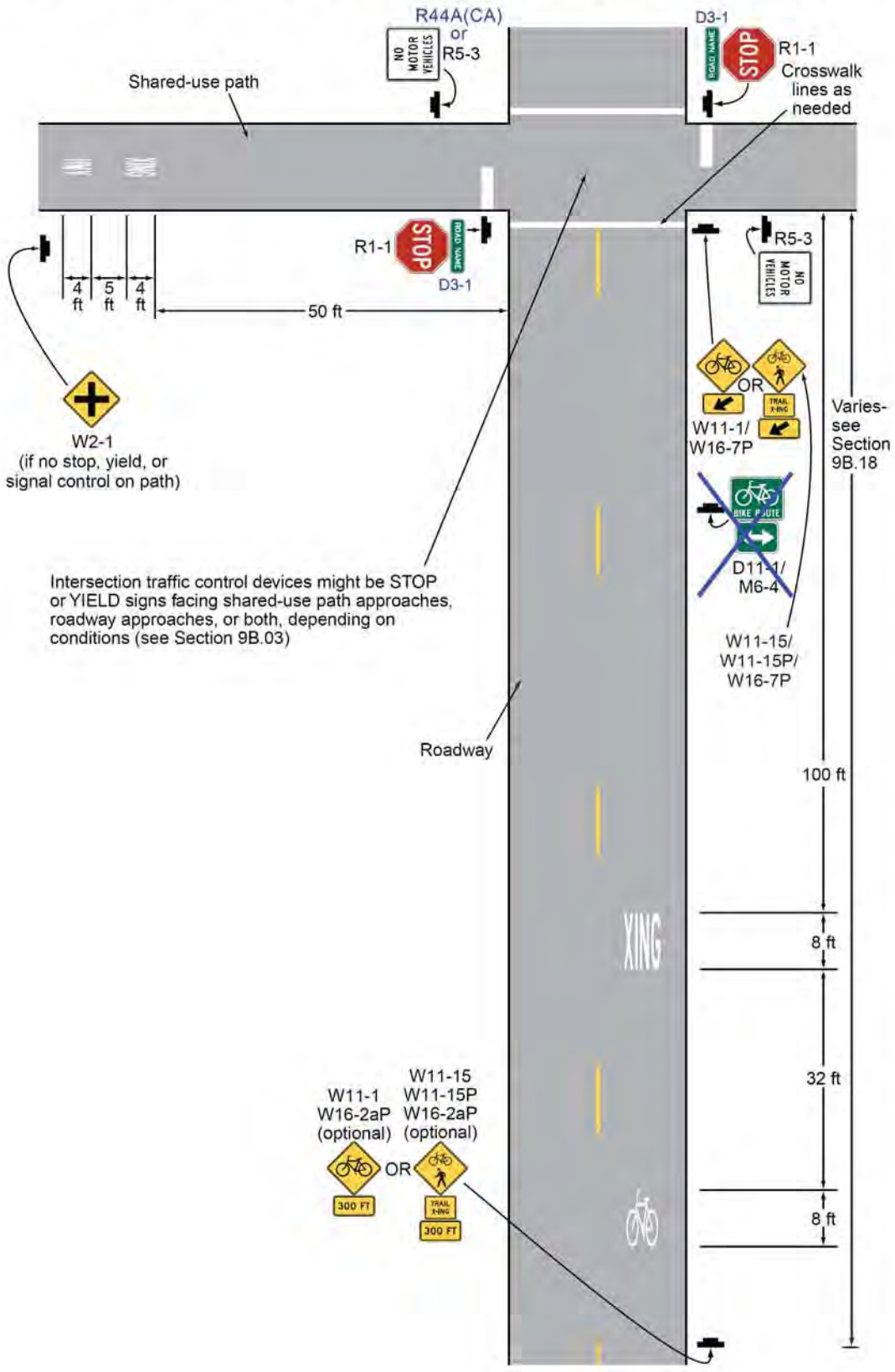


Figure 9B-8. Example of Mode-Specific Guide Signing on a Shared-Use Path

